



Interdisciplinary Studies and Scholarship **Issues, Challenges, and Implications for “Third World” Development and Social Change**

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Abstract: The world has always been confronted with complex problems that defy simple solutions via monistic disciplinary approach. This challenge has become highly pronounced from the last quarter of the twentieth century to date under the regime of neoliberal globalization. This article briefly addresses the theme of interdisciplinary studies as an important solution to complex problems that defy monistic disciplinary solutions. It defines interdisciplinary studies and differentiates it from multidisciplinary and transdisciplinarity. It highlights the different approaches to interdisciplinary studies and the social characteristics of people who are best able to engage in interdisciplinary scholarship. The article concludes by applying the concept of interdisciplinary studies to the specific area of development studies and social change in developing countries by evaluating the dominant approach to development in “Third World” countries. It maintains that reducing development to a purely economic phenomenon leads to economic growth without development or progressive social transformation. It affirms that “Third World” development needs to be treated as an interdisciplinary project in order to approach development in a holistic manner. This entails transforming the organizational culture of universities, their reward system, and the social and behavioral orientations of persons that work as scholars within the universities.

WHAT IS INTERDISCIPLINARY STUDIES?

In the modern world, learning has become so systematized that it is no more left to trial and error. In the words of Weber (Gerth and Mills, 1958), science has become a vocation. Consequently, there is significant discussion on what is the best way to conduct research and organize learning experience in such a way that will produce

knowledge helpful in providing comprehensive understanding and solutions to complex problems that plague our contemporary societies.

One answer to this has been Interdisciplinary Studies or an interdisciplinary approach to research and scholarship. Interdisciplinary Studies is not the only term that is used for the effort to address this kind of concern. Other terms that have been used are Multidisciplinary / Multidisciplinary Studies, and Transdisciplinar-

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ity /Transdisciplinary Studies. There is no general or fundamental agreement on these terms. Yet Allen Repko (2008:11-18) has provided excellent and concise summary definitions that are helpful in clarifying the terms even for a casual reader.

Before proceeding to address other themes, it is critical to define interdisciplinary studies and clarify how it is different from multidisciplinary and transdisciplinary studies. Furthermore, three different but related types of interdisciplinary studies will be presented. Interdisciplinary studies has been defined in different ways by several scholars. Some of the definitions are:

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 or profession...and draws on disciplinary perspectives and integrates their insights through construction of a more comprehensive perspective. (Klein and Newell, 1997: 393-394)

On the other hand, the definition put forward by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine is as follows:

Interdisciplinary research (IDR) is 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 Academy of Sciences et. al., 2005: 39)

In her definition of interdisciplinary work, Veronica Boix Mansilla pays particular attention to the concept of "interdisciplinary understanding," which she explains as follows:

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. (Boix Mansilla, 2005: 16)

The working definition used in this article is a synthesis by Repko of the three preceding definitions. His synthesis of the three definitions is as follows:

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 disciplinary perspectives and integrates their insights to produce a more comprehensive understanding or cognitive advancement. (Repko, 2008: 12)

We can conclude from all these definitions that interdisciplinary studies is a process in motion, and not something fixed and specific. It is not a research tradition that is willing to proclaim the end of history out of hubris. Although the goal of interdisciplinary studies is to go beyond the confines of disciplinary parameters, it presupposes them and builds on them. Thus, it does not intend to do away with disciplines but rather to use them to produce something much higher and more creative. In this respect, interdisciplinary

studies is geared toward going beyond the aggregation of insights from different disciplines by integrating them in the same manner that a smoothie is produced by bringing different fruits together and transforming them into something that is qualitatively different from mere aggregation (Nissani, 1995).

Another way to characterize what interdisciplinary studies does is by creating an atmosphere of legitimate and flexible border crossing and creating new innovations in the borderland areas of disciplines (Siune, 2002: 17). Apart from the fact that interdisciplinary studies is problem-driven, it is also important to observe that interdisciplinary research projects or scholarship focus on something that is very complex such that the complexity defies any adequate solution that can be provided from within the confines of a single disciplinary perspective (Callanan, 2004).

Repko asserts that henceforth, there should be no confusion or conflation of interdisciplinary studies and multidisciplinary studies. The main difference between the two is that "multidisciplinarity refers to placing side by side the insight from two or more disciplines... but makes no attempt to integrate the insights produced by these perspectives into an interdisciplinary understanding of the topic" (Moran, 2002: 16, as paraphrased by Repko, 2008: 13). Integrative work, which is at the core of interdisciplinary studies, is stupendously challenging and time consuming, but comparing perspectives from different disciplines without integrating the insights falls short of interdisciplinary studies. What this means is that there is a fundamental difference in the way interdisciplinary scholars pursue their research and the end product they hope to come up with after doing the research *vis-à-vis* multidisciplinary scholars (Rogers, et. al., 2005: 267). Nikitima asserts that both multidisciplinary and interdisciplinary scholars are dissatisfied with monistic disciplinary ap-

proaches to issues, but multidisciplinary stops at what might be described as comparing and appreciating but doing nothing more than that (Nikitima, 2005: 413-414).

