Constructive Alignment of Higher Education Curricula: The Case of a Philippine State University

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Abstract

Constructive alignment is an approach to outcome-based education that involves examining curriculum, discipline, and/or course level initiatives. This research sought to assess the match among the institutional outcomes, program outcomes, performance indicators, assessment, evaluation methods, and standards in 20 undergraduate curricula. The researchers mainly used qualitative research methods like document analysis, curriculum mapping, and online focused group discussion. Findings revealed that there was a high alignment of the curricula in the university. This means that five out of six dimensions components were constructively aligned. During the focus group discussion, the participants underscored the significance of using the institution's vision, mission, and goals as anchorage in crafting the institutional outcomes. Additionally, majority of the participants highlighted that they based their performance indicators on CHED's policies, standards and guidelines. Regarding the participants' experiences in aligning their performance indicators and assessment methods, the programs' syllabi were valuable in determining their assessment methods for their performance indicators. One difficulty though was delineating between assessment and evaluation since both denote processes of learning measurement. However, while the former entails appraising a student's level of performance, the latter involves gauging the degree to which outcomes are attained based on a set of standards. In terms of the outcomes' relevance to 21st century learning, they were found to be relevant to most of the seven cluster competencies except for computing technology, which is given the least attention in higher education curricula. Since there is a high constructive curriculum alignment in the university, it is therefore concluded that the five elements of the curriculum, namely, the institutional outcomes (with the vision and mission as anchorage), program outcomes unique to a particular specialization, performance indicators, assessment, and standards are highly coherent except for the evaluation methods. It is recommended that evaluation method shall be continually calibrated to ensure its coherence with the other dimensions and that computing technology shall be mainstreamed in the curricula across all programs.

Keywords: Constructive alignment, institutional outcomes, program outcomes, performance indicators, assessment, evaluation methods, standards

1 Bukidnon State University
Introduction

Constructive alignment of academic programs is a crucial area of focus in higher education in implementing the outcome-based education framework for the 21st century. Constructive alignment encompasses the coherence of key elements of the curriculum: the outcomes, which are hierarchically assessed from the institutional outcomes (with the vision and mission as anchorage), the program outcomes distinct to a particular specialization, and course outcomes specified as the intended learning outcomes. The core functions of the Commission on Higher Education (CHED hereafter) is to enhance student development by ensuring responsive curriculum, effective teaching and learning, and equitable and accessible education. As such, it stipulates the need for strategic monitoring and assessment of the alignment of outcomes vis-a-vis other components such as performance indicators, evaluation methods, and standards.

Current studies on constructive alignment in higher education points to the lack of fit between curriculum components. Baliber and Sañosa (2022) found that there was no constructive alignment from the learning outcomes to the teaching-learning activities, assessment and evaluation, hence, a curriculum audit was recommended. In an earlier study, Dagdag (2020) revealed that while Philippine higher education institutions subscribe to outcome-based education framework, the delivered and assessed curricula were not consistent with the underpinning OBE principles like constructive alignment. One case revealed that there was too much emphasis on content learning and knowledge acquisition and less on demonstrable outcomes. Another case was the alignment of assessment with licensure exams rather than the intended outcomes which apparently encumbers the development of 21st century competencies (Lee, Ryoo, & Lee, 2014).

Under these pressing circumstances, CHED has required the continuous quality improvement in the curriculum design and development by subjecting all academic programs for accreditation, audit and/or certification. These mechanisms ensure that defined standards of quality are met. With the constant updating of curriculum standards in response to educational reforms, higher education needs to undergo an iterative process. Subsequently, institutional and program outcomes need to be examined and re-examined, focusing on aspects that need incremental but sustained improvement. This research makes assessing these outcomes essential from the program management perspective. It allows for more scientific bases to further enhance and transform the curricula, thereby ascertaining how to position the academic programs in a volatile, uncertain, complex, and ambiguous (VUCA) environment. This was the primary focus of the study.

Review of Literature

Constructive alignment is an outcomes-based teaching strategy that defines the desired learning outcomes before instruction occurs. The most effective teaching and assessment methods are planned to effectively accomplish those goals and assess their success (Biggs, 2014). A constructively aligned curriculum accentuates two key facets of learning: what students are anticipated to learn and how they will exhibit that learning. As a result, assessment activities must be constructed to reflect the intended learning outcomes (ILOs) for a curriculum
to be productively aligned (Boud, 2010; McLoughlin, 2002). Constructive alignment of learning outcomes, teaching, and learning activities, and assessment methods must be ensured (Blumberg, 2009). This method employs a student-centered approach. Thus, the instructor serves as a learning planner and activity facilitator in conformity with the set lesson’s objectives.

Various studies highlighted the importance of constructive alignment. The merits of constructive alignment have been emphasized in various researches. Learning outcomes, teaching-learning activities, and program evaluation tasks have all been confirmed to be productive and advantageous when they are all aligned (Biggs, 1996, 2003; Jervis & Jervis, 2005; Wang, Su, Cheung, Wong, & Kwong, 2013). According to Anderson (2012), one advantage of constructive alignment is the “pressure from multinational firms apprehensive about acquiring graduates who possess more than academic knowledge and professional abilities.” Moreover, “employers’ unhappiness with the attributions of graduates recruited from colleges” increases (Barrie, 2007; Bath, Smith, Stein, & Swann, 2004; Harvey, 2000; Hesketh, 2000). The primary source of discontent is the apparent gap between the traits demonstrated by graduates and those that the university claims they have earned. The evolving relationship between education and work, and the rising use of outcomes as quality gauges, are among the reasons that have been recognized as contributing to employers’ increased emphasis on general traits. Ergo, schools are progressively being pressured to prove to employers that their graduates indeed possess the knowledge, skills, and values that have been ascribed to them.

