

The Implications of Scholarship as a Theory for Interdisciplinary Studies in Higher Education

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ABSTRACT: The universe constantly faces complex issues which require the interdisciplinary approaches. This challenge has gained increasing significance from 20th century due to the development of globalization, the weaknesses of traditional Study and research approaches, the advances by information technology, the major paradigmatic changes and the higher expectations from science. Interdisciplinary scholarship is considered as an effective solution to these emerging conditions and issues. Scholarship is a complex, integrative, and interrelated phenomenon. Today the concept of scholarship is typically used as a paradigm in higher education. Scholarship indicates to a search for relationships, bridging the theory-practice gap, and choosing the necessary knowledge for students. The present study that explains the implications scholarship with the aim of developing a theory for interdisciplinary studies in higher education employs a descriptive/analytic method. According to the results, interdisciplinary scholarship could be applied as a multi-disciplinary approach to understanding knowledge. The scholarship framework provides the students with chances for knowing and appreciating other disciplines. Creating an interdisciplinary atmosphere in universities requires fundamental changes in higher education especially the recruitment, promotion, and reward system for the academics.

Key words: scholarship, interdisciplinary studies, philosophy of education.

INTRODUCTION

The concept of scholarship was first introduced by Ernest Boyer in 1990. Scholarship arises from the curiosity and thinking energy of academic community naturally. But in real world, scholarship gains influences from the reward and punishment system created by the higher education community. In fact, scholarship resulted from a need that encouraged the higher education system to find an aspect or interest within their disciplines, i.e. a scholarly niche. This was done with the aim of keeping up with professional dialogue, and joining in the scrutiny associated with the disciplinary community. The motivation for gaining scholarly niche or specialism continues by the expansion of information available on disciplines and the authority of the academic is increasingly challenged. Additionally, the higher-education community expects the newly emerged scholarship to make a significant contribution to the field of knowledge addressed by the academics. But such a contribution must also include personal and professional innovations which might be a large demand from the concept of "scholarship" (Newcheles, 2005; p. 5).

In the discussions regarding the natures and grounds of disciplines in the process of education, learning, and scholarship, it is necessary to investigate and explain the concept of discipline as part of interdisciplinary studies. Academically, the concept of discipline refers to specific branch of learning the body of knowledge including physics, psychology, or history. According to the definition offered by American Association for Higher Education: "Disciplines have contrasting substance and syntax, ways of organizing themselves and of defining rules for making arguments and claims that others will warrant. They have different ways of talking about themselves and about the problems, topics, and issues that constitute their subject matters,," (Moran, 2010; p.216).

In each higher education institute, the disciplines make the main core of education; the learners register for different courses which are discipline-based or are in specific fields. The disciplines have been constantly the major source of thinking for learning in the university. The academics call themselves chemist or anthropologist; and not general professors. Therefore, the increasing growth of disciplinary expertise in higher education highlights the need for finding significant methods for relating the separate and different segments of academic life. The independent

models of scholarship have changed to the main core of mental activities in universities and the academic interactions rarely cross the disciplinary borders (Newell & Klein, 1999; p.160).

But one of the most issues to be mentioned regarding this issue is that the academics are obsessed with the bulk of new information instead of challenging themselves with the emerging knowledge. In order to avoid this obsession – which needs interdisciplinary relationships – and having security, they try to reach the small islands of education and research. The result is not only what is called 'two cultures', but also a kind of multiplicity of cultures, with each culture claiming its own territory, avoiding dialogue with others, and preventing the attack from neighboring cultures (Nicholls, 2005; p.58).

Over-obsession with disciplinary specialism could lead to weakening the interdisciplinary interactions about the social issues and with the source of knowledge becoming increasingly complex, the interdisciplinary research and learning gain higher value and acceptance. Recently, Neumann and his colleagues showed how academics in the hard pure fields attend to the competitive nature of the working environment and reveal a serious commitment to research and a weaker one to teaching (2002; p.415). The studies by Özesmi indicated that 'scholarship and disciplines have been under the support, control, and exploitation of the very structures that are part of social dementia' (1990; p.3).

Another fundamental issue to be addressed in this field is that why is it that in higher education the ideas of separate disciplines control the discussions regarding education and learning? Palmer suggests that 'by understanding our fear, we could overcome the structures of disconnection with power of self-knowledge. It is a fear of losing my job or my image or my status if I do not pay homage to institutional powers' (1998; p.37). Palmer adds that academics 'collaborate with the structures of separation because they promise to protect us against one of the deepest fears at the heart of being human – the fear of having a live encounter with alien "otherness", whether the other is a student, a colleague, a subject, or a self-dissenting voice within' (ibid.).