Lattuca defines transdisciplinary studies as "the application of theories, concepts, or methods across disciplines with the intent of developing an overarching synthesis" (Lattuca, 2001: 83). The key difference here is interdisciplinary scholars are initially inspired by a complex problem that defy simple solution, and then they scout different disciplines, theories, and perspectives for insights that can help in providing comprehensive understanding and solution to the problem. The transdisciplinary scholars begin by looking for similarities in problems that cut across disciplines and then develop an approach to understanding the problems that transcends the disciplines. It is in many respects a quasi-totalizing project given that it develops a major idea that can become an organizing principle for issues or problems that transcend several disciplines. A transdisciplinary crosses a disciplinary boundary as the interdisciplinary does, but more than that, the transdisciplinary invites people in different parts of the society to be involved as parties with a vested interest in a project. The transdisciplinary crosses and transcends disciplinary boundaries in an effort to come up with a relatively discipline-transcendent conceptualization of knowledge, theories, or terms. "Power" is an example of transdisciplinary overarching theme that can be used to develop transcendent theories that can interrogate what is happening across disciplines (Dolling & Hark, 2000: 1196-1197).

Within the tradition of interdisciplinary studies there is, as highlighted earlier, a variety of orientations and different research agendas pursuing different goals, with varying emphases on disciplines and critical science. Repko, based on a variety of existing literature on this subject, identifies three different forms of interdisciplinary

approaches. One is “instrumental interdisciplinarity,” which involves “a pragmatic approach that focuses on research, methodological borrowing, and practical problem solving in response to the external demands of society” (Repko, 2008: 17-18). However, borrowing alone is not sufficient for instrumental interdisciplinarity because it requires integration. From this perspective, the goal is to solve a specific complex problem or to constructively critique monistic disciplinary perspective.

Second, is “conceptual interdisciplinarity” which is a form of interdisciplinarity that “emphasizes integration of knowledge and the importance of posing questions that have no single disciplinary basis” (Salter & Hearn, 1996: 9, as paraphrased by Repko [Repko, 2008: 18]). This conceptual approach provides a solid critique of narrow disciplinary reasoning that resembles monotheistic religious traditions that make exclusive claims. Their goal is to develop overarching ideas, themes, or organizing principles that can interrogate the way concepts, theories, and epistemological assumptions are used in different disciplines.

The last form of interdisciplinarity studies is “critical interdisciplinarity.” Its aim is “to interrogate existing structures of knowledge and education, raising questions of value and purpose” (Repko, 2008: 18). Critical interdisciplinarians are suspicious of attempts by pragmatic scholars who are committed to interdisciplinarity research and scholarship and crossing disciplinary boundaries but do not ask transformational questions regarding their approach to solving problems. They do not deny that interdisciplinarity research and scholarship can solve and should solve complex problems, but solving problems without asking fundamental questions about the structure of society can easily fall into the hands of powerful and privileged elites. Thus, in the tradition of critical science, they demystify reality by showing the intricate interconnection between different spheres of soci-

ety—e.g., politics, culture, literary works, and arts (Alway, 1995). This form of interdisciplinarity research and scholarship is committed to and advocates for the “inclusion of low culture” in the scheme of public affairs (Klein, 2005: 57-58). This suggests a commitment to voices that are marginalized and a desire to create mechanisms for them to be validated and included (Freire, 1997; Habermas, 1971; McLaren and Lankshear, 1994).

Although there are differences in the three forms of interdisciplinarity research and scholarship, this does not preclude the ability to combine the forms. One can be instrumental while being critical as well. And indeed, to be instrumental without being critical can be dangerous as it can easily buttress the powerful and privileged while delegitimizing and marginalizing the weak and underprivileged.

At this juncture, it is appropriate to formally ask: what is the rationale for interdisciplinarity research and scholarship?

REASONS AND OBJECTIVES FOR INTERDISCIPLINARY RESEARCH AND SCHOLARSHIP

Repko (Repko, 2008: 20-31) identifies several factors that scholars have put forward as rationale for interdisciplinarity research and scholarship. Citing Antoine de Saint-Exupery, he asserts that the first rationale is “specialization can blind the student to the broader context” (de Saint-Exupery, 2000: 45-46). What Repko is asserting here is how a fundamental commitment on the part of a person to specialize in a particular discipline can affect the person’s ability to look at things from a bird’s eye perspective in order to appreciate the big picture. Disciplines are becoming more specialized, yet the more they become specialized the narrower their perspective and the more critical the need for interdisciplinarity research becomes.

Related to the dangers of specialization, one needs to appreciate how that can lead to a “tunnel vision” of reality. A tunnel vision of reality rooted in a disciplinary epistemology and perspective can lead to devastating mistakes in public policy (Blaut, 1993). This happens because no matter how sharp a group of scholars are, if they operate within a single disciplinary perspective or epistemology, they are less likely to see the broader consequences and implications of the idea or public policy they have espoused (Dietrich, 1995). Persons who operate within a single perspective or discipline often fail to appreciate what they can learn from other disciplines. Unfortunately when public policies are developed on the basis of single disciplinary perspective, they achieve less than optimum results because the policy was based on partial instead of comprehensive understanding of social reality. For instance, the implementation of the neoliberal economic reforms in Africa and other parts of Latin America known as Structural Adjustment Program (SAP) was initially singularly rooted in the perspective of market rationality (Mihevic, 1995; Nelson, 1990). There was no attempt to understand comprehensively all the factors and processes that are relevant to economic reforms. Thus, in the singular pursuit of market rationality and efficiency, much havoc was done to the lives of people and institutions in the developing regions. The proof to this claim is that even the World Bank and the International Monetary Fund admitted they have made mistakes based on parochial reasoning and hence revised their policies (Todaro and Smith, 2009: 551-554; Stiglitz, 2006). This is one reason why interdisciplinary approach to research, scholarship and public policy is important.

