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2019

The Context and Challenges of Interdisciplinarity in the Philippines

Ma. Assunta C. Cuyegkeng

THE CONTEXT AND CHALLENGES OF INTERDISCIPLINARITY IN THE PHILIPPINES

Maria Assunta C. Cuyegkeng
Department of Leadership and Strategy
John Gokongwei School of Management
Ateneo de Manila University
acuyegkeng@ateneo.edu

Abstract

The tension between disciplines and interdisciplinary initiatives has been present in different areas around the world. This paper discusses the roots of the tension in the world and in the Philippines, as well as issues and challenges of implementation. It begins with the meaning of discipline and the nuances in the interaction of multiple disciplines, (e.g. multidisciplinary, interdisciplinary, or transdisciplinary) and traces and traces the development of disciplines in relation to the development of higher education. While academic departments and programs give life and power to the disciplines, there were pressures to work across disciplines to achieve the underlying goals of scholarship. Multiple disciplines are needed in solving real-world problems, understanding complex systems, implementing policy or applying research, and generating groundbreaking ideas. However, there are challenges in implementing interdisciplinarity in the Philippines and this includes issues tied up with the implementation process; the need for leadership to navigate through the complex relationships of the disciplines; the balance of grounding in the discipline and interdisciplinarity; assessment of outcomes of interdisciplinary work; and defining an institution's desired outcomes to guide the support systems.

About the Author

Assunta Cuyegkeng is the Director of the Ateneo Institute of Sustainability, the Managing Editor of the *Journal of Management for Global Sustainability,* and a professor at the Department of Leadership and Strategy of the Ateneo de Manila University. She has a doctoral degree in chemistry from Universität Regensburg and worked in this field until she became Vice President for the Loyola Schools from 2006 to 2010. She has worked with the Commission on Higher Education on quality assurance and outcomes-based education. She has written on polymers, science education, environment, quality assurance, and leadership. Her literary essays, poems, and Filipino translations appear in various anthologies. Her current research and teaching interests are in the fields of sustainability management and change leadership.

INTRODUCTION

Tensions between the disciplines and interdisciplinary initiatives have been present in different areas around the world for some time, especially when higher education structures began to compete for limited financial, human, and physical resources. These tensions continue to be translated to other aspects of academic life, which have little to do with the problems that specific disciplines study yet are very much interwoven with the roles and functions of academics and professionals.

In many countries around the world, tensions in the disciplines are often related with changes in the thrust or approach of the department, such as the shift from literary to cultural studies in English departments (Cain xi) or the post-World War II fragmentation of academic geography to physical geography and human geography (Castree 290).

In the Philippines, there are similar tensions in the changing thrusts of literature departments, as well as more complex concerns of disciplines linked with changes in curriculum or the standards of practice. For example, the tertiary level General Education (GE) curriculum recommended by the Philippine Commission on Higher Education (CHED) in 2013 has been the subject of controversy and debate, with a multitude of issues: language (the lack of Filipino courses in the curriculum), discipline (translated into the survival of Filipino departments in Philippine universities), interdisciplinarity (its validity in light of the other issues), direction (what direction Filipino, as a discipline, should go), and tenure (the removal of academic positions with the lack of courses to teach). Another example is the passage of laws that regulate the practice of certain professions, such as Guidance and Counseling Act of 2004, which had good intentions of protecting the clients of the practice but also raised issues of professional boundaries between education and psychology, assurance of growth of the discipline, and exclusion of those outside the discipline.

These tensions in local and international contexts can be better understood in the context of historical development of disciplines and education.

MEANINGS OF DISCIPLINE AND INTERDISCIPLINARITY

Interdisciplinarity can only be properly understood in the context of the disciplines. "Discipline" comes from the Latin words *disciplina* (teaching, learning) and *discipulus* (pupil) (Merriam Webster Online).

