



Pre-service Teacher Education Curriculum Quality Audit Partnership: Responding to Educational Reform in the Philippines

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ABSTRACT

This article presents the development, features, and implementation of Curriculum Quality Audit (CQA), a bespoke curriculum mapping process designed to support Philippine Teacher Education Institutions (TEIs) in aligning their pre-service teacher education programs with national, regional, and institutional requirements, and contextual priorities. Originating in the Outcomes-based Teacher Education Curriculum (OBTEC) initiative at the Philippine Normal University (PNU), CQA rollout occurred through successive TEI partnerships followed by the current national application by the Teacher Education Council (TEC) in collaboration with the Commission on Higher Education (CHED) Technical Panel for Teacher Education (TPTE). Grounded in international best practice, Philippine reforms such as the *Philippine Professional Standards for Teachers* (PPST) and policy directives, including the CHED Policy, Standards, and Guidelines (PSGs), CQA facilitates outcome-based, contextually responsive, and systematically audited program review and development. The article outlines the phases of implementation, processes, and tools—including inter-coder reliability training, audit matrices, differentiated coding schemas, and inclusion audits—as well as essential management features that support successful CQA uptake and conduct. Alignment with key quality assurance features formulated by CHED is also presented. CQA methodology exemplifies a rigorous and participatory approach to

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curriculum review and enhancement, contributing to sustainable quality assurance and fostering a culture of continuous improvement in teacher education programs.

Introduction

Philippine education has been transformed in the last decade by national reforms such as the introduction of the *Philippine Professional Standards for Teachers* (PPST), the K to 12 curriculum, and Republic Act 11713, known as the ‘Excellence in Teacher Education Act,’ as well as regional reforms such as the Bangsamoro Autonomy Act: Bangsamoro Education Code of 2021. Additionally, further transformations will follow the current reframing of teacher education through the Research Initiative for Teacher Education (RITE) project, which is being collaboratively undertaken by the Teacher Education Council (TEC) and the Commission on Higher Education (CHED) Technical Panel for Teacher Education (TPTE).

This article outlines a curriculum mapping process, known as ‘Curriculum Quality Audit’ (CQA), that was developed to support Teacher Education Institutions (TEIs) to respond to the recent reforms by ensuring that their pre-service teacher education programs are outcome-based, aligned with the PPST and CHED Policy Standards and Guidelines (PSGs), and contextually responsive. Additionally, the article presents the rollout and implementation of CQA across the country, as well as the processes, tools, and resources that were developed. The article also positions CQA in relation to international best practice in curriculum development and key quality assurance features formulated by CHED.

The purpose of this article is to provide descriptive and explanatory information to guide faculty in ongoing standards-based curriculum development in and beyond pre-service teacher education programs. CQA can be readily adapted for the review and development of graduate teacher education programs (Miña et al., 2021) and programs in other fields in the Philippines (Sajona, 2024) and internationally.

Background

The Outcome-based Pre-service Teacher Education Program: Curriculum Quality Audit project supported Teacher Education Institutions (TEIs) in the review and development of pre-service teacher education programs that were outcomes-based, aligned with both the CHED Policy, Standards and Guidelines (PSGs) and the *Philippine Professional Standards for Teachers* (PPST), and responsive to contextual demands of the locality and “the particularity and specificity prevalent in each institution” (Bacus & Tagalog, 2023, p. 119). The project had its origin in 2015 in the Outcomes-based Teacher Education Curriculum (OBTEC) project conducted at the Philippine Normal University (PNU). During the third year of OBTEC, PNU

convened an OBTEC Assessment Workshop that addressed the following questions.

1. How can PNU Outcomes-based Teacher Education Curriculum (OBTEC) be assessed using the *Philippine Professional Standards for Teachers*?
2. What tools are needed to assess the alignment between PNU OBTEC and the *Philippine Professional Standards for Teachers*?
3. What mechanisms should be put in place to ensure:
 - i. the success of the assessment process using the Standards; and
 - ii. the use of assessment results in the enhancement of the PNU OBTEC? (Ruscoe, n.d., Slide 11)

The PNU OBTEC Assessment Workshop initiated the development of a fully resourced, bespoke curriculum mapping process and a suite of workshops that collectively and progressively evolved into the Curriculum Quality Audit training program.

Purpose of CQA

Building on and going beyond the workshop supporting PNU's OBTEC project, the purpose of CQA was generalized, enabling it to be relevant to all Teacher Education Institutions (TEIs) in the Philippines. The generalized purpose was two-fold:

- i. to identify and develop processes, tools, and resources that are needed to ensure that pre-service teacher education programs are outcome-based, aligned with the PPST and CHED PSGs, and contextually responsive; and
- ii. to capacitate and support TEI faculty in the implementation of CQA in their respective institutions.