Interdisciplinary research and scholarship is also profoundly important because even though disciplinary approaches to issues try their best, the scope of each discipline is circumspect while reality is

complex and does not fit within the rigid demarcation of disciplines as they exist today. Consequently, many important issues fall between the cracks because they do not directly fit the subject matter of normal disciplines in the university (Baum, 2002: 21). Interdisciplinary scholarship, on the other hand, addresses such issues that do not fit the scope of any one discipline but need the perspective of several disciplines in order for comprehensive understanding to be achieved (Klein, 2000: 16). Building on the preceding point, some scholars (Sill, 1996: 136-149; Snow, 1964: 16) make the case that some major “creative breakthroughs” in scholarship are often achieved when interdisciplinary scholars and researchers operating like social entrepreneurs draw, combine, and integrate insights from different sources to create something new. Snow asserts along this line of reasoning as follows:

The clashing points of two subjects, two disciplines, two cultures—of two galaxies, so far as that goes—ought to produce creative changes. In the history of mental activity that has been where some of the breakthroughs come [from]. (Snow, 1964: 16 as cited in Repko, 2008: 30)

It is clear from the foregoing that creating, nurturing, and promoting a culture of interdisciplinarity or pluridisciplinarity is critically needed for generating solutions to complex problems that defy easy solutions. Thus, we should expect more creative solutions in such cosmopolitan environments. In pursuant of this, it is relevant to explore the different forms or modes of interdisciplinary cooperation.

FORMS AND EXAMPLES OF INTERDISCIPLINARY COOPERATION

Interdisciplinary cooperation can be ranked in terms of the intensity or depth of engagement from one discipline to another. At the lowest level, interdisciplinary cooperation can take the form of people working in one discipline taking note of what people in another discipline are doing, or it may go further when people working in different disciplines provide mutual assistance to each other (Niessen, 2002: 53). At a higher level, scholars working in different disciplines may begin to work on common terminology in order to create a relatively common language for communication. At a deeper level, once the common language is developed, theoretical or methodological cooperation can be achieved, which would transcend scholarly discourses that operate within a single disciplinary theory or methodology (Niessen, 2002: 53).

Ultimately, the highest level of expression of interdisciplinary scholarship or research is developing an integration of the different perspectives to produce either a theory or a methodology. It is important to note that the higher the level of development of interdisciplinary cooperation, the more challenging and difficult it is to create, maintain, and sustain, but by the same token, the more beneficial the cooperation will be (Niessen, 2002: 53). Furthermore, interdisciplinary research or scholarly teams are best able to maintain a high level of cooperation when the nature of their disciplinary cooperation is "problem driven" in nature rather than something merely abstract (Siune, 2002: 19).

To broadly appreciate the nature of interdisciplinary cooperation, one needs to look at how research councils are structured in the developed world based on constellations of subjects. The research council categories are: health sciences, social sciences, humanities, technology, natural sci-

ences, agriculture, and veterinary sciences. To illustrate how interdisciplinary research works with particular reference to solving or providing solution to a complex problem, Siune (2002: 20-25) provides a few examples. Mass communication is an example of interdisciplinary research that requires cooperation between the social sciences and humanities. Social medicine is another example of an interdisciplinary project that draws and combines research from health science and social sciences. Information technology is another research project and scholarship that straddles several research areas, including the social sciences, humanities, technology, and the natural sciences. Finally, biotechnology is another very good example of interdisciplinary research and scholarly cooperation that engages the following areas of specialization: health sciences, social sciences, humanities, technology, natural sciences, agriculture and veterinary sciences.

The above provide good examples of how interdisciplinary research is at its best when it is problem-driven and committed to achieving comprehensive understanding by integrating difficult but relevant perspectives to the problem at hand. Synthesizing several other sources and types of definition, Repko provides the following as the definition of integration, which he asserts is the major end product of interdisciplinary research and learning:

Interdisciplinary integration is the process of creatively combining ideas and knowledge from disciplinary and other sources to produce a more comprehensive understanding or cognitive development. (Repko, 2008: 123)

It must be quickly highlighted that for Repko, although integration is the major end product of interdisciplinary research and scholarship, it is not the ultimate goal of interdisciplinary studies. The ultimate

goal is to use this newly developed comprehensive understanding through the process of integration to solve complex problems in society that defy simple solutions.

Many reputable scholars in the area of interdisciplinary studies have also stressed the importance of integration to all processes of interdisciplinary research, learning, and scholarship. Boix Mansilla (Boix Mansilla, 2002: cited in Repko, 2008) asserts that "Individuals demonstrate interdisciplinary understanding when they integrate knowledge and models of thinking." In articulating the meaning of integration for interdisciplinary scholarship, Richards (1996: 124) goes so far as to say that integration "is what ultimately distinguishes genuine interdisciplinarity from multidisciplinary." He asserts that multidisciplinary only "arrange(s) in serial fashion the separate contributions of selected disciplines to a problem or issue, without any attempt at synthesis" (Richards, 1996: 124). Klein builds on Richards by explaining the drawbacks of multidisciplinary when she states that multidisciplinary "signifies the juxtaposition of disciplines and is essentially additive, not integrative" (Klein, 1990: 56). In an extensive analysis, Newell (1988) makes the profound case for interdisciplinarity when he argues that without integration there is no genuine interdisciplinary work or interdisciplinarity in scholarship. He asserts:

The pragmatic and epistemological value of interdisciplinary study is ultimately determined by the success of interdisciplinarians in carrying out...integration, because all save the antidisciplinarians identify that as its distinguishing feature. Theoretical clarity and agreement concerning the nature of interdisciplinarity, its outcomes, the role of the disciplines, and the nature of...integration would be of no avail if interdisciplinarians were

unable to accomplish integration. The respect of disciplinarians in the academy, the demand for interdisciplinarians to assist in solving complex societal problems, the success of radical critiques, and the long-term prospects for interdisciplinary education are all dependent on the proven success of integration. (Newell, 1998: 550)

Like other scholars, Newell is of the view that the goal of integration as a core aspect of interdisciplinarity is to use the acquired breadth and depth of knowledge for a comprehensive understanding that can be used to solve the complex problems that confront humanity.