Academic disciplines have grown beyond the teaching-learning context and can be characterized by (1) the object of research; (2) a perspective or worldview, including assumptions; (3) a specialized body of knowledge related to their research, including specific language and terminologies; (3) a framework with theories and concepts, according to which the knowledge is organized; (4) specific methods to accomplish their research; and (5) some institutional manifestation such as academic departments and professional associations (Krishnan 9; Newell and Green 25). Some disciplines do not have all the characteristics stated above but are still considered a discipline (e.g., English literature does not have a unifying theory or method, and the same can be said with other literatures), albeit with some difficulty in building on its body of scholarship (Krishnan 10). Through the disciplines, the accumulated body of knowledge achieves depth in understanding, rigor and facility in methodologies, and standards against which results can be checked.

The Commission on Higher Education (CHED) uses the following definitions to show levels of differentiation for operational purposes:

- Branch of knowledge - A broad clustering of disciplines with similar objects of study, frames of reference and methodological approaches, e.g., natural sciences and engineering; social sciences; the arts and humanities; the management sciences

- Discipline - An area of study "constituted by defined academic research methods and objects of study, frames of reference, methodological approaches, topics, theoretical canons, and technologies; may also be seen as "subcultures" with their own language, concepts, tools and credentialed practitioners" (Petts, 2008)

- Field of study - Recognized areas of specialization within a discipline or sub-discipline (CHED Task Force 57-59)

The "inter" in interdisciplinary can mean "between, among, in the midst of" disciplines, that is, the problem is the focus of the investigators and the disciplines are a means to the solution (Repko, Szostak, and Buchberger 7). "Inter" can also refer to insights and scholarly contributions "derived from two or more" disciplines and the resulting integration to create common ground between conflicting insights, i.e., the creation of new knowledge or a more comprehensive theory (Repko, Szostak, and Buchberger 7).

While interdisciplinary studies share some characteristics with disciplines, they differ from disciplines in that they "draw on existing disciplinary knowledge while

always transcending it via integration," "borrow methods from the disciplines when appropriate," and "seek to produce new knowledge…via integration" (Repko, Szostak, and Buchberger 9-10).

Some definitions of interdisciplinary studies include the following:

- Interdisciplinarity: A synthesis of two or more disciplines, establishing a new level of discourse and integration of knowledge (Klein cited in Choi and Pak 355)

- Interdisciplinary studies: A process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline or profession . . . and draws on disciplinary perspectives and integrates their insights through construction of a more comprehensive perspective (Klein and Newell 393–394; also cited in Repko, Szostak, and Buchberger 14)

- Interdisciplinary research: A mode of research by teams or individuals that integrates information, data, techniques, tools, perspectives, concepts, and/ or theories from two or more disciplines or bodies of specialized knowledge to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline or area of research practice. (National Academies 26; also cited in Repko, Szostak, and Buchberger 14)

- Interdisciplinary education: A mode of curriculum design and instruction in which individual faculty or teams identify, evaluate, and integrate information, data, techniques, tools, perspectives, concepts, or theories from two or more disciplines or bodies of knowledge to advance students' capacity to understand issues, address problems, and create new approaches and solutions that extend beyond the scope of a single discipline or area of instruction. (Rhoten et al. 3; also cited in Repko, Szostak, and Buchberger 14)

- Interdisciplinarity: the capacity to integrate knowledge and modes of thinking drawn from two or more disciplines to produce a *cognitive advancement*—for example, explaining a phenomenon, solving a problem, creating a product, or raising a new question—in ways that would have been unlikely through single disciplinary means. (Mansilla 16; also cited in Repko, Szostak, and Buchberger 15; italics added)

- Interdisciplinary studies: a two-part process: it draws critically on disciplinary perspectives, and it integrates their insights into a more comprehensive understanding . . . of an existing complex phenomenon [or into] the creation

of a new complex phenomenon. (Newell 248; also cited in Repko, Szostak, and Buchberger 15)

Based on these, an integrated definition, which considers process, disciplines, integration, and a more comprehensive understanding is:

> Interdisciplinary studies is a process of answering a question, solving a problem, or addressing a topic that is too broad or complex to be dealt with adequately by a single discipline, and draws on the disciplines with the goal of integrating their insights to construct a more comprehensive understanding. (Repko, Szostak, and Buchberger 16)