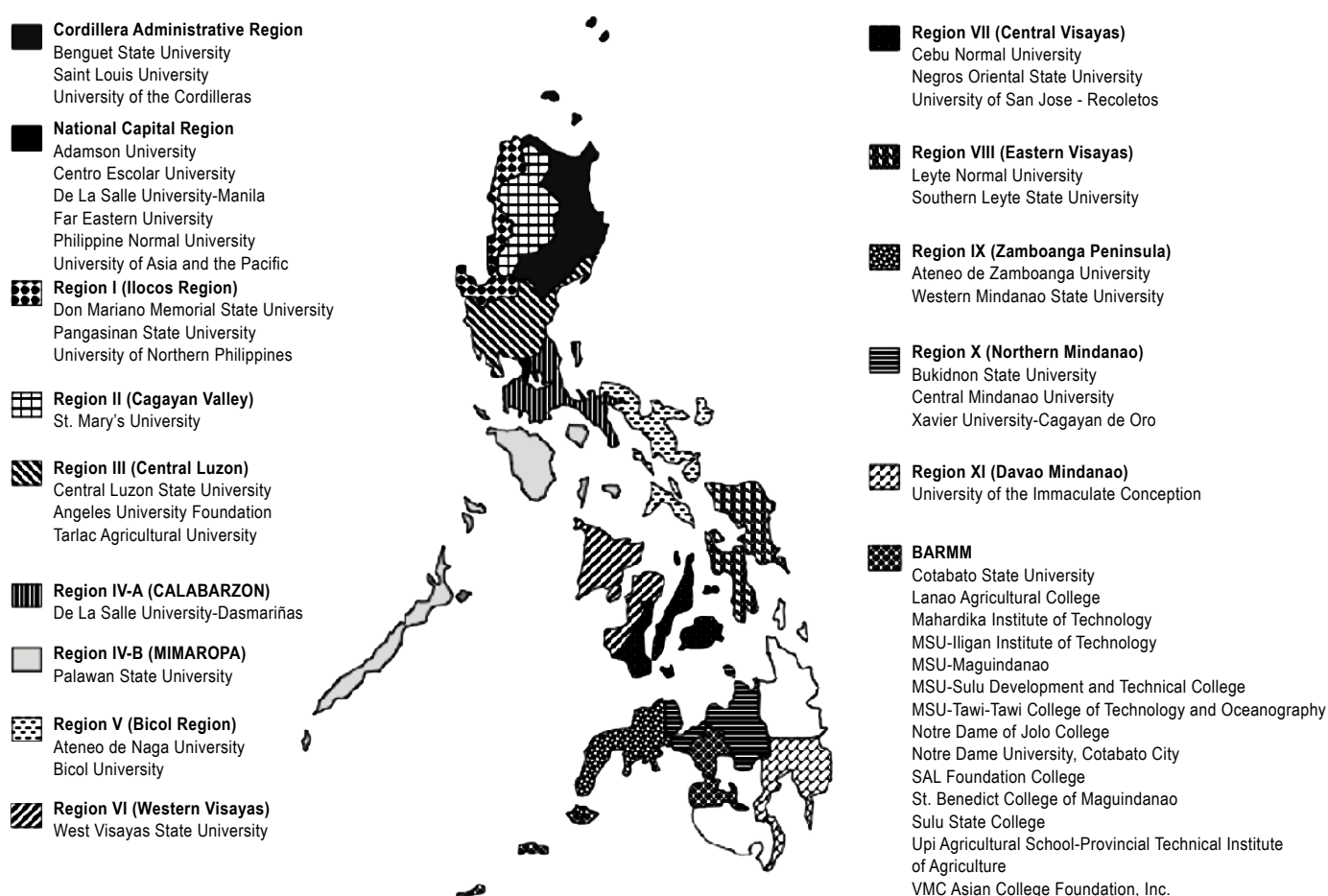
Implementation of CQA

The implementation of CQA was phased, and the rollout occurred through the CQA training program. Phase 1, initiated in the PNU OBTEC Assessment Workshop and a further workshop with selected faculty from PNU and the University of the Philippines (UP) in 2015, laid the foundation for the Pre-service Teacher Education Curriculum Quality Audit Partnership, which resulted in CQA training being conducted with members of the National Network of Normal Schools (3NS) in 2017 (Phase 2) and selected Centers of Excellence (CoEs) and Centers of Development (CoDs) in 2017–2018 (Phase 3). The CQA training program was then contextualized to meet the needs of the Bangsamoro Autonomous Region in Muslim Mindanao

(BARMM) through the Teacher Development in Higher Education: Technical Assistance for Ministry of Basic, Higher, and Technical Education (MBHTE) Teacher Development in Higher Education project, and was conducted with selected BARMM Teacher Education Institutions (TEIs) in 2022 (Phase 4). The first four phases of CQA with PNU, the 3NS, selected CoEs and CoDs, and selected TEIs in the BARMM, respectively, resulted in extensive regional coverage, as shown in Figure 1.

Figure 1

CQA Phases 1 to 4 - Participating TEIs and Regional Coverage



CQA training in Phases 2 and 3 involved the delivery of paired workshops. The first workshop in each pair was delivered in Manila to representatives from participating TEIs, and the second was delivered in-situ to roll out the training to faculty within each TEI and to facilitate the conduct of CQA to review and enhance the TEI's pre-service programs. CQA in Phase 4 involved delivering workshops in Davao, which, at the time of writing, had yet to be rolled out across the BARMM.

The CQA training program for Phases 2 to 4 was based on the cascade, or train-the-trainer, model, which is consistent with the approach for the professional development of higher education (HE) faculty mandated by the Commission on Higher Education (CHED) Memorandum Order (CMO) 08, s. 2017 and CMO 69, s. 2017. Widely used in the Philippines and internationally, cascade training involves training a ‘first generation’ (CMO 08, s. 2017) of trainers who then cascade the training either to successive ‘generations’ of trainers or the intended trainees. Scalability, reach, and cost-effectiveness are frequently cited as its main benefits. Notwithstanding the benefits, shortcomings of cascade training, such as dilution and/or reduction of content, propagation of inaccuracies in content in succeeding cascade levels, and waning quality control, are widely reported (Gauthier & Waqar, 2021; Harper et al., 2024; Leong & Rethinasamy, 2023; Ngeze, 2023).

CQA was designed and implemented to overcome the shortcomings of cascade training. Preliminary workshops were conducted with senior executives in prospective TEIs to familiarize them with the nature and demands of CQA and, potentially, secure their support for engagement of their TEI in the program. Additionally, there was only one cascade level, and first-generation trainers were supported in cascading CQA training within their respective institutions through team delivery with members of the Philippine National Research Center for Teacher Quality (RCTQ)¹. This promoted the fidelity of the rollout by enabling expert input to redress inaccuracies and/or dilution of content if necessary. The rollout was also supported by comprehensive resource packages tailored for trainers and trainees, and a support team at RCTQ responded to queries and requests for assistance throughout in-situ implementation of CQA.

In addition to the rollout of the CQA training program in TEIs and the concurrent implementation of CQA embedded in the training, CQA is now being utilized in the Research Initiative for Teacher Education (RITE) project, a collaborative effort undertaken by the TEC and the CHED-TPTE (CQA Phase 5). The RITE project comprises numerous studies on various aspects of teacher education, and CQA is being conducted in the ‘Development of Models of Pre-service Teacher Education Curricula and Programs’ study. Specifically, CQA is being used in the review and refinement of ‘Syllabus Guides’² that will have national impact on all undergraduate pre-service teacher education programs.

CQA Partnerships

Recruitment of partner institutions varied across the first four phases. Phase 1 involved PNU, which is a member of the 3NS, and 3NS involvement was expanded in Phase 2. The remaining 3NS members were invited to participate, and seven of the nine institutions accepted the

¹The Philippine National Research Center for Teacher Quality (RCTQ) has since become the Philippine National Research Institute for Teacher Quality (RITQ).

²‘Syllabus Guide’ is a working term and terminology may change.

invitation. Additionally, Central Luzon State University, a Center of Excellence in Teacher Education, also expressed interest in the project and participated in Phase 2.

The subsequent expansion of the training program rollout required the introduction of sampling. Purposive sampling (Etikan, 2016), a non-probability sampling technique, was used in Phases 3 and 4, respectively, based on the following criteria.

Phase 3: COEs and CODs

Prospective institutions in the training program rollout were identified using the following sampling criteria:

- a. COE/COD in teacher education status
- b. membership in ASTEN Philippines, also known as PhilTEN
- c. performance in the Licensure Examination for Teachers (LET) as provided in the Performance of State Universities and Colleges in the PRC Licensure Examinations: 2014-2016
- d. student population/ number of first-time LET passers as provided in the Performance of State Universities and Colleges in the PRC Licensure Examinations: 2014-2016

Phase 4: BARMM TEIs

Prospective institutions in the training program rollout were identified using the following sampling criteria:

- a. TEIs in respective BARMM provinces with the biggest population (based on the average number of Elementary/BEEEd LET takers in 2016-2021)
- b. TEIs with the highest average LET passing rates (BEEEd 2016-2021), with a substantial number of LET takers
- c. TEIs with Early Childhood/BECED program offering (with experts in preparatory and kindergarten instruction)

Purposive sampling based on considerations such as relevant knowledge and/or experience, was then used in the identification of potential faculty to participate in the CQA training. CQA involvement in Phases 2 to 4 was also formalized through Memoranda of Understanding at the institutional level.