Academic institutions provide several ways to support themselves from the possible threats of a live encounter. In order to avoid live encounters, students might hide behind their notebooks and their silence. The teachers can hide behind their platforms, their certificates, and their power to keep away from a live encounter with students. To stay away from a live encounter with one another, the academic might hide behind their academic specialties. To avoid a live encounter with subjects of study, teachers and students both could hide behind the claim of objectivity. And in order to avoid a live encounter with ourselves, we can learn self-alienation; that is leading a divided and interdisciplinary life (Palmer, 1998; p.21). In most cases, the universities engage in a power competition for reaching higher excellence and establishing more disciplines in different grades and attracting more students, regardless of the interrelated social issues.

Regarding the same point Nicholls (2005) believes that the academic communities compete with each other for receiving research grants, teaching excellence or gaining a higher place in tables. Most activities can be imagined as a contest with an individual, a team or a university as the winner and the others feel rejected or loser. As an outcome of this competitive and conflicting condition, many academics do not engage with prominent public activities, because they consider the differences to be dangerous and out of their academic world. Consequently, the academics and academic communities tend to keep these views to themselves, only to find them grow stronger, more diverse and fragmented. Therefore, it could be said that the disciplinary power is one of the barriers to improvement for interdisciplinary studies (p.62).

Interdisciplinary orientation in scientific research would be a necessity, rather than a choice, in the near future. Hence, interdisciplinarity in practice requires technical knowledge, methodological awareness, and above all, the epistemological precisions. It seems that the scholarship is capable of providing the necessary grounds. In fact, the interdisciplinary studies originated as the reaction to discipline-oriented condition and the gap between research and decision making in social life. Interdisciplinarity is considered as the agreement between two or more disciplines for solving social issues. This type of study is rooted in two basic needs including: 1. the need for solving the issues which have not been addressed effectively by the academic disciplines independently, 2. the need for unification of knowledge (Samadi, 2002). Scholarship uncovers the missing links in the multidimensional fields of knowledge and fades the boundaries between them. It aims to find new intellectual perceptions, opportunities and directions. It develops the creativity and applies it for improving understanding. It is a source of wisdom (Gibbins, 1998).

The present study aims to investigate the implications of scholarship for interdisciplinary studies in higher education by answering to these questions:

1. What does the concept of scholarship imply in higher education?
2. What are the implications for scholarship in interdisciplinary studies?

In this study, the qualitative approaches were employed as it follows. First, the documents were analyzed through a descriptive/analytic approach. The analytic studies are conducted with the aim of understanding and identifying a set of concepts of conceptual structures in order to examine, explain, and solve specific issues. In the next step, the linguistic analysis was used which focuses on the usages of words as the base for analysis. The usages of words and phrases could be applied systematically for investigating the conceptual frameworks (Bagheri et. al., 1999; p.164). Therefore, the present study the documentary approach was used in order to offer a comprehensive picture of interdisciplinary scholarship and explain the implications of scholarship and its conceptual framework.

Definition and Nature of Scholarship

The concept of scholarship traditionally came together with character in ancient Greece, where patriotism and the worship of the gods were considered as esteemed virtues. Plato believed that we must assimilate ourselves to God, trying to become like him, wise and just and holy. He said that to develop the character of the students, teachers need to look at the child's manners even more than to his reading and music and the only true education is that education which makes a man eagerly seek the ideal perfection of citizenship.

John Henry Newman in his classic work, *The Idea of a University*, explains that the purpose of the university is to promote and distribute knowledge. From that time, the concept of scholarship and the enhancement of scholarship have belonged to academia. It could be said that scholarship is at the heart of the professions and higher education. Clearly, a reputation as a scholar could bring great honor to an academic. Normally, the concept of the scholar and scholarship are considered as almost synonymous with the academic functions in higher education (Nicholls, 2005; p.7). Ernest Boyer introduced the scholarship paradigm in education; particularly in university. 'Scholarship' is defined as an educational value and refers to an individual quality which includes a tendency and commitment toward intellection along with a commitment to expanding knowledge and research (Glassik, 2000; p.877).

For most of the individuals in higher education, the concept of the scholar and scholarship are closely synonymous with the role of the academic. Lexically, scholar refers to 'a learned person', especially in language, literature, etc.; an academic. Similarly, Thomson suggests that scholarship refers to 'the methods and standards characteristic of a good scholar' (1996; p.911). 'Scholarship' as a professional competency has a dominant and high scientific position. This concept could be professionally defined through the functions. Assessing the scholarship is one of the main criteria for decision makings about recruitment, promotion, grants, and the faculties and universities' performance (Dirks, 1998; p.2). Ernest Boyer claims that The concept of scholarship indicates to various creative functions with different rankings (values). The originality and coherence of scholarship is evaluated through thinking, communicating and learning capacities.