Interdisciplinarity is different from "multidisciplinarity" in that the latter uses the perspectives of several disciplines in juxtaposition, that is, it is "additive, not integrative," with the method and theory leaning toward those of the home discipline doing the study (Klein cited in Choi and Pak 355; Repko, Szostak, and Buchberger 20). For example, the effects of radiation on cancerous cells can be studied from the multidisciplinary perspectives of nuclear physics (theories related to radiation, mechanism, amounts of radiation) and medicine (mechanisms of cancer and cell death, effects on neighboring tissues). Integrating these perspectives to come up with a method to arrest cancer growth would be an interdisciplinary approach. Or a Carlos "Botong" Francisco painting can be studied from the multidisciplinary perspectives of art theory, anthropology, and psychology, but integrating these into an analysis that enriches understanding on the Filipino psyche would be interdisciplinary.

"Transdisciplinarity," on the other hand, provides holistic schemes that subordinate disciplines, looking at the dynamics of whole systems (Klein cited in Choi and Pak 355). In our earlier example of nuclear physics and medicine, it would not just be a matter of integrating perspectives to apply one method into another discipline for an interdisciplinary approach to a solution; it would look for a shared conceptual framework that would cover theories, concepts, and approaches of both disciplines in solving a problem. Similarly, instead of limiting the Botong Francisco painting to an integrated analysis, a shared conceptual framework for the Filipino psyche could be developed.

There is also another type of "transdisciplinarity …which is at once between the disciplines, across the different disciplines, and beyond all disciplines," with the goal of understanding the world with a unified knowledge (Nicolescu, "Methodology of Transdisciplinarity" 22), for example, the integration of the natural, social and health sciences in a humanities context transcending traditional boundaries.

The study of interdisciplinarity has been very refined to the point that fine nuances abound in the literature (see Klein, Moran, Newell, Nicolescu, Nissani, Repko) and there are even different forms, such as instrumental interdisciplinarity (problem-driven) and critical interdisciplinarity (society-driven with goal of transformation and dismantling of boundaries) (Klein, *Creating Interdiscipinary Campus Cultures*; Repko, Szostak, and Buchberger 22).

THE DEVELOPMENT OF DISCIPLINES AND INTERDISCIPLINARY AREAS

The tradition of disciplines began in the Western educational systems. Scholars like Plato and Aristotle were considered generalists. Plato's idea of an academy was to "promote the physical, moral, and social development of the 'whole person,'" through instruction in gymnastics, music, poetry, literature, mathematics, and philosophy (Repko, Szostak, and Buchberger 45 and references therein). Aristotle added structure by dividing knowledge into a clear hierarchy of distinct subjects as follows:

> …the theoretical subjects of theology, mathematics, and physics on top; the practical subjects of ethics and politics in the middle; and the productive subjects of the fine arts, poetics, and engineering at the bottom… To integrate these subjects, he placed philosophy as the universal field of inquiry at the top of his hierarchy, as a way to bring together all the different branches of learning. (Moran 4)

There was a desire for the integration of knowledge embodied in the "community of disciplines of knowledge (*universitas scientiarum*) and a community of teachers and students (*universitas magistrorum et scholiarium*)" (Klein, *Interdisciplinarity* 20).

When the universities were developed in the twelfth century, there was a core curriculum that served as a foundation for the professions before proceeding to theology, medicine, or law (Repko, Szostak, and Buchberger 46). The disciplines became more specialized in the late seventeenth and eighteenth centuries during the Enlightenment and the rise of modern science with the Scientific Revolution, and became even more fragmented in the late nineteenth and early twentieth centuries accompanied by the emergence of professional societies and disciplinary journals, as well as the demand for specialists by industry and recruitment of students to the ranks of the disciplines (Repko, Szostak, and Buchberger 48). It was thus more difficult to achieve *Wissenschaft*, the concept of the "totality of institutionalized scholarly and scientific pursuits" (Klein, *Interdisciplinarity* 21). A return to "general education" arose in the United States after World War I, when the arts and values

were believed to address the eroding cohesiveness of education with their "general" qualities (Repko, Szostak, and Buchberger 49 and references therein):