Convenience and purposive sampling (Etikan, 2016; Golzar & Tajik, 2022) were both used in Phase 5. Convenience sampling, another non-probability sampling technique based on pragmatic considerations such as ease of access, was employed in the selection of TEIs due to time constraints. Additionally, purposive sampling, based on relevant knowledge and experience, was used in the recruitment of faculty for the development of syllabus guides.

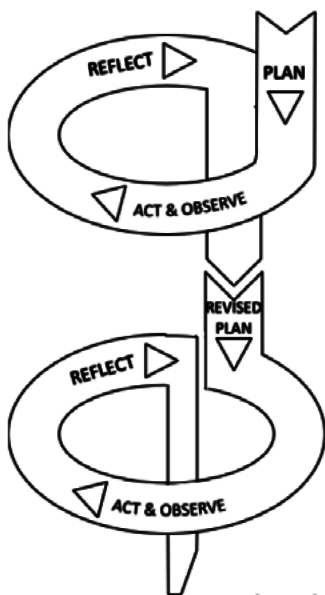
Curriculum Quality Audit - Overview

Based on international best practice, CQA is a form of curriculum mapping that Alugar and Itaas (2021, p. 1621) describe as “indispensable in this current era of standards-based reform and accountability.” It has been designed to develop and/or evaluate pre-service teacher education programs using a curriculum mapping process that is distinctive in its purpose, processes, tools, resources, and documentation. The purpose of CQA is to develop contextualized and localized pre-service teacher education programs that are outcome-based and aligned with CHED PSGs and the PPST. It, therefore, responds sensitively to key national and regional education initiatives in the Philippines.

CQA is an inclusive, capacity-building, goal-oriented, evidence-based process that aims to ensure that pre-service teacher education programs cover all the Beginning Teacher Indicators (BTIs) in the PPST. CQA commences with capacity building for faculty, who are required to map pre-service teacher education syllabi to the BTIs. When the mapping of all syllabi is complete, the coverage of the BTIs is compiled at the program level. Issues such as gaps, under-representation, and over-representation can then be identified and addressed. Responses to such issues of coverage necessitate adjustments to some syllabi to ensure that all BTIs are covered at the program level. The sum effects of such adjustments also need to be evaluated, resulting in an iterative process of curriculum enhancement that exemplifies the action research spiral (Figure 2).

Figure 2

The Action Research Spiral



Note. Adapted from Kemmis & McTaggart (2005, p. 564)

In the context of CQA, the planning phase of the first cycle involves capacity building for faculty, establishing timelines, and identifying resource needs, among other tasks. The ‘act and observe’ phase consists in collecting and compiling data on BTI coverage, as well as identifying coverage issues. Finally, the reflection phase consists in analyzing problems of coverage and formulating responses, the latter of which constitutes the revised plan for the second cycle.

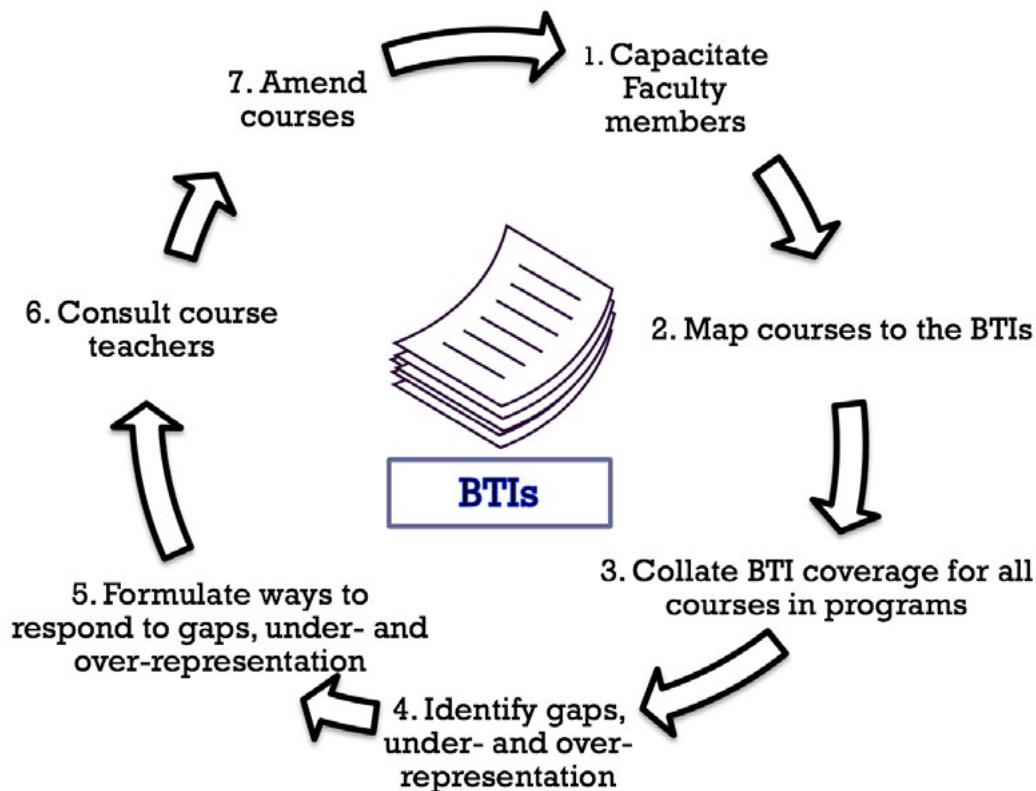
CQA Processes, Tools, and Resources

Processes

Figure 3 illustrates the adaptation and contextualization of an action research cycle for CQA, along with its constituent processes.

Figure 3

CQA Cycle

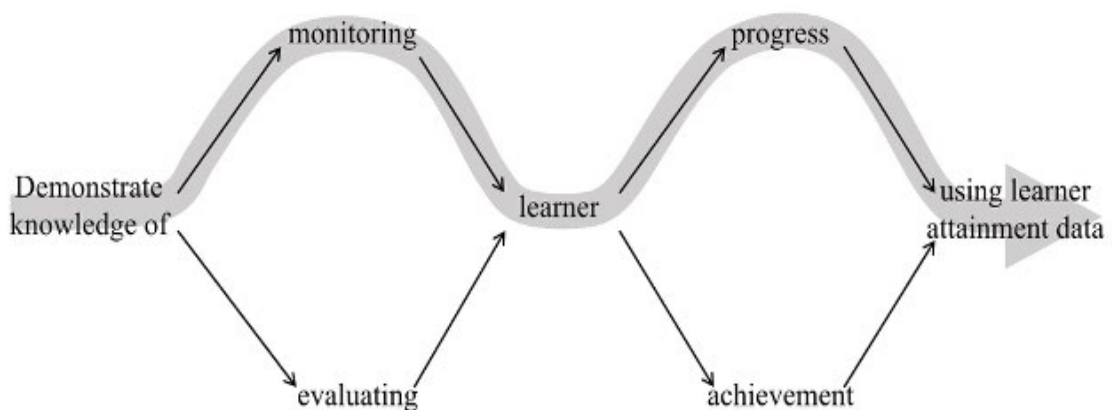


Research demonstrates that developing teacher quality through the improvement of pre-service teacher programs requires the professional development of teacher educators (Oakley, 2008; Research Center for Teacher Quality, 2017; Zeegers, 2012). Within the context of the current education reforms in the Philippines, CQA incorporates extensive professional development on the PPST, with a particular focus on the BTIs. This training (Figure 3, Step 1) enables teacher educators to develop a deep and sophisticated understanding of the BTIs, enabling them to accurately and reliably map their syllabi to them.