Today the notion of scholarship is normally used instead of the scientific ranking in the faculty and university. It is imagined as being engaged with research and publications. The hierarchy in scholarship functions has led to the limitation of scholarship approach. The basic research is regarded as the first and most fundamental form of scholarship activity besides other current functions in higher education (1990; p.2).

Ernest Boyer (1990) is among the first who addressed the limited concept of scholarship in university in his book *Scholarship Reconsidered*. He writes "Scholarship is not an esoteric appendage; it is at the heart of what the profession is all about. All faculty, throughout their careers, should themselves remain students. As scholars they must continue to learn and be seriously and continuously engaged in the expanding intellectual world. This is essential to the vitality and vigor of the undergraduate college". (p.36)

Boyer suggests that academics traditionally used to attend to three components in their work: scholarship, teaching and service. He believes that although these three components are related, the academic community takes them as separate for different reasons. For example, when an academic is evaluated for promotion, each of the three components is assessed separately.

Boyer adds that evaluating the academic's professional life in this way is wrong and confusing. He explains that academics are first, foremost and maybe exclusively scholars. Nevertheless, he does not believe that scholarship merely includes research and creative activity; he views scholarship as containing all the traditional roles of an academic (1990; p.36). The aim of reconsidering scholarship is initiating a movement beyond discussions about "teaching versus research" as the main priorities of academics and scholarship with a broader and more applicable meaning. This movement seeks a new paradigm for scholarship with four separate but related areas: the first two areas involve scholarship of discovery and integration of knowledge – the reflection of research and integrating academic life traditions. The third area is application of knowledge and moving toward commitment and functions. Finally, the scholarship activities that the scholars want to share with others are organized as is teaching content (Glassik, 1999; p.1).

As Shulman explains, scholarship could be defined as any activity of critical and systematic investigation in one or more fields and the presentation of one’s findings for criticism to professional peers and the public through publications, lectures, and etc. He adds that: “Scholarship has also been defined as having three key characteristics: it should be public, susceptible to critical review and evaluation and accessible for exchange and use by other members of one’s scholarly community” (1998; p.26).

“Scholarship is creative, systematic, rational inquiry into a topic and the honest, forthright application or exposition of conclusions drawn from that inquiry. It builds on existing knowledge and employs critical analysis and judgment to enhance understanding...Scholarship results in a product that is shared with others and is subject to the criticism of individuals qualified to judge the product.” Therefore, discovery, presentation, and application form the basis for scholarship. In addition, it includes creative activities according to beliefs, methods, organized disciplines, professions, and interdisciplinary fields. What makes an activity scholarship is a deep awareness of the new knowledge in one’s discipline. The current controversies and discussions are about the professional interpretation of knowledge and the mental activities for acquiring knowledge and new information (Norris, 2008; p.3).

The aim of scholarship is to provide guidance for the disciplines. This involves completing seven different roles that help practitioners: make meaning of their work; enhance their understanding of the entire system; identify main relationships in their disciplines; relate past with present and future; recognize what is missing in the present and articulate communicate visions of our future; identify growing practices and theories; and create connective wisdom in the field (Nicholls, 2005; p.13).

The discussion regarding scholarship is based on the relationship between practice and research. Allen suggests that many practitioners assume that scholarship needs to change to match the different demands and contexts of fields in higher education. This shows that scholarship focuses on the relationship between practice and research (2002; p.149).

Boyer’s Scholarship Model

Boyer believes that the academics are first, foremost and perhaps exclusively scholars. He suggests that scholarship involves all traditional academic roles. Consequently, he identifies four main types of scholarship: discovery, integration, application, and teaching. These areas divide the intellectual functions with inseparable ties and dynamic interactions which form an independent whole (Nicholls, 2004; p.31).

He believes that a comprehensive and dynamic model of scholarship, like the one he has in mind, leads the academic toward fulfilling the social and academic commitments through connecting the academic activities with the realities of everyday life. The lowest achievement that Boyer had was creating the terms for discussing about the academic intellectual life, and its practical and conceptual issues. He offered a general perspective but his untimely death left the details to others. In spite of this fact, his model could still serve as an appropriate instrument for explaining the scholarship idea from scholarly perspective (Glassick, 2000; p.877).