1. They apply to all subject areas;

2. They embrace all basic skills;

3. They affect the formation of the whole person; and

4. They provide guidance for all humans.

There was also growing criticism about the power of the disciplines and their deepening isolation from one another (Becher and Trowler 23). Eventually, a formal organization, the Association for Integrative Studies, was established in 1979 to study interdisciplinary methodology, theory, curricula, and administration. While recognizing that the goal of the disciplines was to understand the world from a particular perspective, there was also a growing recognition that solving practical problems needed interdisciplinarity, that is, academic specialists focus on particular theories, methods, and phenomena that would allow for more depth while interdisciplinarians broaden the context and find new ways of constructing knowledge (Repko, Szostak, and Buchberger 52).

Nevertheless, the dynamics of the disciplines can be quite interesting, both in Philippine and international contexts. Krishnan looked at the development of academic disciplines from six perspectives—philosophical, anthropological, sociological, historical, management, and educational—which further give insight into how disciplines promote their frameworks and practices (12-46).

From the philosophical perspective, "the question of academic disciplines represents itself as a problem of the organization of knowledge and how knowledge relates to reality," i.e., they are branches of knowledge, which make up the "unity of knowledge that has been created by the scientific endeavor" (Krishnan 12-13). However, this perspective would change with the changing schools of thought—from Plato (unified science) to Aristotle (division into theoretical and practical inquiry) to logical positivists to Popper and Kuhn to Feyerabend and to postmodernists (Krishnan 13-16). For example, for social constructionists and postmodernists alike, the academic disciplines would be seen "as discourses that are created and maintained for serving special interests without actually referring to some objective discoverable reality" (Krishnan 16-17).

The anthropological perspective, which takes into consideration human nature as it manifests itself in culture and civilization, shows that different "academic

tribes" maintain group identity through a disciplinary language (jargon) that allows specialists to maintain authority and influence and through "distinctive cultural features that make it easy to identify outsiders and that make it difficult for outsiders to join the group" (Krishnan 22-23; Becher and Trowler 16). Furthermore, disciplines with well-defined boundaries in terms of methods and content are more likely to achieve "consensus or an integration of knowledge" (Lattuca 31). The anthropological perspective is very strongly felt in universities around the world, where turf is protected and boundaries clearly marked. Professional organizations also help in promoting this perspective.

Using the sociological mindset that human behavior is largely determined by societal practices and societal organization, academic disciplines can be considered "both units of labor market definition and control, and of intellectual production and validation" (Whitley 57). Even as the professionalization of academic disciplines increased competition for limited resources, there has been pressure on the disciplines since the early 1980s to deliver more relevant work and to subscribe to quality standards (Krishnan 27; Becher and Trowler 13). Reputation, publications, and position within one's professional circles have been measures of intellectual production and validation in Western practice. However, the fast social and technological changes have given rise to more "life-long" learning, which in turn has threatened strict disciplinary and professional boundaries (Krishnan 30) because of materials that make certain disciplines more accessible to those who have not received the same degree of formal training.

The historical perspective not only shows the continuity in the development of the disciplines but also changes, especially in methods and ways of thinking (Krishnan 31) that lead to "paradigm change" (Kuhn 52). For example, because theology, law, and medicine trained the professionals during the late Middle Ages, there were external demands to make them academic disciplines at that time; in contrast, specialist disciplines, including the social sciences, were established in the nineteenth century to institutionalize and systematize the pursuit of new knowledge (Klein, *Interdisciplinarity* 20). Historically, it can be seen that a new discipline is born when there are adventurous and talented scholars who are willing to "leave their original discipline behind and to cover new ground" and "take over the burden of intellectual leadership by defining what the new discipline is about and by giving it a clear agenda for research, which can inspire followers," starting thus as an "interdisciplinary project that combines elements from some parent discipline(s) with original new elements and insights" (Krishnan 34).