Recognizing and examining the complexities of the BTIs is integral to developing a deep and sophisticated understanding. The BTIs are concise statements, but many are multifaceted, articulating processes along with procedures, products, purposes, and/or other particularities, collectively referred to as the ‘5Ps’. BTI 5.2.1, for example, states that beginning teachers should “Demonstrate knowledge of monitoring and evaluation of learner progress and achievement using learner attainment data.” Multiple ideas are embedded in this BTI. The complexity is illustrated in Figure 4. The gray arrow indicates a pathway within BTI 5.2.1. In this instance, the partial pathway states that beginning teachers should ‘Demonstrate knowledge of monitoring learner progress using learner attainment data.’ Mapping syllabi to the BTIs may involve mapping partial pathways, as shown in Figure 4.

Figure 4

Unpacking BTI 5.2.1



Accurate and reliable mapping of complete or partial BTI coverage is essential to the credibility of the CQA process and its output. The CQA training program develops the accuracy and reliability of teacher educators' mapping through inter-coder agreement and inter-coder reliability training exercises, which are conducted early in the program. Inter-coder agreement "requires that two or more coders are able to reconcile through discussion whatever coding discrepancies they may have for the same text" (Campbell et al., 2013, p. 297). Inter-coder agreement exercises enable participants to clarify their understandings of the BTIs and to appreciate and reconcile discrepancies arising from individual dispositions, preconceptions, misunderstandings, etc.

Inter-coder reliability is "a measure of agreement among multiple coders for how they apply codes to text data" (Kurasaki, 2000, p. 179). In the context of CQA, inter-coder reliability refers to the measure of agreement among faculty members concerning the correspondence of course learning outcomes, content, assessment, etc., with the BTIs³. The combination of inter-coder agreement and inter-coder reliability training enables the establishment of shared understandings of the BTIs, the construction of decision logs (DeCuir-Gunby et al., 2011), and accurate and reliable mappings of syllabi to the BTIs.

Inter-coder reliability (ICR) can be calculated in two ways: percentage agreement and statistical measures. The percentage agreement approach tends to result in higher levels of ICR, which has drawn criticism from some measurement experts (Hruschka et al., 2004). This does not necessarily mean, however, that statistical measures are more appropriate for CQA. The formulae for statistical measures accommodate a range of assumptions, such as an equal likelihood of codes (BTIs) being applied and the possibility of code selection occurring by chance (Campbell et al., 2013). However, these assumptions do not apply to CQA: firstly, while all BTIs should be covered across a whole program, BTIs will not necessarily be covered equally; and secondly, given the rigorous training in CQA and the extensive prior experience of faculty members, agreement is unlikely to occur by chance. Therefore, percentage agreement is the most appropriate method for calculating ICR in CQA.

Reported cut-offs for acceptable levels of ICR vary; however, some ranges have been suggested for the percentage agreement approach. Miles and Huberman (cited in O'Connor & Joffe, 2020, p. 9) "suggest a standard of 80% agreement on 95% of the codes," and Graham, Milanowski, and Miller (2012, p. 9) contend that "75% to 90% demonstrate an acceptable level of agreement". Notably, neither of these ranges extends to 100%. ICR levels of 100% are likely to be viewed with suspicion, and even "experts are bound to disagree at times" (Graham et al., 2012, p. 10).

Data from mapping courses to BTIs should be stored and managed centrally. It is recommended that CQA data management responsibility be assigned to a new or existing data management position. The data manager has responsibility to record course BTI coverage

³See Appendix A for an explanation of the calculation of ICR.

data and compile audit matrices, which present BTI coverage at the program level or at sub-levels (Figure 3, Step 3).

The compilation of BTI coverage at the program level enables the identification of issues with BTI coverage (Figure 3, Step 4). Such issues of coverage include gaps, under-representation, and over-representation. Once identified, coverage issues need careful investigation and consideration. Gaps need to be addressed to ensure that programs cover all the BTIs. Issues of apparent under-representation and over-representation, however, should not be taken at face value. Further investigation is required to determine whether there is a sound rationale for apparent under-representation and over-representation. Such investigations are likely to include acknowledgment and consideration of the comprehensiveness, depth, and/or complexity of coverage, among other factors. Such investigation needs to be conducted in consultation with individual faculty members whose courses are associated with apparent issues of coverage.

Following the investigation of BTI coverage issues, senior personnel, such as Faculty Heads, formulate ways to respond (Figure 3, Step 5). Multiple responses may be possible. Senior personnel then need to consult affected staff (Figure 3, Step 6), who may be required to amend their syllabi to include, make explicit, or remove coverage of particular BTIs (Figure 3, Step 7) to optimize overall BTI coverage and accommodate other pedagogical considerations such as the sequencing of BTI coverage, particularly, although not exclusively, in relation to comprehensiveness, depth and/or complexity of coverage.

Revision of course syllabi is aimed toward improving BTI coverage at the course and program levels. Following revision, it is necessary to re-examine and revise BTI mappings at the course level (Figure 3, Cycle 2, Step 2), update the recorded BTI data, re-compile audit matrices at the program level, and re-examine overall BTI coverage. Multiple iterations of the CQA cycle are necessary to optimize complete BTI coverage.

Tools

CQA tools relate to data reliability, collection, compilation, analysis, and change.

Inter-Coder Reliability Calculator

The Inter-Coder Reliability (ICR) Calculator, which calculates inter-coder reliability scores for mapping sample syllabi to the BTIs, is one of several reliability tools. The ICR Calculator, as it is currently programmed, can be used to calculate the ICR score for up to 23 coders coding up to 15 items. It can also be re-programmed to accommodate more coders and/or more items if required. The ICR Calculator is used in the initial ICR training and can also be used later in the CQA process to monitor ICR levels over time.

Decision Log

The Decision Log (Figure 5) is another important reliability tool, providing a means to document coding disagreements and their agreed resolutions. When a new round of CQA begins, new faculty members may have old disagreements, and decision logs can guide them in making new or upholding existing resolutions. Similarly, considerable time may elapse between CQA rounds for experienced faculty members and the use of a decision log can support the stability of judgment over time.

Decision logs are based on the qualitative research practice of developing coding manuals (Hruschka et al., 2004; Saldaña, 2015) to promote inter-coder reliability. The development of a Decision Log can begin during the inter-coder agreement training and continue throughout the whole CQA process. The Decision Log is an important document in an audit trail.