Furthermore, Rowley et al. (2014) disclosed that a lack of constructive alignment is the primary cause of the friction between institutional graduate qualities and professional norms and expectations. They also revealed the tension by internal processes inside individual faculty members rather than institutional impositions. These findings of the study underscored the significance of ensuring that graduate traits and professional standards match with the intended learning outcomes. Moreover, Yusoff et al. (2014) found out that students who were not exposed to the constructive alignment technique had worse achievements than those who were. Understanding the assessment component is identified as one of the significant features of the constructive alignment strategy for instructors. This means that instructors need to provide various assessment activities aligned to the learning outcomes. This demonstrates the importance of performing constructive alignment techniques correctly since it affects students’ motivation to improve.

Bagban et al. (2017) highlighted that students dislike being evaluated exclusively through traditional exams. Their research also found that students assessed only through traditional examinations performed less well than those assessed using various methods. If ILOs are not tested in the evaluation or assessment, students do not focus on what should be mastered during teaching-learning activities. The criteria are incompatible with the evaluation being developed, resulting to students’ lack of grasp of mastery ideas (Kadir et al., 2009). The findings of Payne’s (2003) study backed this up by stating that students will pay more attention if they are realistically assessed. Students will attempt to acquire all learning outcomes if aligned throughout the course. In addition, they will respond to comprehending the significance of an issue when it is measured. As a result, constructive alignment happens when
there is a purposeful link between learning outcomes, teaching and learning activities, and assessment systems (Blumberg, 2009).

It is vital to highlight that instructors’ lack of constructive alignment will result in superfluous outcomes in some courses. Students would not grasp the link between achievement and the strategic alignment of courses and programs. They may also lack a complete learning plan, lack mastery in the subjects chosen, and are not engaged in active learning activities that promote knowledge (Biggs, 1996; Biggs & Tang, 2011). Students who do not adhere to courses through a constructive alignment method do not employ various learning tools that can help them build a better understanding (Wang, Su, Cheung, Wong, & Kwong, 2012). Instructors who do not understand constructive alignment will create a deficient evaluation tool that does not measure ILOs based on teaching activities. As a result, assessment instruments should evaluate students’ responses based on planned outcomes and relevant teaching activities (Mamaril, Cox, & Vaughan, 2018).

The vast expansion of tertiary education involves a diversified variety of students and the teaching of a wide range of courses. This necessitates an institution-wide examination of teaching and assessment, focusing on the institution’s, program’s, and courses’ outcomes. Constructive alignment establishes a framework for altering instruction and assessment to meet the achievement of those aims and criteria. Teaching and learning quality is enhanced when constructive alignment is appropriately implemented. Consequently, constructive alignment is employed as one of the quality assurance methods.

In the light of educational changes, technological advancement, and priorities in the 21st century, it is imperative for higher education institutions to include 21st century skills in the curriculum. Embedding these skills in the program outcomes as sets of competencies a graduate in a particular field of specialization is expected to demonstrate allows schools to better prepare students for career and daily life. Wagner (2008) highlighted that knowledge and innovation drive the significant changes that occurred in the last twenty years. Hilman (2012) recognized that technological evolution these years has redesigned this world into a global village with a vast interdependence. In order to navigate and survive in this globalized world, individuals need to acquire novel skills. Over 80% of the jobs in the world have been shifted from the manufacturing industry to the service industry, which requires for workers equipped with essential skills of 21st century (Kay & Greenhill, 2011). This calls for the need for institutions to ensure that they produce graduates with specialized skills so that they have a greater edge in the labor market and in the global society.

The organization Partnership for 21st Century Skills (P21) accentuates the integration of 21st century skills into the field of education. These include 1) learning and innovation skills (also called 4C’s) specifically (a) creativity and innovation, (b) critical thinking and problem solving, (c) communication, (d) collaboration; 2) information, media and technology skills such as a) information literacy, (b) media literacy, (c) ICT literacy; 3) life and career skills which include (a) flexibility and adaptability, (b) initiative and self-direction, (c) social and cross-cultural Skills, (d) productivity and accountability, (e) leadership and responsibility.

Out of the seven skills included in
this study, four are focused on learning and innovation skills (e.g. creativity and innovation, critical thinking, communication and collaboration), two under life and career skills (e.g. career learning and social and cross-cultural skills or cross-cultural understanding) and one under information, media and technology skills (computing technology).

Creativity and innovation skills have gained an increasingly important role in the creation of new knowledge. Creativity is often recognized as an essential skill that can and should be nurtured (Wegerif & Dawes, 2004). In the analysis of the interrelationship between technology, learning, and creativity, Loveless (2002) presented how technology boosts production of high-quality work via utilization of an array of media and how technology ignites opportunities for demonstrating creativity. Trilling and Fadel (2009) pointed out that disregard to cultivating creativity and innovation skills results from a common misperception that creativity is only for geniuses and artistic individuals with higher inclination to creativity. Trilling and Fadel asserted that creativity can be developed by instructors using learning atmospheres that encourage questioning, openness to fresh ideas, and learning from failures and mistakes. Wegerif and Dawes (2004) supported that creativity and innovation skills, like other skills, can be cultivated, with practice over time. Creativity and innovation are indispensable skills in a 21st century society.

Another crucial competency is critical thinking which is an innate ability of individuals. Schafersman (1991) underscores that knowledgeable and trained teachers are requisite for the transmission of critical thinking skill to the students. According to Watson and Glazer (1980), critical thinking is a combination of knowledge, attitude, and performance of every individual with subskills like perception, assumption, recognition, deduction, interpretation and evaluation of logical reasoning. They maintain that the ability of critical thinking, processing, and evaluation of previous information with new information occurs through inductive and deductive reasoning of solving problems. In like manner, the National Council for Excellence in Critical Thinking defines it as an intellectual process of conceptualizing, evaluating, analyzing, and synthesizing the information collected from observation, reasoning, experience, and reflection (NCECT, 2014). Similarly, Trilling and Fadel (2009) described critical thinking as the competence of an individual to analyze, interpret, and evaluate information. Also, Dobozy, Bryer, and Smith (2012) recognize that the process of critical thinking is to evaluate the legitimacy of ideas and opinions against available evidences. Hatcher and Spencer (2005) assert that critical thinking is the capability of an individual to analyze and assess information leading the individual to formulate essential questions, collect and assess significant and relevant information, utilizing abstract ideas and communicate efficiently with others. The Pacific Policy Research Centre (2010) maintains that critical thinking skills empower the graduates to: (i) reason effectively; (ii) ask conceptual questions and solve problems; (iii) analyze and examine alternative points of view, and (iv) reflect on decisions and processes.