The management perspective is concerned about "making good use of limited resources for meeting the demands of society," translated into organizing around disciplines for teaching and research but with the disadvantage of "the lack of

flexibility caused by too rigid organizational and intellectual structures" (Krishnan 36-40). On the other hand, such structures can give opportunity for interdisciplinary collaboration when managed properly.

The educational perspective focuses on teaching and learning. As such, "academic disciplines are thus mainly identified with subjects that provide content and structure to school and university curricula," thus leading to a multidisciplinary approach that produces graduates with "a more balanced understanding of the world" while developing particular disciplinary skills that are desired for employment (Krishnan 42). However, interdisciplinarity is more of a challenge to traditional teacher-centered courses because of the teacher's role as expert or authority in more than one discipline (Krishnan 43). This perspective may work better with student-centered courses where the teacher can use creative approaches from more than one discipline to facilitate dialogue and learning.

From these six perspectives, we see some elements that contribute to the complexity of interdisciplinary issues we have in the Philippine setting.

When interdisciplinary courses (subjects) are required to help build a more cohesive perspective for students, the implementation translates to "which discipline or department takes charge?" This also translates to which school of thought would be used to organize this knowledge and relate it to reality, and if such school of thought is consistent with the vision and mission of an educational institution (philosophical perspective). The idea of dialogue and integration inherent in interdisciplinary endeavors also runs counter to preserving group identity (academic tribes), which are averse to getting outsiders into the group (anthropological perspective). There is tension between the concern for labor market, e.g., tenure of faculty members and the concern for the societal demand to produce Filipino graduates who have higher-level academic and behavioral skills and competencies, such as problem solving, initiative, and creativity (World Bank 6; di Gropello 9, 13) (sociological perspective). Most disciplines in the Philippines follow the developments in other countries, so that new intellectual leadership often follows the particular school of thought where faculty members obtain their doctoral degrees, e.g., deconstruction, cultural studies, development studies, or sustainability, and will thus affect the interdisciplinary discussion (historical perspective). Sometimes, the question of who takes charge in interdisciplinary initiatives is biased towards more pragmatic solutions that would make efficient use of resources and meet the societal demands (management perspective). Finally, interdisciplinary courses tend to challenge teacher-centered approaches and often need to be re-thought as student-centered learning (educational perspective).

THE POWER OF THE DISCIPLINES

Disciplines in academic institutions are made alive by academic departments and programs. As institutions grew and became more structured and disciplines more professionalized, departments and programs felt power in different ways, including the training of experts formalized by the granting of degrees; fielding of these experts to industry; obtaining funding and other resources for research; recruitment and hiring of faculty; recruitment and selection of students; and the control of professions through professional organizations and the publication of professional journals (Repko, Szostak, and Buchberger 48).

In the Philippines, professional organizations also exercise power through lobbying for passage of laws that protect their practitioners, sometimes to the point of exclusion of other disciplines. For example, the Guidance and Counseling Act of 2004 (RA 9258) professionalized the practice of guidance and counseling, which is probably a good idea to protect the students or clients. However, the creation of a Professional Regulatory Board, and with it obtaining a license to practice, proved limiting for many existing practitioners and educational institutions at the time of its implementation (despite the "grandfather's clause," which allowed for processing of documents even without licensure examinations, within a certain period of the passage of the law). Having been crafted by education professionals, the broad requirements of the law limited the practice of psychology professionals, unless they had a license covered by RA 9258. The psychology professionals responded with their own Philippine Psychology Act of 2009 (RA10029).

This kind of professionalization reflects the "academic tribe" mentality mentioned earlier and could be a hindrance to achieving solutions to problems that cannot be contained in categories. What then is the point of the disciplines and interdisciplinary studies?

WORKING ACROSS THE DISCIPLINES TOWARDS THE GOALS OF SCHOLARSHIP

The disciplines are important in that they allow depth in the development of theory, concepts, methodologies, and skills. It is, however, important to remember the goals of scholarship, so that the discipline is not pursued for its own sake. Academics thrive in their disciplines through learning and teaching, research, and sometimes, the use of the products of research. Aside from the usual routines and expectations, what then is the deeper goal of these activities?