Figure 5

Decision Log

Decision Log
Date:
Course/s involved:
Faculty involved:
Main Issue: <i>(Example: Should XXXX be mapped to 3.2.1 or 3.3.1?)</i>
Resolution: <i>(State the final decision)</i>
Explanation: <i>(State a brief justification)</i>
Noted by: <i>(Signed by faculty involved and an area leader/program head/VP)</i>

CQA Form

The CQA Form is the primary data collection instrument in CQA. Faculty extract key information from course syllabi, insert that information in the CQA Form, and map it to the BTIs. Figure 6 illustrates a partially completed CQA form in which selected aspects of a

Figure 6

CQA Form: Partially Completed

Course Code and Name														
Course Description This course introduces pre-service teachers to positive and non-violent discipline in the management of learner behavior...														
Course learning outcomes Upon completion of this course, students will be able to: A. demonstrate knowledge of positive and non-violent discipline in the management of learner behavior (2.6.1); B. demonstrate knowledge and understanding of existing laws and regulations concerning... (6.3.1) C.														
Beginning Teacher Indicators 2.6.1, 6.3.1 ...														
Course Structure and Content <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 15%;">Duration</th> <th style="width: 55%;">Content</th> <th style="width: 30%;">BTIs CLOs*</th> </tr> </thead> <tbody> <tr> <td>Week 1</td> <td>Behavior Theories: Students will explore ...</td> <td>2.6.1 A</td> </tr> <tr> <td>Week 2</td> <td>Individual Strategies for Positive Behavior Supports: ...</td> <td>2.6.1 A</td> </tr> <tr> <td>Week 3</td> <td>Legal and Policy Frameworks: ...</td> <td>6.3.1 B</td> </tr> </tbody> </table>			Duration	Content	BTIs CLOs*	Week 1	Behavior Theories: Students will explore ...	2.6.1 A	Week 2	Individual Strategies for Positive Behavior Supports: ...	2.6.1 A	Week 3	Legal and Policy Frameworks: ...	6.3.1 B
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* CLO: Course Learning Outcome														

course syllabus are mapped to the BTIs. CQA forms may be updated throughout the iterative CQA process. Typical revisions include incorporating the language of the BTIs to make links to BTIs explicit, re-coding links to BTIs, and inserting or removing content and associated links to particular BTIs.

CQIA Form

Additional data collection forms, such as the Curriculum Quality and Inclusion Audit (CQIA) Form, may be used to collect information on subsets of BTIs. The CQIA Form enables additional collection, collation, and analysis of the coverage of detailed aspects of learner diversity articulated in the five BTIs in Domain 3 of the PPST, viz:

- 3.1.1 Demonstrate knowledge and understanding of differentiated teaching to suit the learners' gender, needs, strengths, interests and experiences.
- 3.2.1 Implement teaching strategies that are responsive to the learners' linguistic, cultural, socio-economic and religious backgrounds.
- 3.3.1 Use strategies responsive to learners with disabilities, giftedness and talents.
- 3.4.1 Demonstrate understanding of the special educational needs of learners in difficult circumstances, including: geographic isolation; chronic illness; displacement due to armed conflict, urban resettlement or disasters; child abuse and child labor practices.
- 3.5.1 Demonstrate knowledge of teaching strategies that are inclusive of learners from indigenous groups.

The CQIA form may be embedded as an extra section in the CQA form (Figure 7), and inclusion coverage is completed only for courses that partially or fully address one or more BTIs in Domain 3.

Figure 7

Inclusion Audit

Beginning Teacher Indicator	Specific Aspects of Learner Diversity	Explicitly stated in the		
		Course Learning Outcomes (O)	Course Content (C)	Summative Assessment (A)
3.1.1 Demonstrate knowledge and understanding of differentiated teaching to suit the learner's:	gender			
	needs			
	strengths			
	interests			
	experiences			
3.2.1 Implement teaching strategies that are responsive to the learner's:	linguistic background			
	cultural background			
	socio-economic background			
	religious background			

3.3.1 Use strategies responsive to learners with:	disabilities			
	giftedness			
	talents			
3.4.1 Demonstrate understanding of the special educational needs of learners in difficult circumstances, including:	geographic isolation			
	chronic illness			
	displacement due to armed conflict, urban resettlement, or disasters			
	child abuse			
	child labor practices			
3.5.1 Demonstrate knowledge of teaching strategies that are inclusive of learners from:	indigenous groups.			

Accurate and credible inclusion audits require explicit aspects of diversity to be articulated in syllabi. General statements concerning inclusion are insufficient.

Data Storage

Data storage of BTI coverage at the course level is tabulated. A single spreadsheet with a worksheet that contains coverage of all BTIs in all courses and, if applicable, worksheets for specialized audits of subsets of BTIs, such as an inclusion audit, is ideal. Coverage of the BTIs can then be extracted and compiled at the program and/or sub-program levels from the information stored in the BTI Data Storage Spreadsheet. Database software is recommended to avoid redundant work and reduce human error when conducting CQA across multiple programs.

Analyzing and Responding to BTI Coverage

Information regarding the coverage of BTIs in individual courses is aggregated to show collective coverage of BTIs across courses. Such aggregated information is displayed in a table known as an Audit Matrix. Audit matrices can show collective BTI coverage in different groupings. For example, audit matrices can be generated for entire programs, general education courses, professional education courses, and/or specialization courses, year levels, or specialized audits, such as an inclusion audit.

Different codes can be used in constructing audit matrices. The simplest coding indicates whether BTIs are or are not covered in courses. This dichotomous coding is used to construct Basic Audit Matrices. More complex coding schemas are used to construct Differentiated Audit Matrices. Both types of audit matrices are constructed from information recorded in CQA Forms and/or other specialized data collection forms, e.g., the CQIA Form.

Basic Audit Matrices

Basic audit matrices provide a visual overview of the coverage of BTIs in courses. Figure 8 illustrates a basic audit matrix for coverage of all BTIs across all courses in a program, and Figure 9 illustrates a basic inclusion audit matrix.

Figure 8

Basic Audit Matrix

Course Title	Beginning Teacher Indicators (BTIs)					
	1.1.1	1.2.1	1.3.1	7.4.1	7.5.1	TOTAL
Course A	X	X			X	4
Course B		X	X			32
Course C						0
Course Z		X				1
TOTAL	8	12	2	0	25	

Key: X – BTI covered⁴, blank cell – BTI not covered, thicker lines – rows and columns have been omitted for illustrative clarity.

Figure 9

Basic Inclusion Audit Matrix

	3.1.1 Demonstrate knowledge and understanding of differentiated teaching to suit the learners’					3.2.1 Implement teaching strategies that are responsive to the learners’				3.3.1 Use strategies responsive to learners with			3.4.1 Demonstrate understanding of the special educational needs of learners in difficult circumstances, including					3.5.1 Demonstrate knowledge of teaching strategies that are inclusive of	
Course	gender	needs	strengths	interests	experiences	linguistic background	cultural background	socio-economic background	religious background	disabilities	giftedness	talents	geographic isolation	chronic illness	displacement due to armed conflict, urban resettlement or disasters	child abuse	child labor practices	learners from indigenous groups	TOTAL
Course 1	X					X	X	X	X										5
Course 2	X	X	X	X	X		X												6
Course 3										X	X	X							3
Course 4														X		X			2
Course 5	X	X	X	X	X										X	X	X	X	9
TOTALS	3	2	2	2	2	1	2	1	1	1	1	1	0	1	1	2	1	1	

Key: 'X' signifies that the aspect of learner diversity is covered⁴, and a blank cell signifies that the aspect of learner diversity is not covered.