Synthesizing the work of other scholars and their insights, Repko (2008:124-125) maintains that integration cannot take place without the scholars engaging in triangulation, developing disciplinary adequacy, and acquiring breadth and depth. Triangulation, when used within the framework of interdisciplinary work, means "achieving balance between disciplinary depth, breath, and disciplinary integration." A different kind of depth is required in interdisciplinary scholarship. The first dimension of depth is the scope of disciplines that have been consulted for insights, while the second dimension is the degree to which the differences among different perspectives and the sources of the differences have been carefully identified and on that basis a "common ground" developed for furthering a more advanced, comprehensive, and integrated understanding.

Klein proposes that adequacy in terms of knowledge when one is involved in interdisciplinary research and scholarship requires a person's ability to acquire sufficient understanding of theories, concepts, assumptions, and methodological issues that are necessary and relevant for working on a particular topic or theme (Klein, 2005: 68). How much knowledge is

needed or sufficient varies with the topic being investigated. Depth and rigor is critical in the process of acquiring sufficient knowledge, but Klein asserts that the meaning of depth and rigor in interdisciplinary analysis, research, or scholarship is redefined as follows:

Depth in interdisciplinary work derives from competence in pertinent knowledges and approaches, and rigor derives from attention to integrative process. (Klein, 1996: 212)

For an interdisciplinary scholar, rigor means being meticulous when the scholar embarks on the process of integrating insights from different disciplines, the content of the integrated knowledge, and how the integrated knowledge is tested and evaluated for robust empirical validity.

The breadth of interdisciplinary scholarship focuses on the degree of the epistemological relationship between or among the disciplines that have been consulted in the process of coming up with a comprehensive and integrated understanding of a problem as a step toward developing a solution. Epistemological relationships in turn can be either distant or close. It is "epistemologically distant" when the insights are significantly different from each other in their constitution (e.g., natural sciences and humanities). On the other hand, "epistemologically close" relationships mean the disciplines consulted are similar to each other in their constitution (e.g., social and behavioral sciences or sociology and anthropology).

Klein warns that integration cannot be said to have taken place if the only thing that was done involves "simply mastering a body of knowledge, applying a formula, or moving in linear fashion from point A to point B." Integration only occurs when there is "active triangulation of depth, breadth, and synthesis." He further makes

the observation that the preconditions for integration are: "disciplinary knowledge which includes depth and breadth, integrative skills, integrative knowledge, and an integrative mind-set" (Klein, 1996, p. 212).

There are several ways of pursuing interdisciplinary integration, which will be discussed below.

APPROACHES TO INTERDISCIPLINARY COOPERATION AND INTEGRATION

Drawing insights from numerous sources, three approaches or models can be identified for interdisciplinary cooperation and integration. Each model or approach has a vision, theory behind the vision, how it is practiced, and the relative advantages and disadvantages of the model (Repko, 2008: 126-129; Niessen, 2002: 51-54).

The first model of integration in interdisciplinary studies has been characterized as being committed to searching for "an overarching conceptual framework." Kockelmans clarifies this approach in the following manner: "the discovery of overarching conceptual frameworks." What this means is coming up with a conceptual framework of reasoning under which diverse subject matter in different disciplines can be subsumed (Boix Mansilla, 2002: 18). The fundamental motivation behind this is the hope that when discovered, the "overarching conceptual frameworks will facilitate the unification of the sciences and eventually the solution of important problems with which the existing disciplines acting in isolation are incapable of dealing effectively" (Kockelmans, 1979:142).

Although this is a worthwhile effort, it comes across as a totalizing project, and if this was truly possible given the complexity of reality, anyone who controls the process or the result can be dangerous to humanity as it gives him or her too much

power and control. Some scholars are uncomfortable with this vision and they characterize it as a utopian venture (Rayner, 2002: 67-74).

The second approach or model to interdisciplinary integration or cooperation has been identified simply as the pursuit of "comprehensive perspective" or understanding. The goal of this vision of integration is to shrink the gap between overspecialization in disciplines on the one hand and interdisciplinary scholarship on the other hand. According to scholars who espouse this model, it helps people to develop the capacity to learn multiple perspectives and on that basis compare, contrast, analyze, combine, and develop a synthetic understanding (Hursh, Haas & Moore, 1983: 43). Hursh et al. argue that interdisciplinary scholarship has practical appeal because it is pragmatic in orientation to the extent that it is motivated by the desire to solve practical problems instead of a fanatical commitment to an ideology. For scholars to practice this model of integration effectively, they need a variety of skills that "include such cognitive functions as recognizing and defining problems; analyzing the structure of an argument; assessing the relationships of facts, assumptions, and conclusions; and performing hypothetico-deductive processes" (Hursh et al., 1983: 43-44). This implies that the model is committed to developing a hypothesis on the basis of synthesis of perspectives and then subjecting such a hypothesis to empirical verification as a step toward solving complex problems in human society. The approach in practice involves integrating diverse individual phenomena at a higher level of aggregation so that concepts are developed that systematically describe diverse phenomena because of some essential feature that applies to all the diverse elements.