There is an aspect of scholarship that is concerned with understanding the world to a certain precision (Kuhn 42), and this is done using the perspectives of the disciplines, such as understanding the natural world through biology, chemistry, physics, mathematics, etc.; understanding persons and society through psychology, anthropology, sociology, economics, history, etc.; and understanding the transcendent through philosophy, cosmology, and theology, etc..

There is also an aspect of scholarship related to learning, that is, the development of the whole person and qualities associated with such development, such as knowledge, critical thinking, communication, and the ability for effective interaction. Society also expects to benefit from this scholarship; hence, there is often a need to show how research can benefit society or how learning leads to more productive or involved citizens.

These aspects are reflected in the work of contemporary academics, described by Boyer in his seminal work as "separate, yet overlapping, functions," namely the scholarship of *discovery*; the scholarship of *integration*; the scholarship of *application*; and the scholarship of *teaching* (16-23). The scholarship of *discovery* is "commitment to knowledge for its own sake, to freedom of inquiry and to following, in a disciplined fashion, an investigation wherever it may lead" (Boyer 16). It is the scholarship used in discovering the Filipino epic or new species of insects. The scholarship of *integration* connects isolated facts across disciplines through a particular perspective and in a larger context, "illuminating data in a revealing way, often educating non-specialists" (Boyer 18). Very much in the spirit of interdisciplinarity, this is the scholarship used in developing systems of humanitarian logistics, integrating data science, operations research, and supply chain management, among others. The *application* of knowledge to large and complex problems is yet another function, while continuing to contribute to human knowledge (Boyer 23). For example, climate science, environmental science, agriculture, sociology, political science, economics, and management are among the disciplines that contribute to the study of food security. The scholarship of *teaching* aims to "build bridges between the teacher's understanding and the student's learning" (Boyer 23). This scholarship is used to systematically find ways toward effective teaching and learning.

Given the goals and types of scholarship, it follows that depending on the problem at hand, some solutions can be found using a particular discipline, while some solutions need multiple disciplines. Multiple disciplines are generally needed (1) to resolve real-world problems; (2) to address problems related to complex systems; (3) to effectively implement policy or apply research; (4) and to generate groundbreaking insights, theories, and technology.

Resolving real-world problems often cannot be accomplished by single disciplines. Disaster risk reduction and management require the combined expertise of climate change scientists, environmental scientists, sociologists, economists, political scientists, and communication practitioners, at the very least. Telecommunications require expertise from engineers, physicists, computer scientists, and even urban planners. Many societal, environmental, political, industrial, scientific, and engineering problems need to be addressed by multiple disciplines since they provide different perspectives (Choi and Pak 357, 358; Repko, Szostak, and Buchberger 36-38).

Because of the complexity of natural and social systems, research and learning about them inherently involve questions that need to be addressed by multiple disciplines. With growing specialization in the disciplines, there is a growing trend to have multidisciplinary teams working on complex problems (Choi and Pak 358; Repko, Szostak, and Buchberger 33-34; Szostak 44). Many of these complex problems are also real-world problems, such as understanding and controlling a disease. However, there are some complex problems that are being studied to get the big picture. There is a better understanding of the origins of the universe because of the work of mathematicians, physicists, chemists, (and those in between) who study heavenly bodies (the very big) as well as the work of mathematicians, physicists, chemists, (and those in between) who study sub-atomic particles (the very small). Understanding the earth's climate is the combined effort of those who study the atmosphere, the oceans, solar radiation, land use, human activities, and their interaction. Space travel would not be possible without the contribution of physicists, engineers, chemists, psychologists, doctors, mathematicians, biologists, material scientists, and many others.