⁴Coverage may be complete or partial.

The dichotomous coding used in basic audit matrices enables ready identification of issues concerning BTI coverage at both course, sub-program, and program levels. The totals in the vertical column at the right of the basic audit matrix shown in Figure 8 indicate the reported coverage of BTIs in each course. Similarly, the totals in the vertical column at the right of the basic inclusion audit matrix shown in Figure 9 indicate the reported coverage of various aspects of learner diversity in each course.

Considering BTI coverage at the program level, as shown in Figure 8, Course B reportedly covers 32 BTIs. The likelihood that an individual course covers 32 BTIs is questionable, and this finding would prompt consideration of whether the person(s) responsible for completing the CQA Form for Course B understood the process. If not, clarification should be provided, and the CQA Form should be corrected accordingly. If so, the finding that a course covers 32 BTIs is cause for further investigation. Coverage of a large number of BTIs would be expected in capstone and practicum courses. In other courses, however, such coverage would be excessive, leading to superficial treatment. Course amendments to focus such courses would be recommended.

Figure 8 also shows that Course C does not reportedly cover any BTIs. This finding should also prompt consideration of whether the person(s) responsible for completing the CQA Form for Course C understood the process. Again, clarification should be provided, and the CQA Form should be corrected if the person(s) responsible for completing the CQA Form for Course C did not fully understand the process. If the course does not cover any BTIs, however, its continued inclusion in the program could be called into question.

Other courses that indicate coverage of a low number of BTIs in Figure 8, such as Courses A and Z, are not necessarily cause for concern. Coverage of a low number of BTIs likely indicates that courses are focused and that such courses cover the nominated BTIs comprehensively and/or that they cover particular aspects of the BTIs in depth. It is perfectly acceptable for a course to cover only one BTI.

Totals in the horizontal row at the bottom of the basic audit matrix shown in Figure 8 indicate the number of courses that were reported to cover particular BTIs. Twenty-five courses are reported to cover BTI 7.5.1. This finding enables an evidence-based discussion concerning the seemingly excessive focus on BTI 7.5.1 in the program. Figure 8 also shows that no courses in the program cover BTI 7.4.1. This finding highlights the need to incorporate coverage of this BTI into the program.

Similar analyses can be conducted at the sub-program level. For inclusion audits, it would be expected that all aspects of learner diversity would be collectively covered by courses that address BTIs in Domain 3. However, other sub-program analyses, e.g., year-level analyses, would not have expectations concerning complete coverage of the BTIs or selected aspects.

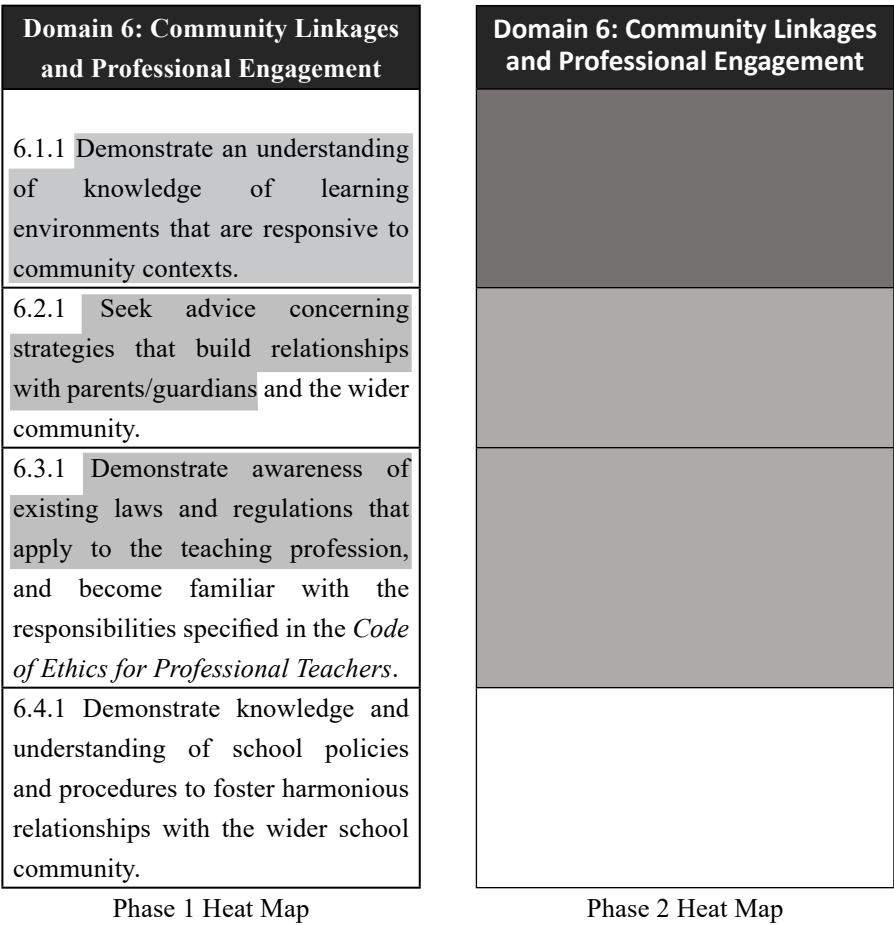
Heat Maps

As noted previously, basic audit matrices indicate coverage of BTIs in each course within a program, sub-program, or specialized audit, but they do not indicate whether such coverage is complete or partial. Figure 4 illustrated how a BTI can be ‘unpacked’, and it is possible that courses may cover partial pathways within BTIs. Coverage of partial pathways is not deficit; it is to be expected given the developmental nature of learning. Courses that are scheduled early in a program may focus on partial pathways, and courses that are scheduled later in a program may address BTIs more fully.

Heat maps can be used to indicate the extent to which BTIs are covered in specific courses and across an entire program. Coverage of BTIs is highlighted for each course and aggregated to show coverage at the program level. Figure 10 illustrates hypothetical coverage of Domain 6. Only one domain is illustrated for clarity. In practice, however, heat maps are

Figure 10

Domain 6 - Phase 1 and Phase 2 Heat Maps



constructed for all domains simultaneously. Gray shading in the phase 1 heat map highlights aspects of the BTIs that are covered. Phase 1 heat maps are used for operational purposes because they clearly show which aspects are and are not covered. Phase 2 heat maps are a simplification of the phase 1 heat maps. Different shades of gray are used to signify the extent of coverage in phase 2 heat maps: dark gray indicates complete coverage, light gray indicates partial coverage, and white signifies no coverage. A phase 2 heat map may be constructed for reporting purposes. In contrast, a phase 1 heat map is used when consulting faculty about possible syllabus amendments to ensure complete coverage of all BTIs.