Communication is also given premium in 21st century learning especially in dealing with the multicultural population in both academic and workplace settings (Greenhill, 2010). Diversity and multiculturalism require the usefulness and effectiveness of the communicative skills. Trilling and Fadel
Collaborating with others is another essential competency for career success in the 21st century. This involves the student's aptitude to work effectively, efficiently and respectfully with diverse teams, exercising flexibility and willingness to be helpful in making necessary compromises to realize a common goal, and assuming shared responsibility for collaborative work, and valuing individual contributions made by each team member (Trillling & Fadel, 2009; P21, 2006)). Brown and Lara (2011) cited Johnsons and Johnson (2009) who reported that there are three ways when individuals act in connection to others’ actions. One’s actions may help the success of others, impede the success of others, or not have any effect at all on the success or failure of others. To put it in another way, individuals may be: (i) working together supportively to accomplish shared learning goals; (ii) working against each other (competitively) to achieve a goal that only few can accomplish; and working by oneself (individualistically) to finish goals unrelated to the goals of others. Diblasi (2011) projected that collaboration contributes well to the learning of individuals through teamwork activities. Each individual knows the importance of teamwork so that one may develop and promote essential learning skills. Aside from face-to-face interactions among students, electronic or ICT resources like e-mail, video conferencing, and social media are also utilized to teamwork. Collaboration skills can be learned through a variety of methods including but not limited to problem-based learning, and design-based learning. P21 (2009) emphasized that research on teaching communication and collaboration skills boosts direct and facilitated communication, working with others on team projects, and performance-based learning and assessment.

The construct of career learning, on the other hand, refers to a process of preparing students with the skills to acquire, maintain, and grow within a job. The National Association of United States Colleges and Employers (NAUSCE, 2019) defined career readiness as the demonstration of essential abilities, aptitude, and propensities of future-ready graduates. The association highlights eight competencies: critical thinking and problem solving, very good verbal and written communication; working together with others in designated teams, knowledge of digital advancements, future-oriented leadership, professional identity and labor ethics, positive job management, and global or intercultural know-how. Career readiness thus incorporates everything that a tertiary level student needs to know to launch a fruitful working life along with all of the accomplishments, stability, and social mobility that entails.

Skills gaps and mismatches between industrial application and higher education have become prominent in many academic programs (Dihman, 2012; Cheung & Law, 2000). As a result, university graduates face a dilemma that what they have learned in school shows low relevance with their future work (LaFrance, 2010). Nonetheless,
the expectation of employers pays more attention to transferable knowledge and practical skills to solve the actual problems in the workplace (Cheung & Law, 2000). The obstacles to students to meet the needs after graduation are the gap between the job skills and the skills required in the workplace (Suarta et al., 2017). It is found that effective communication and collaboration between academia and industry is inadequate and insufficient (Cheung & Law, 2000). Employability skills become important for they can facilitate graduates to change their jobs among organizations, which remains one significant missing link between university education and industry work (Suarta et al., 2017). With the advancement in technologies, access to e-learning course contents has contributed to the employability skills for graduates around the world. In India, higher education institutions are facing a transition phase in the rapidly changing technological environment, in which a diversified and novel approach towards professional skills training is needed (Mittal & Raghuvaran, 2021).

Cross-cultural competence is another 21st century skill for students to develop before entering the workforce. Today’s world is marked by diversity and multiculturalism. Students need to be prepared to enter a workforce that transcends across borders and encompasses interaction and engagement with people coming from various backgrounds in numerous locations. The growing development of technology has made interactions across cultures around the world a very common experience. Several careers increasingly entail working and collaborating with people from different countries and cultures, both directly and indirectly. While technical knowledge and subject knowledge are necessary tools for success, they are not enough. Employers more and more specify the importance of employees’ intercultural skills and the ability to work efficaciously on diverse teams (Tillman, 2012). Intercultural competence is one of the relevant skills of what today’s graduates need to be able to exhibit, regardless of their discipline. As noted by the British Council (2013), communicating with customers, colleagues and partners across international borders is an everyday occurrence for many workers around the world. Thus, employers are under strong pressure to find employees who are not only technically proficient, but also culturally astute and able to thrive in a global work environment. Intercultural competence is increasingly gaining prominence in a variety of sectors around the world. Just as higher education is noting its importance (Egron-Polak & Hudson, 2014), so are regional and world organizations such as the Council of Europe (2014) and the United Nations (UNESCO, 2013) as not only key to employability but also democracy and a more peaceful world.

Finally, 21st century learning entails information and communication digital skills. The information abundance caused by ICT requires skills for searching, evaluating, and organizing information in digital environments (Catts & Lau, 2008). Information management includes the ability to (a) clearly define information needs, (b) identify digital information, and (c) select digital information in an effective and efficient way (Ananiadou & Claro, 2009). Once the information has been found, workers need the skills to evaluate how valuable the source and its contents are for the task. Moreover, workers need the skills to store and organize digital information for easy retrieval. As today’s workers often use multiple digital devices, they need the skills
to distribute and maintain information across their digital devices (Song & Ling, 2011).