The third model or approach to interdisciplinary integration is referred to as "interpretation" (Repko, 2008: 128). The vision

of this model is that there should be free and flexible borders crossing all disciplines so that a new creative form of scholarship can emerge in the borderlands. The model is not necessarily insisting on the abolishment of disciplinary boundaries, but rather the boundaries should be treated as contingent and porous so that people can freely cross the borders to come up with creative knowledge (Peck, 1989:179-180). Fuller (1993: 330) calls it the "renegotiation of disciplinary boundaries." The inspiration for this model and vision of interdisciplinary integration is Foucault's archeology of knowledge, which is a kind of cultural analysis and sociology of knowledge that traverses many disciplines (Klein, 1996). One major insight from Klein is that Foucault argues that texts do not have a substantive ontological status that is self-contained and complete, because to fully analyze them we have to critically examine the "historical, social, political, and economic environments" (Repko 2008: 128) that constitute the fertile soil that nurtured the growth and production of such texts (Cosser, 1977).

Scholars working in the interdisciplinary scholarly tradition assert that integration should be treated as a process in motion rather than something fixed (Seabury, 2002: 47). Seipel (2005) asserts that one should never expect integration to be smooth and tidy, but rather it might often be convoluted. Some disciplinary perspectives are irreconcilable and their positions diametrically opposed to each other, which means the room for a common ground is limited. Overall, when integration is successful, it would satisfy the following criteria: "It must explain a specific phenomenon comprehensively. It must be greater than the sum of its separate disciplinary parts" (Repko, 2008: 131). Whatever model or approach to interdisciplinary integration one adopts, there are certain elements that are non-negotiable. Integration work should not be treated as a universal

solution to all problems. Rather, given their problem-driven nature and pragmatic approach, the integration work must be directed to something specific, and therefore one should not make the mistake of applying an integrated body of knowledge beyond the intended scope for its usage. The insights and perspectives integrated are in the first place determined by the nature of a specific problem, and so another problem will entail the integration of different perspectives and insights (Siune, 2002: 17-26).

Irrespective of the model or approach one uses for integration, one should understand that the problem being addressed must be one that requires insights and contribution from different disciplines in order to be fully and comprehensively understood and solved. What this means is that to conduct excellent interdisciplinary research or scholarly work, one needs strong disciplines, professional expertise in relevant areas, and an integrative mindset that presupposes certain qualities (Repko, 2008: 130). The qualities of an integrative mindset include having intellectual flexibility, a willingness to listen to and appreciate all perspectives without being fixated on one perspective, and thinking in an inclusive way while desiring to create balance among the perspectives of different disciplines. Given what appears to be the excellent advantages of interdisciplinary research and scholarship, a relevant question to ask is how can we institute and sustain interdisciplinary research and scholarship?

KEY ELEMENTS IN INSTITUTING AND SUSTAINING INTERDISCIPLINARY RESEARCH AND SCHOLARSHIP

To institute and sustain an effective interdisciplinary program of research and scholarship, the interdisciplinary project would have to be conceptualized in terms of a problem-driven research agenda and

framed appropriately (di Valdalbero & Osario, 2002: 55-58). Unless interdisciplinary research and scholarly work is tied to the fundamental goal of solving concrete problems in society, it would not succeed on a sustained basis. Related to this, interdisciplinary research cannot be executed by people who are insecure in their own disciplines, especially when such insecurity is further complicated by the potential participants not having an open-minded worldview in terms of their approach to solving problems (Rayner, 2002: 67-74). Many scholars develop loyalty to their disciplines just as people develop loyalty to their nation-state and strictly supervise their international boundaries in order to prevent border crossing, both legal and illegal. Such persons are monist in their worldview and cannot constitute effective participants in interdisciplinary research projects or scholarly work.

To also sustain a dynamic, truly balanced, and working interdisciplinary research project and scholarship, the process of constituting an interdisciplinary research team must avoid admitting some persons representing a discipline on the basis of tokenism (Repko, 2008: 169-176). The representation of all disciplines or perspectives in the interdisciplinary team must reach a point where their presence and contribution would make meaningful impact. This in turn means they cannot be brushed aside as irrelevant because their voice is only heard as a distant echo. This, of course, also means that trust and honesty are fundamental in constituting the interdisciplinary team because this would ensure that no one is admitted for public relations purposes or window-dressing, if the team leaders do not truly want to meaningfully integrate the perspectives of some participants in the research or scholarly team.

Interdisciplinary research project teams and scholarship cannot be sustained in their effort to produce excellent work if and when the members of the team and project

have not had enough time to cultivate social capital and relationship among themselves, build trust, and understand the professional jargon and expertise of their colleagues in the team (di Valdalbero & Osario, 2002: 55-58; Niessen, 2002: 53-54). What this means is that any attempt to promote interdisciplinary research, the team or work group must realize that relationship building, effective communication skills, and emotional intelligence are critical social skills that are integral to the execution of the research project, in addition to technical expertise.

Generally, interdisciplinary research draws participants from different university disciplines or departments. Sometimes, they may even have research team participants that are outside academia. In terms of career and professional development and growth, what this means is that interdisciplinary research work and scholarship will require a supportive reward structure and system that are suited to the idiosyncratic nature of how it operates (The Danish Institute for Studies in Research and Research Policy, 2002: 118-120). For instance, it is a well known fact that the rate of publication by persons engaged in interdisciplinary research projects is comparatively slower compared to persons engaged in parochial disciplinary scholarship. Yet all participants want to be promoted; receive tenured position; and be recognized for their contribution to society, knowledge, and solving complex problems. What this means is that any society that wants to promote interdisciplinary research would need to equally develop a career or professional evaluation procedure and system that takes into cognizance the unique challenges that characterize interdisciplinary research work.