Table 1: Boyer’s scholarship model

Scholarship area	Purpose	Evaluating the functions
Discovery	Creating new knowledge through traditional research	-creating societies for peer review -performing creative functions within the created disciplines -defining a structure for future studies -preparing a comprehensive literature
Integration	Interpreting the uses of interdisciplinary knowledge	-proposing instructions for applying different disciplines -collaborating with the university for designing new subjects and improving the basic subjects
Application	Supporting the society and the professions in representing issues	-providing the counseling services to industries and government -addressing the leadership roles in professional organizations -supervising the leader students and their professional growth
Teaching	Studying the teaching models and functions for offering effective teaching	-developing learning theories through investigating the contents of university classes -supplying and evaluating the learning equipments -offering the undergraduate students with counseling -designing and performing a system for evaluating the curricula

The word ‘scholarship’ has legitimized a vast scope of academic activities with its broad meaning. Scholarship which implies engaging with research indicates to the functions of scholars as well which include reviewing the

previous studies, seeking relationships, bridging the gap between theory and practice, choosing the necessary knowledge for the students. And Boyer suggests that the four major roles defined for academics are separate and interrelated.

Interdisciplinary studies: the nature and reasons

In the modern world, learning has taken a systematized form and there is no place left for trial and error. As Weber explains science has become a vocation. Therefore, there are significant controversies on what is the best way to conduct research and develop learning experience in order to produce effective knowledge for providing comprehensive understanding and solutions to complex problems that our contemporary societies face (Zalanga, 2009; p.57).

The interdisciplinary studies and approaches toward research and scholarship could be considered as the proper answer to these challenges. As a result, different definitions are proposed for scholarship by various scholars. One of these several definitions is the one suggested by Klein and Newell (1998): 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 (p.560).

On the other hand, the definition offered by the National Academy of Sciences (2005) 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. (p.39)

But this study refers to the definition by Repko (2008) who says: 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. (p.12)

The current discussions mainly focus on interdisciplinary studies or a tendency for integrating interdisciplinary studies. By integration we mean 'creating a whole'. In discussions regarding interdisciplinary studies, integration is a process in which the ideas, information, methods, instruments, concepts, and theories from two relevant disciplines are integrated.

Generalist Interdisciplinary: understand interdisciplinarity loosely to mean "any form of dialog or interaction between two or more disciplines" while minimizing, obscuring, or rejecting altogether the role of integration.

Integrationist Interdisciplinary: on the other hand, believe that integration should have an interdisciplinary function because integration reveals the challenge of complexity. Integrationists refer to the growing body of literature which associates integration with interdisciplinary study and teaching. They seek to develop the process of interdisciplinary theory-centered research and explain how it works. They claim to reduce the confusion regarding the meaning of interdisciplinary studies and mention psychological studies which proves integration is achievable and natural (Moran, 2010; p.218).

From these different definitions we might conclude that interdisciplinary studies involve a dynamic, and not fixed, process. Although the interdisciplinary studies aim to go beyond the limitations of disciplinary parameters, they accept them and refer to them. Thus, they do not intend to reject disciplines but rather to apply them for producing higher and more creative solutions. In this fashion, interdisciplinary studies seek to go beyond the various disciplinary insights by integrating them like a smoothie that is produced by mixing fruits together and producing something which tastes different from the fruits (Zalanga, 2009; p.59).

Another way to identify the characteristics of the function of interdisciplinary studies does is to provide an atmosphere for crossing the borders and create innovations in the border areas where disciplines meet. Besides the fact that interdisciplinary studies arise from problems, it should be mentioned that that interdisciplinary research projects or scholarship center on something very complex for which a single disciplinary perspective might not manage to provide an effective solution (Callanan, 2004; p.390).

The terms of interdisciplinary studies and multidisciplinary studies should not be replaced with each other. The major 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" (Repko, 2008; p.13). Integrative work, which forms the basis for interdisciplinary studies, is challenging and time taking, but comparing perspectives from different disciplines without integrating the insights is not considered as interdisciplinary studies.

Scholarship implications: interdisciplinary scholarship approaches

Repko (2008) introduces three different forms of interdisciplinary approaches. The first 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” (p.17-18). But, borrowing alone is not sufficient because it needs integration. From this viewpoint, the goal is to provide solution for a specific complex problem or effective criticism on disciplinary perspectives.