Differentiated Audit Matrices

Differentiated audit matrices utilize a range of codes that offer multiple insights into how BTIs are addressed in and across courses. Figure 11 illustrates a differentiated audit that enables the examination of constructive alignment (Biggs, 1996; Biggs & Tang, 2011), i.e., the alignment of outcomes (O), content (C), and assessment (A), within courses.

Figure 11

Differentiated Audit Matrix: Constructive Alignment

Course Title	Beginning Teacher Indicators (BTIs)					
	1.1.1	1.2.1	1.3.1	1.4.1	7.4.1	7.5.1
Course A	CA		OA		C	OCA
Course B		A		OC		
Course C	A	O	CA			
Course Z	CA	OA	OCA	OC	C	OCA

Key: O – BTI covered in Course Learning Outcome(s), C – BTI covered in Course Content, A – BTI covered in Course Assessment, blank cell – BTI not covered, thicker lines – rows and columns have been omitted for illustrative clarity.

Figure 11 shows that learning outcomes, content, and assessment are constructively aligned for BTI 7.5.1 in Course A and for BTIs 1.3.1 and 7.5.1 in Course Z. However, the lack of constructive alignment for other BTIs reveals issues with curriculum design at the course level. In Course C, for example, BTI 1.1.1 is assessed but not included in the learning outcomes or content, BTI 1.2.1 is included in the learning outcomes but not included in the content or assessed, and BTI 1.3.1 is covered in the content and assessed but not included in the learning outcomes. Numerous other issues concerning a lack of constructive alignment can be identified in Figure 11.

Similarly, Figure 12 shows instances of constructive alignment and non-alignment for aspects of learner diversity. Courses 3 and 5 indicate constructive alignment (OCA) for all aspects of learner diversity covered, whereas Course 2 shows some constructive alignment, and Courses 1 and 4 show none.

Figure 12

Differentiated Inclusion Audit Matrix: Constructive Alignment

Course	3.1.1 Demonstrate knowledge and understanding of differentiated teaching to suit the learners'					3.2.1 Implement teaching strategies that are responsive to the learners'				3.3.1 Use strategies responsive to learners with			3.4.1 Demonstrate understanding of the special educational needs of learners in difficult circumstances, including					3.5.1 Demonstrate knowledge of teaching strategies that are inclusive of
	gender	needs	strengths	interests	experiences	linguistic background	cultural background	socio-economic background	religious background	disabilities	giftedness	talents	geographic isolation	chronic illness or disasters	displacement due to armed conflict, urban resettlement	child abuse	child labor practices	learners from indigenous groups
Course 1	O					O	O	O	O									
Course 2	OCA	OCA	OCA	OCA	OCA		A											
Course 3										OCA	OCA	OCA						
Course 4														CA		CA		
Course 5	OCA	OCA	OCA	OCA	OCA										OCA	OCA	OCA	OCA

Key: O – Aspect of learner diversity covered in Course Learning Outcome(s), C - Aspect of learner diversity covered in Course Content, A - Aspect of learner diversity covered in Course Assessment, blank cell – Aspect of learner diversity not covered.

The use of other coding schemas enables different insights into BTI coverage within and across courses. Depth of coverage can be examined using the codes specified in the *Handbook on Typology, Outcomes-based Education, and Institutional Sustainability Assessment* (Commission on Higher Education, 2014) and subsequent PSGs: I – Introduced concepts/principles; P – Practiced with supervision; and D – Demonstrated across different clinical settings with minimal supervision. For descriptions of alternative developmental scales, see Appendix 5.1 in DiPietro et al. (2022). Differentiated audit matrices showing depth of coverage enable developmentally appropriate sequencing of courses within programs to be optimized.

Coding schema can also be based on Bloom's Revised Taxonomy (Krathwohl, 2002) and the SOLO Taxonomy (Biggs, 1979; Pegg & Tall, 2005). Differentiated audit

matrices based on such taxonomies show the nature of the cognitive processes involved in the engagement with the BTIs in various courses, which also enables the developmentally appropriate placement of courses within programs to be optimized. Other coding schemas can be based on assessment types, graduate attributes or capabilities, mission or vision statements, etc.

Note that total rows and total columns are not applicable in differentiated audit matrices.

Curriculum Quality Enhancement Plan (CQEP) Record

Following the compilation and analysis of audit matrices, responses to issues such as BTI coverage and constructive alignment are recorded in a Curriculum Quality Enhancement Plan (CQEP) (Figure 13). The CQEP is an important accountability and audit trail document. Using a single spreadsheet to record key CQEP information for every pre-service teacher education course in a TEI, and database software if CQA is being conducted across multiple programs, enables CQEPs to be automatically generated quickly and efficiently for different programs, sub-programs, and specialized audits.

Figure 13

Curriculum Quality Enhancement Plan (CQEP)

Curriculum Quality Enhancement Plan					
Course	Findings	Action Plan			
		Task/s	Person/s	Date Due	Date Completed

CQA Documentation

CQA documentation is distinctive. At a minimum, it contains a program-level basic audit matrix (assertions), CQA forms (evidence), and any TEI-specific requirements (context). Quality documentation is well-structured, informative, and reliable, and uses contextualized language of the BTIs.

CQA documentation should be compiled after several CQA cycles have been completed. It should have been determined that, at minimum, all issues concerning BTI coverage and constructive alignment have been resolved and that all BTIs are adequately addressed at the program level. Documentation should not be compiled if gaps in BTI coverage or issues of under-representation and/or over-representation and/or lack of constructive alignment persist.

Mock Evaluation

CQA training culminates in a Mock Evaluation of a partial CQA document prepared by a TEI from CQA Phase 2. The Mock Evaluation exemplifies an audit as defined by Giove and the American Accounting Association:

The process of examining the assertions or representations of another party and providing assurance on the fairness and reliability of the information within given standards. (Giove, 2002, p. 1)

A systematic process of objectively obtaining and evaluating evidence regarding assertions ... to ascertain the degree of correspondence between those assertions and established criteria and communicating the results to interested users. (American Accounting Association, 1973, p. 2)

The Mock Evaluation embodies the key elements of these audit definitions. It involves systematically and meticulously assessing the degree of correspondence of course learning outcomes, content, and assessment to the BTIs. The assessment of the claimed correspondence (assertions) provides assurance on the fairness and reliability of the information within given standards, i.e., the PPST. The mock evaluation also includes the communication of results through the preparation of a detailed, constructive, evidence-based report.

CQA as best practice in curriculum development

CQA exemplifies best practice in curriculum development. Based on audit methodology as characterized by the American Accounting Association (1973) and Giove (2002), CQA is:

- systematic;
- standards-based;

- objective;
- rigorous;
- reliable;
- fair;
- evidence-based; and
- documented.

These features are crucial for quality assurance and underpin the credibility of the process and the courses and programs that are (re)developed.