ICT has also made it easier to reach a wide audience and communicate at a distance, faster, and more ubiquitously. Individuals are able to express themselves, establish relationships, and interact with others at any distance in time and space (Yu et al., 2010). ICT-based communication is regarded as a means of generating social interactions and strengthening social relationships (Hwang, 2011). It is imperative that workers understand how to appropriately and effectively communicate using email, social networking sites, and instant messaging services (Lewin & McNicol, 2015; Wang et al., 2012).

Framework of the Study

The theoretical anchorage of this study is the curriculum constructive alignment (Biggs, 2013) that is essentially the coherence of the three major areas of the curriculum: learning outcomes, assessment methods, and teaching strategies. Constructive alignment has two key components: constructive entails that students construct meaning through appropriate learning activities; alignment encompasses the instructor’s approach and resources to provide a conducive environment that provides learning activities suitable for assessing and attaining the intended learning outcomes concerning higher education institutions’ context.

In this study, the constructive alignment framework of CHED using the IPOPIAEMS model institutional and program outcomes, performance indicators, assessment and evaluation methods and standards were applied. The constructive alignment determines whether there is a fit among the institutional outcomes and the program outcomes, the program outcomes, the corresponding performance indicators reflected in the specific course outcomes, the performance indicators and evaluation methods, evaluation methods and standards. The configuration is illustrated in the schematic diagram below.

Figure 1

Schematic Diagram of Constructive Alignment of Curricula Using the IPOPIAEMS model.

As can be seen, outcomes come in three levels: institutional, program and course. Institutional Outcomes describe the attributes of ideal graduates unique to a particular HEI and their desired impact on society and serve as foundation for the development of a proper learning environment (i.e., teaching - learning support systems). Program Outcomes as stipulated in the CHED policies, standards and guidelines (PSGs), are the sets of competencies of a graduate in a specific field of specialization developed by learners. POs are exit outcomes that describe what they will achieve over their whole period of study in a particular discipline. These target
outcomes are then broken down to specific Performance Indicators which are actually the component competencies (knowledge, skills, and attitude) reflected in the course learning outcomes.

The complexities and changes in the 21st century bring about critical competencies driven by the fourth industrial revolution and the new normal in higher education. The Organization for Economic Cooperation and Development (OECD) has called on international governments to “make an effort to properly identify and conceptualize the set of competencies required to incorporate them into the educational standards that every student should be able to reach by the end of compulsory schooling” (Ananiadou & Claro, 2009). By mobilizing psychosocial resources in a given environment, a competency entails applying learning outcomes appropriately and meeting complicated demands (education, work, personal or professional development). The competency includes cognitive elements (theory, concepts, or tacit knowledge). It also has functional characteristics (such as technical skills), interpersonal attributes (such as social or organizational abilities), and ethical principles (OECD, 2003). This suggests that despite educational disruptions, competencies are linked to progress in the cognitive, interpersonal, and intrapersonal domains. Critical thinking, communication, teamwork, creativity and innovation, computer and digital technologies, character, culture, and ethical citizenship are essential competency clusters (Fullan & Scott, 2014).

Subsequently, the Assessment and Evaluation Methods were also implemented in view of assessing the intended learning outcomes while the Standards were determined in terms of targeted levels of competencies.

**Research Objectives**

1. Assess the constructive alignment level of curricula in higher education in terms of the following IPOPEIAMS components: institutional outcomes, program outcomes, performance indicators, assessment methods, evaluation methods and standards
2. Describe the experiences of program administrators and faculty in aligning the curricular components
3. Determine whether the competencies reflected in the outcomes across the three levels (institutional, program and course) are relevant to the 21st century learning competencies

**Methodology**

This study utilized the mixed-method qualitative research design with simple descriptive statistics focused on frequency count in assessing the constructive alignment of the curricula in higher education, explicitly using qualitative document analysis, curriculum mapping, and online focus group discussion. This study focused on the assessment of the institutional outcomes vis-à-vis program outcomes, performance indicators, assessment, and evaluation methods, standards (IPOPIAEMS) model.

This study was conducted among the twenty (20) academic programs under the new curriculum of a higher education institution in Region X. This study employed the following data gathering methods:

**Qualitative Document Analysis**

Qualitative document analysis was appropriate for this study since it is a systematic method of reviewing and assessing the essential documents on curriculum and instruction. According
to Corbin and Strauss (2008), document analysis comprises examining and interpreting documents to derive meaning, deepen comprehension, and generate practical knowledge from texts and images captured without the researchers’ intervention. On the other hand, Atkinson and Coffey (1997) underlined that papers are “social facts” that are created, disseminated, and used in a socially ordered manner. Furthermore, document analysis is a type of qualitative research in which the researcher interprets materials to provide meaning around a particular evaluation area (Bowen, 2009). Document analysis entails classifying content into themes in the same way that focus group or interview transcripts are evaluated (Bowen, 2009). Public records, personal documents, and personal evidence are the three basic categories of materials that can be utilized to examine (O’Leary, 2014). As a result, public documents include student transcripts, mission statements, yearly reports, policy manuals, student handbooks, strategic plans, syllabi, and continuing records of an organization’s activity.

In this study, pertinent documented information of the University was analyzed, including the Vision, Mission, Goals, and Objectives (VMGOs) statements; CHED issuances on Program Standards and Guidelines which outline the minimum Program Outcomes (CMOs): the existing programs’ prospectus, curriculum maps, course syllabuses, the assessment tools and rubrics for both synchronous and asynchronous and the instructional materials (IMs) used by the 20 undergraduate programs. The researchers developed a constructive alignment matrix with a rubric and a checklist to examine these documents. They further analyzed the study results to establish constructively aligned program outcomes that guarantee if the university graduates really possess the competencies expected of them.

**Online Focus Group Discussion (OFGD)**

The study also utilized a focus group discussion which is a relatively more straightforward qualitative research approach to implement because all of the target participants and the researchers are in one location (Krueger, 1994; Morgan et al. 1998). Compared to individual interviews and surveys, focus group discussion is a more flexible technique through which researchers learn about diverse issues or expertise from the participants. For this study though, the researchers utilized an online platform due to the ongoing pandemic utilizing Zoom cloud applications.