Finally, interdisciplinary research can best be sustained and successful where and when there is a defined, respectable, and influential audience for such a project. Such an influential and respectable audience is likely to create robust chances for generat-

ing commitment and success among the researchers (Rayner, 2002: 71). This is necessary and important because researchers who narrowly operate within the confines of their discipline have a ready-made audience that is made up of members of their disciplinary practitioners. This is not the case, however, with interdisciplinary researchers who are operating in disciplinary borderlands and trying to solve complex problems that defy narrow disciplinary solutions.

Another way to think of what makes an interdisciplinary research team successful is to approach it from what Repko (2008: 41-47) characterizes as the traits and skills of interdisciplinary studies. In the next section, the traits and skills of persons who are best able to function in interdisciplinary research teams will be analyzed. Related to this, Geertz (1980: 165-166) asserts that "The effect, if not the purpose of interdisciplinarity is often nothing less than to alter the way we think about thinking" (see also Gunn, 1992: 240). What this means is that interdisciplinarity is not just about acquiring skills and practicing them, but also a fundamental reorientation of one's mind and mode of thinking.

BEHAVIORAL AND PERSONALITY TRAITS OF INTERDISCIPLINARY SCHOLARS

The first character trait of interdisciplinary scholars is having an adventurous and enterprising approach to life. Just as engaging in an adventurous activity or being a scholarly entrepreneur involves willingness to handle risks, similarly, interdisciplinary scholars take great risks to acquire new information and insights from other disciplines and integrate them in order to solve a complex problem. To be an interdisciplinary scholar is to be willing to leave one's homeland in order to explore a strange land and be willing to cope with the

uncertainty that characterizes wandering in a borderland (Bronme, 2000).

The second trait of interdisciplinary scholars is their high interest in learning something new and the constant love to acquire new perspectives from other disciplines or situations that can provide them a deeper grasp, understanding, and relative solution to a complex and practical problem. Because of their love for learning, interdisciplinary scholars are always open to learning something new, and for this reason, they cultivate the analytical skill of knowing: the right questions to ask, the critical information they need to answer the question or problem being investigated, and how to integrate the different sources of information (Trow, 1984). To do this well, they will need adequate working knowledge of the themes, epistemology, concepts, and conceptual frameworks of other disciplines. This is surely not an easy task and suggests the fact that interdisciplinary work is not for everyone.

Interdisciplinary scholars believe the real world and real problems humanity faces are complex and defy cookie-cutter solutions or categorization. Consequently, they develop a high capability for tolerating ambiguity in research and scholarship and are never in a situation where they feel comfortable such as to claim they are at the end of history and the last people because they have discovered the ultimate solutions to a problem (Klein, 1996: 214). Interdisciplinary scholars have an irenic spirit in the sense that they study different perspectives to a problem, and out of the genuine spirit of reconciliation they initially acknowledge differences in perspectives but devote their energy to identifying common ground and integrating the different perspectives on that basis. Yet they concede that ambiguity exists because elements of some perspectives are irreconcilable and such differences have to be left how they are, while attention is devoted to building integration on common grounds (Klein, 1996: 221). Compared

to the fundamentalist approach that some scholars adopt due to their narrow and rigid loyalty to their disciplinary territorial homelands, interdisciplinary scholars are the functional equivalent of peace-makers in an academic world characterized by cold war mentality where the only way to maintain peace is through each discipline fortifying and militarizing its borders (i.e., deterrence principle). While disciplinary scholars with monistic orientations are concerned about the mastery of their disciplines and therefore able to say out of some degree of hubris that they have gotten all the final answers, true interdisciplinary scholars make knowledge claims that are always tentative and in the making because these scholars are constantly open to new perspectives and integrating them with a view to achieving greater understanding so as to solve complex problems. Participants in interdisciplinary scholarship are persons who deeply value and cultivate the capacity to reflect and for reflexivity. Interdisciplinary studies require the processing and evaluation of information from different perspectives and sources with a view to synthesize or integrate. To process different pieces of information in order to integrate them with a view to solving a complex problem requires thorough grounding in the analysis of epistemological claims with a view to identifying their strengths and weaknesses and verifying whether their knowledge claim is substantiated by their methodology or not. But as interdisciplinary scholars go deeper in the analysis of epistemological claims and their validity, they come to realize how it is impossible to separate the real concrete person from the knowing process (Callanan, 2004). Consequently, interdisciplinary scholars develop reflexive capacity as they begin to analyze their own process of knowing how they process, perceive, and analyze different perspectives of knowledge. Solving some of the complex problems in society entails learning and integrating information from different per-

spectives that are emotionally infused. Consequently, interdisciplinarity promotes the opportunity for a higher level of consciousness, awareness, and understanding of one's self; the multivalent nature of one's self; and with that a spirit of humility in recognizing other people's self and the multivalent nature of the self (Freire, 1997).

Related to the above, interdisciplinary scholars have an open mind that is receptive to the contribution of other disciplines. They are not willing to acquire the relevant knowledge of just those disciplines, but also desire to learn what the basic assumptions of the disciplines are, their epistemologies, concepts, and related knowledge claims. They are also able to appreciate other disciplines to the point of reasoning within the discipline, but yet drawing from it to integrate insights and perspectives from different sources. What this means is that interdisciplinary scholars have an intellectually curious and inquisitive spirit, roaming the intellectual forests of various disciplines like an antelope without respect to artificial fences or boundaries (Balaam and Veseth, 2005: 3-15). They are searching for relevant insights to solve the complex problems they are working to resolve. They are open to pursuing relevant insights from any discipline. The receptivity of interdisciplinarians to new knowledge suggests a cosmopolitan state of mind and attitude.