The rigorous, systematic, standards-based approach aligns with international best practice in curriculum development. According to Arafeh:

Best practice in curriculum development and implementation requires that both curricular and programme scopes and sequences embody discipline-based standards or requirements. Ensuring these are present and aligned in course and programme content, activities and assessments to support student success requires formalised and systematised curriculum review and development processes. (2016, pp. 585-586)

Similar approaches utilizing curriculum mapping have been used in a range of disciplines internationally, e.g., medicine (Cottrell et al., 2022; Reidy et al., 2024), nursing (Abiri et al., 2024; Cross et al., 2024), and social sciences (Henson, 2023; Okojie et al., 2022), for a variety of reasons, such as improving student learning experience, enhancing the curriculum, program accreditation, comparing equivalent programs at different institutions, and strengthening coverage of particular aspects of professional knowledge and/or skills.

The reliability of the process can be attributed to the robust and well-defined methodology, the inclusion of inter-coder reliability training, and the use of Decision Logs to promote reliability among coders across time.

The best-practice features of CQA are consistent with the “quality cycle of planning, implementation, review and enhancement” (CMO 46, s. 2012, Article II, Section 8, p. 3). The iterative mapping and alignment process exemplify the three perspectives of quality outlined in CMO 46, s. 2012, i.e., the process exemplifies:

- Quality as ‘fitness for purpose’: The goal-oriented approach is directed towards the achievement of a specified purpose, namely the coverage of all BTIs in pre-service teacher programs.
- Quality as ‘exceptional’: The iterative mapping process is exceptional; it involves meticulous, rigorous, and reliable quality assurance cycles that ensure the highest quality for the resultant curriculum and avails the opportunity for a diverse range of research outputs, as evidenced by Bacus and Tagalog (2023), Baliber and Santos Jr. (2022),

Alugar and Itaas (2021) and Miña et al. (2021).

- Quality as ‘developing a culture of quality’: The collaborative nature of CQA capacitates TEI/HEI staff and others involved in the development of pre-service teacher education programs. Participants work together as Communities of Practice (Hill & Haigh, 2012; Wegner, 2011), which accords with the “goal of helping the HEI develop a culture of quality” (CMO 46, s. 2012, Article II, Section 10, p. 4).

CQA also exemplifies the efficiency and effectiveness aspects of CHED’s quality assurance model. The best practice features of CQA are efficient and effective where:

- Efficiency refers to getting the most output or results from the input of resources or having the least wastage of resources.
- Effectiveness generally refers to achieving the organization’s goals, or at least contributing towards achieving these goals. (Commission on Higher Education, 2014, p. 56)

Essential features for managing CQA at the institutional level

Essential features for managing CQA at the institutional level include:

- Executive support
- Funding
- Collaborative and participatory faculty involvement
- Transparency
- Capacity building
- Practicable timeline

The essential features attend to dimensions that are necessary for successful change processes. Executive support and funding, which go together, are imperative, as reported by Neville-Norton & Cantwell in a similar curriculum mapping project:

It is important to note that financial as well as attitudinal buy-in is critical for such a labor and time intensive process. At our program, budgetary resources were allocated to reassignment of teaching load, overload pay, and internal and external continuing education. This visible support by our administration also promoted buy-in. (Neville-Norton & Cantwell, 2019, p. 93)

Collaborative and participatory aspects of CQA are likewise essential “to ensure multi-perspectival input and buy-in” (Arafeh, 2016, p. 588). Transparency is essential for building trust in both the process and the personnel leading it. Capacity building of individuals and groups, both laterally and vertically (Fullan, 2006), is necessary given the recent introduction of outcome-based education and the PPST in the Philippines, as well as the distinctive processes, tools, and resources used in CQA. The importance of building faculty capacity to implement educational reform successfully in the Philippines has been

identified by Oakley (2008), Zeegers (2012), Seva (2015), and Chua et al. (2015). Finally, time is necessary to develop trust, build capacity, and undertake the meticulous and iterative CQA process. Therefore, CQA should not be rushed.

Conclusion

Curriculum Quality Audit (CQA) has emerged as a robust, contextually sensitive, and standards-based approach to reviewing, developing, and enhancing pre-service teacher education programs in the Philippines. Rooted in collaborative partnerships and aligned with international best practice, national and regional reforms, and contextual priorities, CQA has demonstrated rigor through its capacity-building strategies, iterative processes, and comprehensive audit tools. By ensuring systematic alignment with the *Philippine Professional Standards for Teachers* (PPST) and CHED's Policy Standards and Guidelines (PSGs), CQA not only supports compliance but also empowers faculty through professional development and participation in communities of practice. The CQA Training Program design explicitly addresses the limitations of the cascade training model and promotes fidelity through comprehensive resource packages and expertly supported rollout mechanisms. As its implementation continues through the Development of Models of Pre-service Teacher Education Curricula and Programs component of the Research Initiative for Teacher Education (RITE), CQA holds significant promise for institutionalizing quality assurance in teacher education and potentially across other fields in higher education in the Philippines and beyond.



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Appendix A: Calculating ICR for More Than Two Faculty Members

Table 1 shows hypothetical mappings of a learning outcome to the BTIs by four faculty.

Table 1

BTI mappings of four faculty members

Learning Outcome	BTI			
	Faculty Member 1	Faculty Member 2	Faculty Member 3	Faculty Member 4
Pre-service teachers should be able to: demonstrate research-based knowledge of the concepts, theories and principles in curriculum and curriculum development within and/or across curriculum teaching areas, particularly in the BARMM region	1.2.1	1.2.1	4.3.1	4.3.1

Systematic comparisons using the BTI mappings shown for the learning outcome in Table 1 are shown in Figure 14. Faculty Member 1's BTI mapping for the learning outcome is compared with that of the other faculty members. This is illustrated by the **red arrows**. We can see that Faculty Member 1's mapping was the same as that of Faculty Member 2, but different from that of Faculty Members 3 and 4.

Figure 14

Systematic Comparison of Faculty Members' mappings

Learning Outcomes Pre-service teachers should be able to:	BTI			
	Faculty Member 1	Faculty Member 2	Faculty Member 3	Faculty Member 4
1. demonstrate research-based knowledge of the concepts, theories and principles in curriculum and curriculum development within and/or across curriculum teaching areas, particularly in the BARMM region	1.2.1	1.2.1	4.3.1	4.3.1

This is followed by systematic comparisons of Faculty Member 2's BTI mapping with that of other faculty members, as shown by the **blue arrows** in Figure 14. Note that Figure 14 does not show an arrow comparing Faculty Member 2's BTI mapping with that of Faculty Member 1. This is not necessary as the comparison between Faculty Member 1 and Faculty Member 2 was made in the first round of comparisons as illustrated by the short **red arrow** at the left.

Finally, Faculty Member 3's BTI mapping is compared with that of Faculty Member 4 as shown by the **green arrow**. Note, again, that Figure 14 does not show comparisons between Faculty Member 4, Faculty Member 1 and Faculty Member 2 because these comparisons were made previously, which is shown by one **red arrow** and one **blue arrow**.

In total, 6 comparisons are made when there are four faculty members. This corresponds with the total number of arrows shown in Figure 14. This process is repeated for all items being mapped to the BTIs and percentage agreement is calculated from the actual number of agreements and the total possible number of agreements, which in this instance is two agreements out of six possible agreements, i.e., 33.33%.

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