The second approach is “conceptual interdisciplinarity” which “emphasizes integration of knowledge and the importance of posing questions that have no single disciplinary basis” (ibid.). This conceptual approach criticizes the narrow disciplinary reasoning that reminds us of religious traditions with their exclusive claims. This approach aims to develop ideas, themes, or organizing principles that can evaluate the way they are used in different disciplines. The last form of interdisciplinary studies is “critical interdisciplinarity.” This approach seeks “to interrogate existing structures of knowledge and education, raising questions of value and purpose” (ibid.) Critical interdisciplinarity is suspicious of the actions by pragmatic scholars who are committed to interdisciplinary research and scholarship and going beyond the disciplinary boundaries but do not question their problem solving approach. Although they accept that interdisciplinary scholarship is capable of solving complex problems, solving problems without asking fundamental questions about the structure of society might be limited to powerful and privileged elites. Therefore, in critical interdisciplinarity, the reality is explained by revealing the interconnection between different areas of society.

This type of interdisciplinary scholarship is committed to the inclusion of low culture in the outline of public affairs. This means hearing, the marginalized voices and establishing a mechanism for validating and including them. These forms of scholarship are different, but they could be combined. A scholar could be instrumental as well as critical. No doubt, being instrumental without being critical could be dangerous as it can easily put the power and control in the hand of privileged and marginalize the weak and unprivileged.

A) Philosophy of Interdisciplinary Scholarship

There are different factors that scholars offer as the rational for interdisciplinary research and scholarship. The first and the main reason is that specialization could lead the student to overlooking other fields. It implies that a fundamental commitment by the scholars to specialize in a particular discipline can affect his/her ability to have a comprehensive picture from other disciplines in order to appreciate them. Disciplines are becoming increasingly specialized, which proves a need for more interdisciplinary research.

Due to the possible dangers of specialization, the scholars should be aware of the process that could produce ‘tunnel vision’ toward reality. A tunnel vision which is rooted in a disciplinary epistemology could lead to costly mistakes in public policy. This could happen to any scholar, no matter how sharp s/he might be, if they limit themselves to a single disciplinary epistemology. Tunnel vision affects and decreases their ability to see the general consequences of their ideas or public policy (Saint-Exupery, 2000; p.45). The individuals, who perform academic activities within a specific perspective, often overlook what they can learn from other disciplines. When public policies are formed according to a single discipline, they do not achieve major success since they are developed based on limited, not comprehensive, understanding of social reality. As an example, implementing the For instance, the neoliberal economic reforms in Africa and other parts of Latin America known as Structural Adjustment Program (SAP), was developed according to the market rationality. This program did not try to comprehensively take all the factors and processes relevant to economic reforms into account. As a result, this program which followed the market rationality caused serious problems to the lives of people and institutions in developing regions. Another proof to this claim is the World Bank and the International Monetary Fund that accepted they made mistakes due to partial reasoning and they revised their policies (Todaro & Smith, 2009; p.551).

On the other hand, the interdisciplinary research and scholarship are important since although the disciplinary approaches do their best, the capacities of each discipline is limited while the nature of issues is complex and could not be limited to the borders of a single disciplines. Therefore, many significant issues fall on the borders because they could not be defined within the normal disciplines in the university. In addition, interdisciplinary scholarship focuses on the issues that do not fit the borders of one single discipline and they require the perspective of different disciplines for a comprehensive understanding (Klein, 2000; p.16). Accordingly, some of the major creative achievements in scholarship resulted from the cooperation between the interdisciplinary scholars and researchers, who combined perspectives from different disciplines in order to present something new. Regarding the same point, Snow explains that: “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; p.16). It shows that creating, developing, improving the interdisciplinary culture or pluridisciplinarity is necessary for offering solutions to complex problems with no easy solutions. Thus, we could expect more creative solutions in interdisciplinary environments.

B) Forms of interdisciplinary cooperation

Interdisciplinary cooperation could be categorized according to the depth of engagement. At the lowermost level, interdisciplinary cooperation refers to individuals working in one discipline who follow and take note of activities in another discipline, or they even might provide mutual assistance to each other. At the higher level, scholars from different disciplines might work on common terminology with the aim of creating a common language for communication. At a deep level, after developing the common language, theoretical or methodological cooperation starts, which would go beyond the scholarly discussions within a single disciplinary theory or methodology. Finally, at the highest level, the interdisciplinary scholarship or research focus on integrating the different perspectives to propose a theory or a methodology. It is worth mentioning that the higher levels of interdisciplinary cooperation are more challenging and difficult to maintain, but they include more advantages as well (Niessen, 2002, p. 53).

Interdisciplinary integration is a process in which the ideas and perspectives from different disciplines are integrated creatively in order to gain a more comprehensive understanding. Integration as the most important achievement of interdisciplinary research and scholarship is not its ultimate goal. The ultimate goal is using the new comprehensive understanding gained from the integration process to solve the complex social problems that resist simple solutions (Repko, 2008, p.123).