On the surface, it appears that it is not only a monumental task but an overly Herculean one for interdisciplinary scholars to learn from all disciplines that provide perspectives that are germane to the complex problem at hand. Even within single disciplines, there are varieties of perspectives that would make it impossible for a person to master them all in his or her lifetime. What more of mastering the perspectives, epistemologies, themes, and concepts of all disciplines that have some relevant contributions to make with regard to the complex problems at hand (Callanan, 2004)? Citing Klein (1996: 212), Repko provides a succinct

clarification as to what is expected of interdisciplinarians in terms of how much they should know of other disciplines. He asserts:

The difference between disciplinary mastery and disciplinary adequacy lies in the difference between learning a discipline thoroughly in order to practice (i.e., mastery) and merely comprehending how that discipline characteristically looks at the world in terms of its perspective, assumptions, epistemology, concepts, theories and methods (i.e., adequacy). The interdisciplinarian needs only to achieve adequacy, meaning knowing the disciplines' defining elements relevant to the problem. (Repko, 2008: 43)

We can draw from this citation that interdisciplinary scholars need a sound working knowledge of the disciplines whose perspectives are pertinent to their research agenda or project. Working knowledge means understanding the strength, shortcomings, and epistemological biases of the discipline, and the kind of advantages that such disciplinary insights bring to the problem at hand. Once interdisciplinary scholars have developed a sound working knowledge of perspectives of disciplines relevant to their project, they need to integrate these perspectives. Built into the whole question of cultivating adequate knowledge is the need for interdisciplinary scholars to develop a mindset and attitude that deeply appreciates diversity. Interdisciplinary work entails, in many respects, working with people who come from either different cultures or different socio-cultural backgrounds—people with different social and political orientation, and persons from different religious traditions (De La Torre, 2008). Each of these social categories is imbued with certain biases, just as interdisci-

plinary scholars are cognizant of their own personal biases and shortcomings because of their capacity for reflexivity. Appreciating diversity means recognizing that our identity is socially constructed, just as is the social identity of the other. This concession and recognition creates a conducive atmosphere for the creation of common ground growing out of interdisciplinarity.

Finally, one of the major qualities of interdisciplinary scholars is humility in spirit and actions. One fundamental issue that all interdisciplinarians come to terms with is conceding and recognizing what they know they do not know, and what different disciplines do not know about a complex problem when they look at it from a very narrow perspective (Callanan, 2004). Interdisciplinary scholars have little room for developing an attitude of hubris toward knowledge by claiming mastery. They recognize the complexity of problems and issues and develop a mindset of always being willing to learn more out of humility because they are cognizant of the fact that they do not know many things that are relevant to the complex problems at hand. Repko (Repko, 2008) provides a list of some skills that every interdisciplinary scholar needs to cultivate in addition to the traits the person needs.

WORKING SKILLS FOR INTERDISCIPLINARY SCHOLARS AND RESEARCHERS

One of the most indispensable skills that interdisciplinary scholars need is the ability to have an in-depth and sophisticated understanding of their disciplinary concepts, language, or jargon, and being able to explain and communicate these in a rendition that is easily accessible by someone outside their discipline or without the expertise of a person within the discipline. To operate effectively and productively as an interdisciplinary team, the members of

the team need to cultivate a high level of competence for communicating across disciplines and translating ideas from one discipline into another with a view to understanding each other (Walton, 1998: 117-132; Sloane, 2001: 309-314; Niessen, 2002: 53-54). Scholars of the Frankfurt School have, for instance, provided a critique of classical Marxist emphasis on production as what makes us human by pointing out that even getting into a meaningful productive working relationship is impossible without an effective language for communication so that we can create meaning through our interactions and develop relationships (Alway, 1995). In the same way, interdisciplinary research requires competence in what is the functional equivalent of cross-cultural communication because different disciplines have different cultural processes of communication.

Interdisciplinary research and scholarship entails working with a large body of information coming from different perspectives and disciplines. If the scholars are only able to think in concrete terms, there is a limit to the extent they can process, synthesize, integrate, and communicate what they have learned as a step toward solving a complex problem. Consequently, persons who will do well in interdisciplinary research and scholarship would need to have the capacity to easily think abstractly and process a huge amount of information in an abstract manner. Beyond that, once they process the information abstractly, they should have the ability to represent and communicate this abstract information using "symbols" and "metaphors" that are familiar to people who are more comfortable with a concrete mode of thinking. The metaphors and symbols must fully represent and capture the complex ideas. Given that not everyone can process a large body of abstract information, the capacity to skillfully communicate it in a manner that people can effectively relate to in light of cultural symbols and metaphors is crucial

to the success of interdisciplinary research and scholarship.

Interdisciplinary scholarship is built on the capacity to identify differences in arguments or logic of reasoning between different perspectives. On the basis of critical analysis and integration between assumptions, evidence, and reality, the scholar develops a synthesis. This kind of skill is represented in dialectical thinking and it is central to interdisciplinary work. Common ground that constitutes the foundation of integration and synthesis is not possible without a dialectical analysis and comparison of different perspectives. Narrow disciplinary thinking is overly concerned with coherence and similarity. Variation out of the norm is considered to be a residual and not relevant for explanation. Interdisciplinary thinkers must have the skills of systematically examining and interrogating perspectives and draw from the differences insights that one needs in order to come up with a holistic explanation. This entails the skills of synchronic and diachronic analysis. Holistic explanation, however, requires that the interdisciplinary scholar has cultivated the ability to think in a holistic way. Citing Dabrowski (1995), Repko describes holistic thinking in the following manner:

Aspects of holistic thinking include inclusiveness that balances disciplinary breadth and disciplinary depth (disciplinary specialties privileges depth over breath), ability to associate ideas and information from several disciplines and connect these to the problem, creativity that is dissatisfied with the partial insights available through individual disciplinary specialties and that produces an interdisciplinary understanding, and metaphorical thinking that visually expresses the resultant integration. (Repko, 2008: 46)

What this means is that persons who are fanatically resistant to examining an issue holistically because of their commitment to methodological fundamentalism might find working in interdisciplinary projects and scholarship very frustrating. Yet Repko is of the view that in our contemporary world the skill of holistic thinking is something that people need in many professions, not just interdisciplinary work, even though its relevance is most paramount in the case of interdisciplinary scholarship and project.