Effective implementation of policy or application of research also requires multiple disciplinary perspectives because they are inevitably social problems (Choi and Pak 358; Repko, Szostak, and Buchberger 37-38). Health care requires a range of competencies not only in the clinical, public health, management fields, but also in economics, psychology, sociology, and governance. Operations research can optimize traffic flow schemes, but their implementation requires a good understanding of culture, communication, and technology. Forest management is enriched by input of forest and environmental scientists, geographical information systems, botanists, zoologists, geologists, among others.

The generation of groundbreaking insights, theories, and technology requires a balance among creative intelligence, analytical intelligence, and practical intelligence (Stern cited in Repko, Szostak, and Buchberger 39). Creativity is often born of initially unrelated ideas from two or more disciplines. Like the sociological imagination described by C. Wright Mills, such creativity "in considerable part

consists of the capacity to shift from one perspective to another, and in the process to build up an adequate view of a total society and of its components … There is a playfulness of mind … as well as a truly fierce drive to make sense of the world" (210-211). Good grounding in different disciplines, which comes with a grasp of concepts and methods, provides a good foundation for analytical thought. Practical intelligence, which may sound intuitive, actually would need both grounding in fundamentals (in business, interactions, etc.) and sensitivity. The use of management tools and competencies in development has given rise to creative forms of social enterprise in the Philippines. The combined inputs of management (specifically marketing), computer science, information design, and psychology have helped in the development of many Internet applications that have ended up as successful businesses.

THE CHALLENGES OF IMPLEMENTING INTERDISCIPLINARITY IN THE PHILIPPINES

In the Philippine setting, the word "interdisciplinary" has often been used loosely and in a very broad way, often being used to mean "multi-" or "transdisciplinary." Many Filipino academics use the three terms interchangeably, perhaps because in the local context, there are very clear boundaries among the different accepted disciplines and there are few truly interdisciplinary endeavors. It may be important to note that some of the existing "disciplines" in our educational system started as a form of interdisciplinary studies, such as biochemistry, material science, cultural studies, sustainability, health science, and environmental science; however, most of them grew into mature disciplines, which were then adopted in the Philippine setting.

CHED itself does not define it with the nuances and assumes that "interdisciplinary" is in the spirit of working "between, among, in the midst of disciplines" (Repko, Szostak, and Buchberger 7), because it is at a stage when it is encouraging higher education institutions (HEIs) to get a more holistic perspective of education and research, and thus recognizes various forms of interdisciplinary initiatives. The CHED Technical Panel on the General Education Curriculum has been discussing the challenges of interdisciplinarity during consultations with HEIs and has taken the lead in designing sample syllabi and in supporting teacher programs to properly guide the HEIs.

It is interesting to note that the CHED Memorandum Order (CMO) No. 20, Series of 2013, with the subject "General Education Curriculum: Holistic Understandings, Intellectual and Civic competencies," takes on a very interdisciplinary approach,

not in its nuances, but in the interplay of the content and perspectives of different disciplines. CMO No. 20, s. of 2013 describes the role of General Education in the Philippine higher education curriculum, namely, the development of "intellectual competencies, such as critical, analytical and creative thinking, and multiple forms of expression; and civic capacities demanded of membership in the community, country, and the world, " in order to expose students to "different ways of knowing." Furthermore, Section 3 states that the "core courses are inter-disciplinary and are stated broadly enough to accommodate a range of perspectives and approaches." Section 4 also states that each general education (GE) subject must "apply an inter- or cross-disciplinary perspective." These points must be understood in the context of the introduction of the K-12 basic education curriculum as well as the Philippines Qualifications Framework, which are efforts to align Philippine education with regional and global standards.

The earlier CMO No. 59, s. of 1996, with the subject "New General Education Curriculum" (GEC), likewise had a section on "Interdisciplinary Approach," which states that "the implementation of the new GEC must be characterized by an interdisciplinary approach which would help students see the human being as an integral person living in both a national and a global community." This CMO was issued two years after CHED was created through Republic Act No. 7722 or The Higher Education Act of 1994.