Other platforms in an online setting include conference calls, chat rooms, and other online tools (Kamberelis & Dimitriadis, 2005). Online focus groups claim to exude a sense of zeal, innovation, and efficiency unmatched by traditional face-to-face focus group discussions (Edmunds, 1999). On the other hand, these discussion forums are only available to participants who have an internet connection and are prone to technical issues such as sudden loss of connectivity and problems recording nonverbal data (Dubrovsky, Kiesler, & Sethna, 1991). The researchers used the institutional Zoom account for the online focus group discussion with the program coordinators and/or chairpersons in the prearranged schedule upon agreement by the selected participants. Because OFGD was held in Zoom breakout rooms, the researchers arranged it in batches of at least six to seven participants per breakout room. Each set was given sixty (60) to ninety (90)
minutes. Before proceeding to the breakout room sessions, the participants were provided with a brief orientation on the OFGD Protocol. The generated data were then transcribed, coded, categorized, and tallied based on the video recording and notes.

**Curriculum Mapping**

The researchers also conducted curriculum mapping using the CHED Handbook on Typology, Outcomes-Based Education, and Institutional Sustainability Assessment (2014). This process incorporates traditional and contemporary models that focus on improving learning, assessing, and teaching through their vertical and horizontal alignment substantiated by cyclic reviews, and curricular dialogues (Jacob, 2010). According to Hale (2008), it necessitates continuing preparation and active engagement among curriculum designers as well as sustained support from administrators.

This study conducted curriculum mapping for all programs involving the deans, department chairpersons and program coordinators in reference to guidelines specified in CHED's Handbook on Typology, OBE, and ISA (2014 edition). As defined in this handbook, a curriculum map is the design of a degree program that will try to achieve the program outcomes. It should describe the courses and effective teaching, learning, and assessment methods that lead to the outcomes.

In this study, curriculum mapping was done by examining whether the courses correspond to the program outcomes using the LPO model (L-Learned in the course, P-Practiced in the course; or O- Opportunity to learn or practice in the course). The researchers gathered the curriculum maps of all the 20 undergraduate programs for evaluation and analysis. A researcher-made

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**Making a Frequency Table**

In examining the relevance of program outcomes to the 21st century learning competencies in higher education, the researchers classified the program outcomes of all academic programs based on the 21st century competency clusters. Simple statistics was used in determining the frequency and percentage of the program outcomes in a particular competency cluster. A frequency table was made by listing the competencies vis-à-vis the number of times these were reflected in the program outcomes. Validation was done by the experts from CHED and other HEIs.

**Determining Constructive Alignment**

The researchers used a six-point scale to determine the level of constructive alignment across six IPOPIAEMS dimensions. Based on the statistician's suggested treatment, they were guided by the scoring range. The results were validated by experts.

<table>
<thead>
<tr>
<th>Level of Alignment</th>
<th>Range</th>
<th>Qualitative Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6+</td>
<td>5.17-6.00</td>
<td>Very High Alignment</td>
</tr>
<tr>
<td>5+</td>
<td>4.34-5.16</td>
<td>Alignment</td>
</tr>
<tr>
<td>4+</td>
<td>3.50-4.33</td>
<td>Moderate Alignment</td>
</tr>
<tr>
<td>3+</td>
<td>2.67-3.49</td>
<td>Average Alignment</td>
</tr>
<tr>
<td>2+</td>
<td>1.84-2.66</td>
<td>Low Alignment</td>
</tr>
<tr>
<td>1+</td>
<td>1.00-1.83</td>
<td>No Alignment</td>
</tr>
</tbody>
</table>
Statement of Ethical Consideration

In adherence to proper ethical standards in the conduct of the study, the researchers asked permission and approval from the university president, deans, chairpersons, program coordinators, and the document in charge to utilize the records of the university such as vision, mission, goals, and objectives (VMGOs), the CHED issuances on program standards and guidelines that outlines the program outcomes (CMOs), the existing programs’ prospectus, curriculum maps, course syllabuses, assessment tools and rubrics both synchronous and asynchronous, and instructional materials (IMs) used by the faculty.

The researchers also sought an informed consent from the participants who were invited to join the OFGD. The informed consent specified the statement of assurance for the participants’ voluntary participation in the study and their withdrawal from participation when they feel that there is a breach of their privacy. Also, the participants were assured of the anonymity of their identity in the study and that their responses would be processed with strict confidentiality.

As previously stated, this research included forms and other documents created or collected as part of the study which were stored in the researchers’ password-protected computers and will be destroyed within ten years of the study’s start.

Results and Discussion

Constructive Alignment of Undergraduate Curricula

Table 1 shows the constructive alignment of twenty (20) undergraduate programs from five (5) colleges.

As indicated in the overall rating of 5.05, there is a high alignment in the curricula of the 20 academic programs. This result means that institutional outcomes (IO), program outcomes (PO), performance indicators (PI), assessment methods (AM), and standards (S) are constructively aligned across five dimensions. The factor attributable to this result is the OBE curriculum review and enhancement since 2012. Cases of moderate alignment in the four programs suggest the need to continually improve the constructive alignment of evaluation methods vis-à-vis the other curricular components.