Newell (1998) believes that without integration no interdisciplinary work or interdisciplinarity in scholarship could be achieved. As he suggests the epistemological value of interdisciplinary research is determined by the achievement of interdisciplinary scholars in conducting integration, because all take integration as the distinguishing feature of interdisciplinarity. The theoretical agreement regarding the nature of interdisciplinarity, its results, and the role of integration bear no positive outcome if the interdisciplinary scholars do not manage to achieve integration. In fact, several aspects of interdisciplinarity depend on integration including the credibility of disciplinarians in the university, the need for them to participate in solving social problems, and the long-term hopes for interdisciplinary education. Therefore, the goal of integration as the main aspect of interdisciplinarity is using the new knowledge for gaining a comprehensive understanding that could be helpful for solving the problems that human beings encounter (p.535).

Klein (2005) explains that when the scholars engage in interdisciplinary research and scholarship, s/he needs to acquire sufficient understanding of theories, concepts, assumptions, and methodological issues that are relevant for a particular topic. The level of necessary knowledge is determined by that given topic under study. But Klein also tries to offer a redefinition for the meaning of depth in interdisciplinary attempts (p.182). He states that: “depth in interdisciplinary work derives from competence in pertinent knowledge and approaches, and rigor derives from attention to integrative process” (Klein, 1996; p.212). For interdisciplinary scholarship, exactness means precision at the beginning of the process of integrating perspectives from different disciplines and evaluating the integrated knowledge in order to achieve a higher value. The scope of interdisciplinary scholarship depends on the relationship between or among the disciplines that are referred to in the process of integration for solving a complex social issue. There are close as well as distant epistemological relationships. When the perspectives are highly different from each other (such as natural sciences and humanities) the epistemological relationship is distant. And when the disciplines are similar the epistemological relationship is close (such as social and behavioral sciences or sociology and anthropology) (Klein, 2005; p.194).

C) Scholarship and approaches for interdisciplinary cooperation and integration

Referring to several perspectives, three approaches are defined for interdisciplinary cooperation and integration. Each approach includes a specific vision, an underlying theory, a practical aspect, and particular advantages and disadvantages (Repko, 2008; p.126). The first approach to interdisciplinary integration is committed to searching for a comprehensive conceptual framework. That is developing a conceptual framework of reasoning which could include different subject matters from various disciplines. The main idea behind this approach is that discovering comprehensive conceptual frameworks could facilitate the process of integration and offering a workable solution for the complex problems which do not fit within a single discipline. Although this is a valuable effort, it is a totalizing attempt, and even if this attempt was successful according to the complex nature of reality, it could give the individuals who lead the process too much power which could be dangerous to humanity. Some of the scholars reject this approach and take it as ideal and imaginary (Rayner, 2002; p.74).

The second approach is characterized by seeking a comprehensive understanding. This approach aims to fill the gap between disciplinary overspecialization and interdisciplinary scholarship. The scholars who use this approach believe that it helps people to enhance their capacity for identifying different perspectives and to compare, contrast, analyze, combine, and develop a comprehensive understanding accordingly (Hursh, Haas & Moore, 1983; p.43). Hursh and his colleagues discuss that interdisciplinary scholarship should involve a practical aspect since it is pragmatic in nature and it is conducted with the aim of solving practical problems instead of demonstrating commitment to an ideology. The scholars who want to use this approach need some specific skills of such as identifying and defining problems; analyzing the structure of the discussion; and evaluating the relationships among facts, assumptions, and conclusions. This shows that this approach seeks to develop a hypothesis through integrating perspectives and then use the hypothesis for empirical investigation with the purpose of solving complex problems in human society. This approach involves integrating various individual perspectives in order to create concepts for describing different issues systematically according to some essential features that apply to various elements (ibid, p.45).

The third approach to interdisciplinary is referred to as 'interpretation'. The perspective behind this approach is that the borders between the disciplines should be flexible so that new and creative forms of scholarship could be developed in the border areas. This approach does not seek to eliminate the disciplinary borders totally, but they should be penetrable so that scholars could freely cross the borders to create a creative knowledge (Fuller, 1993; p.33). calls it the "renegotiation of disciplinary boundaries." This approach is rooted in Foucault's archeology of knowledge that is a kind of cultural analysis and sociology of knowledge which goes beyond many disciplines (Klein, 1996; p.214).