Except for a few universities that have committed to a core curriculum, usually with a liberal arts slant, Philippine HEIs focus on the major's curriculum and simply comply with the General Education Curriculum required by the CHED. This GE curriculum provides a broader perspective for most baccalaureate programs in the Philippines, since the courses under this curriculum are not specific to the discipline of specialization (major) of the student. However, the curriculum prior to CMO No. 20 s. 2013 have courses that are still discipline-based: English, Mathematics, Natural Sciences, History, Political Science, and Economics. The new CMO, however, has opted to take a more interdisciplinary route, with courses like Understanding the Self; The Contemporary World; Purposive Communication; Art Appreciation; Science, Technology and Society; and Ethics (CHED, "CMO 20" 6-7). The goal is the "holistic development of the person" in the individual, Philippine, and global realms (CHED, *CMO, no. 20* 4).

Such an approach inevitably challenges the current resources of most Philippine HEIs because most teachers are trained within their discipline and they are usually not equipped with skills for interdisciplinary courses; hence, there is a need to prepare for its implementation (Tabora 7-8). College teachers of Filipino courses also protested the exclusion of Filipino as a course (subject) in the GE curriculum, with the possible threat to their employment, and the National Commission for

Culture and the Arts' National Committee on Language and Translation (NCCA-NCLT) signed a resolution asking for the revision of the GE curriculum to include nine units of Filipino (Angeles, pars. 1, 4). CHED reviewed the matter and responded with possible actions to address the matter (Licuanan 1-4).

The challenges of implementing interdisciplinarity in the Philippines are complicated and need to be could be broken down into components that could yet benefit from interdisciplinary dialogue.

First, different issues should be separated so that they can be resolved in appropriate ways. In the case of the lack of Filipino courses in the GE curriculum, the philosophical or ideological issues related to language are resolved differently from issues of tenure; the former could be addressed through the changes in the content or delivery of the curriculum while the latter could be resolved from a management of labor and resources. The challenges of conducting interdisciplinary research and interdisciplinary teaching may both be resolved with training, but they are done in two separate realms; the issues of one should not be used to critique the other. Using the different perspectives of interdisciplinarity may help us better resolve issues, such as philosophical grounds versus preservation of the academic tribe versus sociological perspective of the labor market versus management issues versus educational approach.

Second, there is a need for leadership that can navigate through the complex relationships of the disciplines as well as experts who are simultaneously immersed in more than one discipline, who see the big picture, and who are ready to engage others. Without effective leadership, it would be difficult to effectively dialogue among disciplines. There is a need for a champion who respects and brings out the positive qualities of each discipline involved in the interdisciplinary endeavor. On the other hand, experts with a broader perspective, who also respect other disciplines, complement the leader's role in the dialogue.

Third, interdisciplinarity cannot be used as an excuse for lack of rigor and depth in the training of the disciplines. Real interdisciplinarity can only happen when there is good grounding in the disciplines involved. Integration can only happen when the participants have a good grip on the components of the framework. Thus, education should still have a balance of courses that are discipline-based and courses that can integrate and show the big picture.

Fourth, there should be effective ways of assessing real outcomes of interdisciplinary work, so that these can truly contribute to resolving real-world and complex problems, to effective application of studies, and to new knowledge. There should also be ways of assessing the learning outcomes of interdisciplinary

approaches in the realm of teaching and learning. Through these assessments, there are milestones by which the progress of integration and collaboration is observed.

Finally, the challenges above might be better addressed by the bigger challenge of defining an institution's desired outcomes, both for its graduates and its research output. Such an articulation of goals would help in clarifying the roadmap, the framework, and the vision of the entire community. Such an articulation will also guide the support systems for faculty members and students as they shift to new modes of teaching, learning, and assessment.

FURTHER STUDIES IN INTERDISCIPLINARITY

To address these challenges, it might help to study different aspects of interdisciplinarity, namely teaching and learning (interdisciplinary education), research (interdisciplinary research), employment and career development (management of disciplinary and interdisciplinary initiatives), leadership, and assessment, as they apply to the Philippine setting. Aside from dialogues, studies could be pursued using more quantitative methods to measure impact and reach of these different types of interdisciplinary initiatives.

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