Table 1

Constructive Alignment of Undergraduate Programs

<table>
<thead>
<tr>
<th>Colleges</th>
<th>Programs</th>
<th>Level of Alignment</th>
<th>Qualitative Description</th>
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</thead>
<tbody>
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<td>C1</td>
<td>P1</td>
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<tr>
<td></td>
<td>P2</td>
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<tr>
<td></td>
<td>P3</td>
<td>5.00</td>
<td>High Alignment</td>
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<tr>
<td></td>
<td>P4</td>
<td>6.00</td>
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<tr>
<td></td>
<td>P5</td>
<td>5.94</td>
<td>Very High Alignment</td>
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<tr>
<td></td>
<td>P6</td>
<td>4.93</td>
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<tr>
<td></td>
<td>P7</td>
<td>5.93</td>
<td>Very High Alignment</td>
</tr>
<tr>
<td></td>
<td>P8</td>
<td>5.95</td>
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<td>C2</td>
<td>P9</td>
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<td>P11</td>
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<td></td>
<td>P16</td>
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<td>High Alignment</td>
</tr>
<tr>
<td>C4</td>
<td>P17</td>
<td>4.00</td>
<td>Moderate Alignment</td>
</tr>
<tr>
<td></td>
<td>P18</td>
<td>4.78</td>
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</tr>
<tr>
<td></td>
<td>P19</td>
<td>5.54</td>
<td>Very High Alignment</td>
</tr>
<tr>
<td></td>
<td>P20</td>
<td>5.63</td>
<td>Very High Alignment</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td>5.05</td>
<td>High Alignment</td>
</tr>
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Learning outcomes, teaching and learning activities, and program evaluation tasks have all been demonstrated to be productive and beneficial when they are all constructively aligned (Biggs, 1995, 2003; Jervis & Jervis, 2005; Wang, Su, Cheung, Wong, & Kwong, 2013). One benefit of constructive alignment relates to what Anderson (2012) identifies as the “pressure that has originated from international employers keen to recruit graduates who possess more than subject knowledge and professional skills.” Studies found a growing “employers’ dissatisfaction with the attributions of the graduates recruited from universities” (Barrie, 2007; Bath, Smith, Stein, & Swann, 2004; Harvey, 2000; Hesketh, 2000). Much of such dissatisfaction is the evident disconnection between the attributes graduates exhibit and those that the university claims they have attained. Consequently, universities are increasingly being required to guarantee employers that its graduates possess the knowledge, skills, and values that are ascribed to them.

Experiences of Program Administrators and Faculty in Constructively Aligning the Curricula

Constructive Alignment between Institutional Outcomes and Program Outcomes

The participants’ experiences in aligning the institutional outcomes with the program outcomes are presented in the following frame.

Frame 1 describes the experiences of the program coordinators in overlaying institutional outcomes to the program outcomes. Generally, the participants had an initial difficulty in incorporating elements from the IOs to CHED-specified POs. One reason could be the contextualization of the graduates’ attributes specific to the niche (cultural heritage) that the University tries to project while the competencies in the POs are more discipline-specific. Also, the aim of participants is to constructively align these two indicators to produce highly employable graduates backed up with necessary skills and competencies. However, the study of Rowley et al. (2014) provided that a lack of constructive alignment is the foremost cause of the friction between institutional graduate qualities and professional norms and expectations. These findings of the study underscored the significance of ensuring that graduate traits and professional standards match with the learning outcomes.

Frame 1

PC1: “On our part, we are lucky because we have the PSG, but we are not confident enough to play with words from the POs from the CHED and from the IOs. What we did, we adopted the CHED’s POs and inserted some elements from IOs and GEC outcomes, but we found out that the CHED POs mafit lang siya tanan sa IO 1.0 because CHED focuses on the specific skills such as prof skill so mafall sila sa innovative, and since CHED POs do not have the practicum, so we added, and BukSu IOs, we added the preservation of cultural heritage”.

PC8: “What we did in aligning the IOs and POs is we reviewed the POs in our PSG because CHED has already provided the POs for our program. At first we really tried to insert all IOs in the POs but we realized it would sound awkward if we will force to do it. So we only captured the statements from the IOs that are only applicable to specific program outcomes.”

PC20: “It was good that our IOs are crafted based on our VMGOs, and all the programs will really be based on the IOs, so we are so thankful that the crafting of IOs was initiated specifying what are those that have to be included which makes our University unique from other Universities, because all the programs can’t go on with the crafting of POs without the IOs and we can’t cascade it to the syllabi level if we don’t have the IOs.”

Thus, the participants only selected those elements from the IOs that are relevant to the POs. One affirmation that the participants underscored is the significance
of using the University’s vision, mission, and goals as anchorage in crafting the institutional outcomes. Additionally, they emphasized using the program’s policies, standards, and guidelines (PSGs) as bases for developing their program outcomes.

**Constructive Alignment between Program Outcomes and Performance Indicators**

The participants also described their experiences aligning their program outcomes and performance indicators in Frame 2.

The majority of the participants whose programs have PSGs highlighted that they anchored their performance indicators on the policies. However, they modified and added some PIs based on their enhanced program outcomes because these CHED-suggested PIs are generic.

A constructively aligned curriculum emphasizes two primary parts of learning to students: what they are expected to learn and how they will demonstrate that learning. The results align with Payne’s (2003) findings that revealed when predicted competencies are examined or quantified, students develop them. This is also confirmed by the study of Blumberg (2009) which emphasized the significance of the constructive alignment of learning outcomes, teaching, and learning activities to ensure improvement of students’ learning achievements. This method employs a student-centered approach. Thus, the teacher serves as a learning planner and activity facilitator in conformity with the set learning outcomes.

**Frame 2**

**PC8:** “We anchored our PIs to the POs that are already stipulated in our PSG. But for the program outcome number 4, we actually noticed that there should be another PI. So, we added 1 PI for our program outcome number 4 because the program outcome is about the utilization of screening assessment tools but there is no PI for that. So, we just added 1 PI to make sure that it’s aligned with the program outcome. We also added one PI for our proposed additional program outcome (PO8), the last program outcome. What we really considered was to make sure that our PIs are really reflective of our program outcomes or what we want our students to achieve or demonstrate at the end of their study.”

**PC9:** “Same case with the alignment of POs and IOs it’s still very challenging on our part. The PIs are already laid down in our PSG and we saw that there are several PIs. So, we decided to limit only the PIs so that it would be easier for us to assess the performance of our students. But, we realized that since the PIs in our PSG are the minimum standards, we can’t limit the PIs or else we will shortchange the competencies or we will be reducing the quality.”