Scholars who adopt this approach believe that integration is a dynamic, and not fixed, process. They argue that the individuals should not take integration as a simple process, but it might be a complex process. Some disciplinary perspectives are contradictory which might limit the chances for common grounds. In general, successful integration should meet some specific criteria: "It must explain a specific phenomenon comprehensively. It must be greater than the sum of its separate disciplinary parts" (Repko, 2008; p.131). Finally, there are certain non-negotiable elements for all mentioned approaches. Integration should not be considered as the ultimate solution to all problems. Integration must be directed since it arises from problems and has a pragmatic nature. The scholars must avoid applying the resulting integrated knowledge to issues beyond the primary scope. The disciplines and perspectives consulted are determined by the nature of the given problem hence each problem requires a specific integration of insights (Zalanga, 2009; p.73).

Regardless of the approach used for integration, the scholars should ensure that the addressed problem needs insights from different disciplines in order to be understood and solved. It means that the scholars need professional expertise, strong disciplines, and integrative mindset (Repko, 2008; p.130). An integrative mindset is characterized by flexibility, a tendency for listening and appreciating different visions, and an inclusive thinking, and creating a balance among different disciplinary perspectives.

d) The key factors in interdisciplinary scholarship

In order to create and sustain a successful interdisciplinary attempt for research and scholarship, the interdisciplinary programs should be designed according to a specific problem framed appropriately. The interdisciplinary research and attempts could be effective, if they follow the main goal of solving real social problems.

Therefore, the scholars who do not trust their disciplines are not capable of conducting interdisciplinary scholarship. The situation would be more complicated when these scholars do not have an open mind toward the approaches to solving problems. Many scholars feel a loyalty to their disciplines and defend their disciplinary borders against any legal or illegal crossing. This group of scholars has a monist vision which prevents them from effective participation in interdisciplinary research and scholarship. In order to lead dynamic and balanced interdisciplinary scholarship, the research teams must avoid admitting the scholars with a biased commitment towards a specific discipline (Repko, 2008, p.169). Integrating the different disciplinary perspectives must be conducted in a way that the presence of these perspectives could produce meaningful effects.

If the interdisciplinary research teams do not make efforts to develop the social capital, relationship, mutual trust, and to understand the expertise of their colleagues, the team will not be sustained. That is, in any interdisciplinary attempt the team must realize that, in addition to disciplinary expertise, constructive relationship, effective communication skills, and emotional intelligence are integral elements in the process of interdisciplinary research.

On the whole, interdisciplinary research attracts scholars from different disciplines. Sometimes, the participants might even come from outside the university. It means that the interdisciplinary scholarship require a supportive

structure that match its particular nature. By the way, all participants have a tendency for improvement and promotion and being known for their contribution to knowledge and solving complex social problems. Consequently, if the societies wish to use the positive outcomes of interdisciplinary research, they need to design a professional evaluation system that takes into consideration the unique challenges of interdisciplinary attempts. Another way for evaluating the success of interdisciplinary research team is identifying the features and skills that are specific to interdisciplinary studies (Zalanga, 2009; p.66).

E) The personality traits of interdisciplinary scholars

The first personality trait that interdisciplinary scholars should possess is being adventurous. These scholars are ready to take risks for acquiring new information and perspectives from other disciplines and integrating them for solving a problem. Accepting the role of an interdisciplinary means the scholar must be ready to leave his/her homeland and cope with the possible dangers that they might face (Bromem, 2000; p.121).

The second trait that is mentioned for interdisciplinary scholars is a high tendency for learning new things and identifying new perspectives from different disciplines that can give them a deep understanding for coming up with effective solutions for the complex problems. Consequently, they accept new perspectives with an open mind. For this skill they need adequate knowledge of issues, and the epistemology, concepts, and conceptual frameworks from other disciplines.

Interdisciplinary scholars believe that the real world problems are complex and could not be solved with simple solutions. Therefore, these scholars develop the skill of ambiguity tolerance in scholarship and they never claim that they have finished the job and they have found the ultimate solution. This group of scholars investigates different perspectives with a peaceful spirit and although they encounter contradictions in this process, they seek to find the common grounds and integrate the visions. They accept the existence of ambiguity due to some irreconcilable perspectives, but they choose to focus on common grounds (Klein, 1996; p.221).

The interdisciplinary scholars put forward the scientific claims that are experimental and tentative. The interdisciplinary scholarship involves individuals who cultivate a deep capacity for thinking and flexibility in themselves. The interdisciplinary studies require processing and investigating information from different fields and integrating them. For processing the information with the aim of integrating them we need some fundamental basics including analyzing the epistemological claims for identifying the strengths and weaknesses and to see if their scientific claims is supported by their methodology. But since the interdisciplinary scholars analyze the epistemological claims deeply, they recognize that separating the real individuals from the knowledge process is impossible. As a result, they develop a capacity for reflection through analyzing the process of perceiving and analyzing different disciplinary visions. Offering a solution for some of the complex social issue necessitates acquiring and integrating information from a variety of perspectives.