Holistic thinking, however, will not produce much in interdisciplinary work if it is not combined with the capacity to engage in creative activity as entrepreneurs do by combining hitherto separate elements in a culture into something new and more productive, one that provides a relative solution to a problem at a particular time and place. Being creative in interdisciplinary research and scholarship means more than formally analyzing and interrogating ideas, theories, or concepts; neither is it just examining the short- and long-term consequences of the ideas and theories. Rather, it involves interrogating the hidden assumptions that underpin epistemologies, values, concepts, theories, and public policies, and on that basis come up with new ways of interrogating or synthesizing our understanding of a complex problem or reality. To interrogate the epistemological assumptions of perspectives and concepts with a view to bringing about integration and synthesis will require conducting conceptual and empirical experimentation in order to clarify options and discover common grounds from which tentative solutions to complex problems are derived or developed (Stiglitz, 2006).

**SUMMARY AND CONCLUSION:
IMPLICATIONS OF
INTERDISCIPLINARY RESEARCH FOR
“THIRD WORLD” DEVELOPMENT
AND SOCIAL CHANGE**

This article started by defining what constitutes interdisciplinary studies and then proceeded to differentiate it from multidisciplinary and transdisciplinarity. While they are all motivated by the same concern, they pursue it differently. The different types of interdisciplinary studies and the three different forms or models of interdisciplinary cooperation were highlighted. The rationale for interdisciplinary studies and how to create and sustain an interdisciplinary working team or project was also discussed. This led to the analysis of certain personality traits and skills that are necessary for practitioners of interdisciplinary studies.

By way of conclusion, some implications of interdisciplinary research for “Third World” development and social change will be highlighted. The United Nations in its “Proposals for Action” during the First Development Decade (1960-1970) asserts that:

The problem of the underdeveloped countries is not just growth, but development... Development is growth plus change. Change, in turn, is social and cultural as well as economic, and qualitative as well as quantitative... The key concept must be improved quality of people's lives. (United Nations, 1962, as cited in Sachs, 2005: 13)

There was much optimism at the beginning of the first development decade but by the end of it, the reality on the ground led to great concern about what development in practice could be or had become. The

United Nations reflects on the situation as follows:

The fact that development either leaves behind, or in some ways even creates, large areas of poverty, stagnation, marginality and actual exclusion from social and economic progress is too obvious and too urgent to be overlooked. (United Nations, 1971, as cited in Sachs, 2005: 13)

Although we are approaching the end of the first decade in the 21st century, the insights from the two quotes are still relevant for our situation today. One important observation that can be made about the first quote is that underdevelopment is a complex problem that defies narrow and monistic disciplinary solutions. Changing societies socially, culturally, economically, quantitatively, and qualitatively is a profoundly complex challenge that no one single discipline can handle. Indeed, part of the failure of the development agenda in many postcolonial societies is the fact that development was reduced to economics and therefore not conceptualized in a holistic way. Instead, different disciplines were assigned small pieces of the problem. Unfortunately, there was rarely an attempt at sincere integration and synthesis of the different pieces. This profound failure can be significantly remedied by the interdisciplinary approach to research, leadership, governance, and university education.

The second quote also highlights the danger of singular emphasis on the instrumental type of interdisciplinary studies, which emphasizes pragmatic solution to problems. By the end of the first development decade, economic growth soared but many people were excluded from the benefits of the growth. It was economic growth without fair distribution of benefits, i.e., growth without development. This is not a bygone problem as some would like to be-

lieve. Rather, it is a problem that continues to be with us in the current era of globalization where there are more losers than winners (Gates, 2008; Stiglitz, 2006). Yet this is happening at a time when the world has experienced profound economic expansion. Interdisciplinary studies can play a meaningful role in this context by combining an inclusive socially transformative vision with instrumental solutions. In effect, interdisciplinary studies should not only focus on solving problems pragmatically while ignoring how the instrumental solutions affect the lives of socially marginalized people (Alway, 1995).

If interdisciplinary studies would be used to bring about solutions to complex development problems, certain changes have to take place. First, the structure of the universities has to change in terms of the reward system, institutional barriers, and the way academic departments and programs are structured. Universities in most developing countries try to replicate the universities in the West, even though their social contexts and environmental challenges are different. Moreover, universities in the developing world have become very rigid structurally and resistant to innovation even when their Western counterparts are changing.

Second, the content of education must be designed in such a way that students are provided the opportunity to learn how to practice solving complex problems by integrating different perspectives. This should be initiated right from primary and secondary schools, given that only a tiny fraction of the population in the developing world receives higher education.

Third and finally, from the pedagogical point of view, the educational curriculum has to be changed at all levels to enable students cultivate holistic, reflexive capacities and integrative thinking skills. Students need to cultivate a curious attitude to life and to develop an irenic spirit that learns to relate and communicate with other disci-

plines operating with different jargon and paradigmatic assumptions. In brief, this article calls for a fundamental reform of educational institutions and pedagogy in Third World countries, especially in Africa, in order to create the necessary conditions for an interdisciplinary working environment.

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