**PC19:** “In our case, the PSG already included PIs so what we did is we just modify it kasi we also considered individual subjects and then we try to look into mga na-identify na nga mga subjects and compared the provided PIs and aha siya mutunong sa subjects nga terminal outcomes. Good thing PIs are provided in the PSG so medyo nacarry ra.”

**Constructive Alignment between Performance Indicators and Assessment Methods**

Regarding the participants’ experiences in aligning their performance indicators and assessment methods, the programs’ syllabi were valuable in determining their assessment methods for their PIs, as reflected in Frame 3.
Frame 3 shows that most of the programs have crafted their performance indicators and assessment methods based on the main tasks required in the course syllabi corresponding to the terminal learning outcomes. It was found that the assessment of PIs was intensified across subjects. This means that a cluster of subjects can be used to measure a particular performance indicator.

**Frame 3**

**PC7:** “Reaching the assessment method part in the workshop, we simply based the entries on the assessment methods that were found in our syllabi. We focused on major activities. We based on the major assessment activities. However, we realized that we really need to thoroughly check the syllabi and at the same time assess whether the activities and methods that are identified in each of the syllabus really match the PIs.”

**PC8:** “What we did in the workshop was review the 22 syllabi of the program because we wanted to check if the program outcomes are reflected in our courses. When we did the process, we noticed that a program outcome is targeted in various courses and we believe that’s good since it would mean that a particular PO is intensified across various subjects in different year levels. At first we got worried thinking that the assessment methods may not be reflective with the PIs. However, when we checked all our syllabi we found that there are several assessment methods that would support our PIs. We went through a tedious process because we really checked our syllabi one by one. By doing that, we found out which PIs are developed in specific courses in our program.”

**PC18:** “We identify the subjects and main tasks that will actually point to the PO and PI and we also considered the sample that is presented in the PSG of the allied course, so we just locally develop exams and case study analysis, so we selected actually what will correspond or what will answer the PI.”

One of the most critical aspects of the constructive alignment strategy for the instructor to understand is the assessment component. Bagban et al. (2017) asserted that students dislike being evaluated solely through traditional tests. Their research also found that students tested solely through traditional examinations performed less well than those assessed utilizing various methods.

Further, the result reveals that the participants ensured that the assessment found in their course syllabi are reflective of the PIs. Accordingly, instructors who do not understand constructive alignment will create a deficient evaluation tool that does not measure intended learning outcomes (ILOs) based on teaching activities. The instructors’ assessment instruments should evaluate students’ responses based on planned outcomes and relevant teaching activities (Mamaril, Cox, & Vaughan, 2018). Hence, assessment activities must be constructed to reflect the ILOs for a curriculum to be productively aligned (Boud, 2010; McLoughlin, 2002).

**Constructive Alignment between Evaluation Methods and Standards**

Among the six dimensions of the IPOPIAEMS model, alignment of the evaluation methods and standards was identified as one of the participants’ challenges. The participants describe their experiences in Frame 4.

The difficulty in aligning the assessment and evaluation methods lies in these two terms’ interchangeability or near synonymity. Most of the participants had a hard time delineating between the assessment and evaluation since both
denote processes of learning measurement. However, while the former entails appraising a student’s level of performance, the latter involves gauging the degree to which outcomes are attained based on a set of standards.

Frame 4

**PC8:** “This is the most challenging part. At first, we’re very confused between the difference of assessment methods and evaluation methods. However, based on the inputs that were given specifically by sir Noel, we were told that these are the terminal or exit measures of the POs. Although we already have identified some evaluation methods for that column, these evaluation methods that we have identified are specifically for our 4th year students.”

**PC12:** “We had a difficulty distinguishing what is assessment and what is an evaluation method and we noticed that the examples given are course specific, what we will put in our output, at the end we have decided to have a course specific evaluation method, in short, we followed what Sir Noel presented, that is indicated in our final output, the very challenging is actually in deciding whether we will proceed in program specific or course specific, in the end amo lang sa ani i-course specific, kay mao na lang among na agreehan na kana lang sa, but so far, we still have to come with the program specific, only the examples that were given.”

**PC11:** “Pasalamat mi sa CHED representative kay ila gyud mi gi-guide on how to do it, and for evaluation method we used more on rubrics, and we assess if mao ba gyapon ang feedback sa employer”

The assessment method involves both the assessee (student) and the assessor (faculty) in a complete study of current performance, with the assessor providing quality feedback. In contrast, the evaluation method involves judging the quality of a performance or work output against a standard (Parker et al., 2001).

Based on CMO No. 46, series of 2012, Policy-Standard to Enhance Quality Assurance in Philippine Higher Education through an Outcomes-based and Typology-based QA, an assessment method can be applied to individual students since it is the process of evaluating the knowledge and skills or competencies of individual learners. However, it can also be used at the program and institution level in evaluating the educational quality of a higher institution or program.

Although the participants expressed their difficulty in aligning the evaluation methods and standards, they also recognized its significance, particularly the evaluation tools used by employers to judge the quality of the HEIs’ graduates via performance rubrics and feedback instruments.

While CA is generally a form of quality curriculum enhancement, experts (Loughlin, Lygo-Baker, & Lindberg-Sand, 2020; Nelson, 2018) contend that if implemented from an imposing topdown approach and too policy-focused, this process can be mechanistic that may impede effective teaching-learning, innovations, and creativity.

**Relevance of Program Outcomes to the 21st Century Learning Competencies**

Table 2 presents the relevance of the various outcomes of the state university to the 21st century learning competencies.