The interdisciplinary scholars have an open mind toward other disciplines. They do not limit their knowledge acquisition to the relevant subject matters, but they try to learn the fundamental assumptions, epistemology, concepts, and scientific claims from other disciplines. They apply this logic for integrating visions from different sources. For that reason, they have a curious mentality and explore the territories of other disciplines freely regardless of the artificial boundaries (Balaam & Veseth, 2005; p.3).

Interdisciplinary scholars need working knowledge of other relevant disciplines. Working knowledge includes an understanding of the strengths and weaknesses, and the epistemological basis, and the advantages that discipline could offer for solving the problem. After gaining this working knowledge from other disciplines, they should integrate the acquired perspectives. For this process, these scholars need a capacity for appreciating the various perspectives. They should also be aware of their own individual biases and shortcomings since they need to be flexible. This awareness creates a constructive atmosphere for developing common grounds resulting from interdisciplinary approaches (Repko, 2008; p.43).

Finally and most important, the interdisciplinary scholars should show humility in their actions and mind. One of the basic issues that all interdisciplinary scholars accept is that they need to learn what they do not know as well as the things that each discipline do not include about the problem (Callanan, 2004;p.391).

F) The necessary skills for interdisciplinary scholars

One of the most significant skills that interdisciplinary scholars should develop in them is the capacity to gain a deep understanding of the concepts and language of their discipline and to present them to individuals from other disciplines in a comprehensible manner. For having an effective performance, the interdisciplinary team members should develop a great capacity for interacting with other disciplines and translating the ideas from one discipline to another to create common grounds (Niessen, 2002; p.53).

Interdisciplinary research and scholarship is conducted on the basis of information from various perspectives and disciplines and the scholars reach integration through critical analysis and communicating the assumptions, evidence, and realities. Therefore, they should have the adequate skills for systematic investigation of visions and inferring necessary information for the comprehensive understanding. Accordingly, the interdisciplinary research and scholarship might seem pointless and vain to those with biased commitments towards the methodological fundamentalism who resist comprehensive examination of issues (Zalanga, 2009; p.68).

Showing creativity in interdisciplinary scholarship means going beyond the formal analysis and investigation, theories, or concepts and examining the short-term and long-term outcomes if perspectives and theories. But, it means identifying the hidden factors in epistemologies, concepts, theories, and public policies and offering new methods for improving the understanding of the complex problem. In order to investigate the epistemological assumptions of perspectives with the aim of conducting the integration, the scholars need empirical studies to identify the common grounds which could include the solution for complex issues (Stiglitz, 2006; p.201).

CONCLUSION

Producing social, cultural, economical, qualitative, and quantitative changes in society is considered such a serious challenge that no single discipline is able to confront it by its own. No doubt, part of the failure experienced by the development agendas in many under-developed regions is a result of the fact that in these agendas development was centralized merely in economics with no comprehensive picture of development. In such agendas, each discipline is responsible for a limited part of the problem. Unluckily, there have been limited attempts for integrating these separate parts. This condition could be significantly improved by interdisciplinary approaches in research, governance and academic education. The interdisciplinary scholarship and research is capable of playing a major role in development process by integrating the social reform ideas and practical solutions. In fact, the interdisciplinary research should not merely concentrate on solving problems in a pragmatic manner. Applying the interdisciplinary scholarship to solving problems necessitates changes in some fields. First, the structure of universities should be improved regarding the reward system, institutional barriers, and the organization of departments. In most of developing countries, the universities try to duplicate and follow the western universities regardless of the contextual differences and challenges. In addition, today the tendency for choosing the professional disciplines has decreased and there are more demands for interdisciplinary disciplines in higher education. Therefore, the interdisciplinary scholarship could be the proper answer to the current condition.

Second, the educational content should be designed in a way that provides the students with the chances for integrating the problem solving skills with different perspectives. This should start from the primary grades in schools, because the number of people who have access to higher education in developing countries is limited. Finally, from an educational viewpoint, the curricula of all levels should undergo changes so that the students could have some chances for developing a capacity for a comprehensive and open understanding and the thinking skills. The students should have a curious mind toward the life and grow the communication skills for interacting with other disciplines with different languages and paradigms. To sum up, in order to create the necessary condition for interdisciplinary scholarship, we need fundamental reforms in higher education system including the recruitment, reward, and promotion systems.

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