The data reveal that most program outcomes have a significant bearing on career learning. This means that students in various programs are exposed to diverse academic and professional experiences, allowing them to develop and apply the information, skills, and attitudes necessary for their future careers. Fostering this capability improves students’ goal, time, change management skills, their career, job, entrepreneurship development, and lifelong learning skills. Critical abilities
required for students to live and work in various complicated situations are included in life and career skills. Leadership, time management, initiative, self-directed learning, and effective teamwork are only a few examples. Leadership abilities also include providing direction, identifying and engaging the team’s strengths, and inspiring the team to achieve a common goal (P21, 2009). On the other hand, time management entails effectively managing time and effort (P21, 2009). Performances and activities like goal-setting with a quantifiable criterion for achievement, building a balance between long and short-term goals, and uncovering new learning opportunities characterize talents like initiative and self-directed learning (P21, 2009). As a result, developing these learning competencies improves future employability since employers respect and prioritize skills such as teamwork and time management (Barton, 2006).

Table 2

<table>
<thead>
<tr>
<th>Key Competency Cluster</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career Learning</td>
<td>147</td>
<td>22.44</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>102</td>
<td>15.57</td>
</tr>
<tr>
<td>Creativity &amp; Innovation</td>
<td>97</td>
<td>14.81</td>
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<tr>
<td>Communication</td>
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<td>14.50</td>
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<tr>
<td>Cross-Cultural Understanding</td>
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<td>11.15</td>
</tr>
<tr>
<td>Collaboration</td>
<td>72</td>
<td>11.00</td>
</tr>
<tr>
<td>Computing Technology</td>
<td>69</td>
<td>10.53</td>
</tr>
</tbody>
</table>

Table 2 also reveals that among the seven (7) core competencies, computing technology has the least number of program outcomes. This entails the development of digital literacy competencies extending learning beyond the physical classroom. The type of degrees offered at the university may have influenced the prevalence of CT in the program outcomes. Only two undergraduate programs from the College of Technologies emphasized core computing technology competencies among the university’s undergraduate programs. However, with the demands of the new normal, this competency is of prime importance in higher education not only for technology-related courses but also for other disciplines.

Consequently, the Organization for Economic Cooperation and Development (OECD) has urged governments around the world to “make an effort to properly identify and conceptualize the set of competencies required so that they can be incorporated into the educational standards that every student should be able to achieve by the end of compulsory schooling” (Ananiadou & Claro, 2009). According to a Gallup Inc. study (2013), the three Rs, reading, writing, and arithmetic, are no longer sufficient for success in the job. To enable graduates to adapt to the fast-moving global economy, 21st-century skills such as communication, cooperation, creativity and invention, and critical thinking and problem solving are necessary. The respondents of the study who reported a remarkably substantial exposure to these 21st-century skills during their final year of school were twice more likely to mark “strongly agree” regarding how valued and successful they are at their workplaces.

Furthermore, as mentioned above, another intriguing finding of the study emphasizes the link between having 21st-century abilities and job quality.
Over half of the survey participants said they “strongly agree” or “agree” that they learned majority of their workplace abilities outside of school. They cited that many of these technological and job skills are not sufficiently taught in schools. Opportunely, the 21st-century learning capabilities advanced by P21 define what students should do to overcome challenges and achieve success in life and the workplace. These learning competence skills can also be used in various settings for young people, including schools, universities, sports, and youth jobs. These frameworks represent opportunities for learners to put their 21st-century learning competencies into practice (P21, 2009; AASL, 2007). Thus, a classroom environment that promotes 21st-century learning is critical.

Conclusions and Recommendations

The five elements of the curriculum, namely, the institutional outcomes anchored on the vision and mission, program outcomes unique to a particular specialization, performance indicators, assessment, and standards are highly coherent except for the evaluation methods. This result suggests that the HEI’s academic programs are designed and developed systematically, comprehensively and appropriately to support innovative teaching and learning. This is made possible through the collaboration among the CHED supervisors, HEI administrators, deans, chairpersons, program coordinators, and faculty in designing and developing the curriculum materials.

While there is an explicit alignment between the written curriculum and the delivered curriculum, one perceived limitation is the need to further investigate the constructive alignment with the assessed curriculum. A contentious issue is the misalignment between what is being taught in the University and what is being tested especially in national board examinations. While HEIs implement OBE, this is not supported by appropriate assessment mechanisms. To effectively and appropriately measure students’ performance of learning outcomes, competency-based exams may be implemented by the national government.

Another limitation of the study is the need to include industry partners and alumni in evaluating the curriculum’s constructive alignment. While CHED officials, academic leaders and faculty were involved in the exercise, it would have been more insightful if experts from the industry and employed graduates were also tapped. It is therefore recommended that this process be iterated.

Additionally, a continuous quality improvement ecosystem may be institutionalized, intensified and sustained to ensure constructive alignment in its truest sense. Regulatory and accreditation bodies may guide HEIs on various CQI mechanisms for curriculum design and development especially in the next normal where educational changes are prevalent. Corollary to this is the need to sustain the Curriculum Quality Audit (CQA) to ensure coherence between curricular components in all academic programs.

Further, it can be concluded that the program outcomes are relevant to most of the seven cluster competencies except for computing technology which is given the least attention in higher education. Although computing technology is a core competency, its development remains a challenge, specifically in universities in third-world countries where problems with internet connectivity and lack of learning gadgets are preponderant. However, with the critical role that computing technology plays
in 21st-century learning, this competency may be mainstreamed as a general education subject for students to learn essential skills needed to compete globally for in-demand occupations through the internet, mobile devices, and computers. This competency is deemed to foster higher-order thinking abilities, improve subject learning, promote cooperation, inspire learning, and help students thrive in a knowledge economy. It is, therefore, crucial for CHED to fully implement the SMART Campus program for HEIs to enable the students to seamlessly blend in an interconnected society where ICT rules, and the use of ICT tools for lifelong learning, can equip them for their future careers.

Overall, this study is the first attempt to assess the constructive alignment of academic programs in higher education. For future studies, researchers may consider gathering comparative data from various HEIs for a more extensive conclusion.

References


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