Pakistan Social Sciences Review
www.pssr.org.pk

RESEARCH PAPER

Consilience: An Integrative Approach for Holistic, Overarching and Deterministic Knowledge

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PAPER INFO	ABSTRACT
 Corresponding Author: maryam_malik2015 @hotmail.com	This research seeks for a major change of direction in the management research field. As proposed by Kuhn in 1970, the academia and research needs unification of knowledge. The article opens up a critical debate by challenging and questioning the status quo (normal science) (Kuhn, 1970). Employing interpretive and critical discourse analysis it presents three of the integrated praxis in academia i-e multidisciplinarity, interdiciplinarity and transdisciplinarity, highlighting the differences among the stated integrated approaches in academia it presents an overarching approach to integration that encases all the three integrated approaches of the academia – consilience, thus responding to Kuhn's call and further suggesting how it will be aiding the field of management.

Introduction

While appraising the literature on integrated research studies (IRS) it turn out to be that there exists an un needed diverse nomenclature that is being used by the scholars who are doing IRS. While reviewing the literature an exhaustive list of terms that are used by different research scholars for defining IRS can be found. Tress et, al. (2005) penned down various terminologies that are used for defining the concept of IRS – collaboration, harmonizing, shared, participating, transepistemic, integrative, systematic, inclusive, cross-boundary, holistic, multidisciplinary, interdisciplinary, and transdisciplinary. Though the fundamental principle of all the mentioned terminologies is same aiming towards solving complex problems by over passing disciplinary limitations. However literature does provide subtle yet noticeable difference that exists between these terms and as for these differences these terminologies are not used in substitution to each other.

Consequently very evidently the literature calls for integrating different disciplines so that more valuable and advantageous results can be gathered to study the reality (Balsiger, 2004; Burton et al, 2009). If we keenly observe the literature of IRS the terms that are most commonly used are multidisciplinary, interdisciplinary, and transdisciplinary. These three terms are also taken in chronological order in respect to the amount of integration invoked. The subsequent section reviews the definitions of the three terms of interest and then confers that why an encapsuled integrated approach (consilience) for an integrated knowledge is needed.

Multidisciplinarity

Multidisciplinarity integrative scheme (MIS) is considered as having the minimalist integrative form however, correspondingly, it is questionably the most manageable form. MIS features various disciplines in a theme based. The very basic aim to study the co-existence in a similar context (Petts et. al, 2008). Although scholars intend to share information and link results no attempt is made to cross the disciplinary boundary neither novel integrated knowledge produced (Tress et al, 2005). Every disciplinary member engaged in MIS thus offers his expertise on the problem (Attwater et al, 2005). Hence the benefit of the approach lies in the fact that by being in the disciplinary domains the researcher tends to get input from diverse perspective in order to get a much deeper insight of the phenomenon under study (Max-Neef, 2005). There exist ample discussion on the scope of integration and coordination provided by MIS, where some researchers are of the view that MIS research tends to be coordinated yet no integration exist (O'Riordan, 2014); other researchers oppose and suggests that minimal integration exists yet they disagree with the fact that the approach offers any coordination (Jakobson et al, 2004). Generally, it becomes difficult to visualize that research is not coordinated although preserving even a minimal degree of coherence; however it certainly would not be integrated. Some researchers also viewed MIS as an approach that is only restricted towards solving specific problems and due to this reason it is considered as a thematic rather than problem solving approach (Tress et, al; 2005; Russell et al, 2008) while others view it as an approach that is targeted to solve problems that are considered common (Petts et. al, 2008). Differences are partially attributed to semantics due to the reason that considering a theme entirely unconnected to a specific problem or progression of problems is difficult to envision. Yet, it can be inferred that as MIS does not ensure an iterative research process in which problem is formulated in a discipline in order to pass it to some other discipline so that an optimal solution can be found to rectify the defined problem, this exercise generates new questions for other discipline as well. For this reason multidisciplinary is not considered to be a problem solving approach as that of Interdisciplinary or Transdisciplinary research.

Interdisciplinarity

Interdisciplinarity integrative scheme (IIS) can be considered as to be above MIS in chronological order. IIS approach tend to target "real world problems" for which it engages researchers across diverse disciplines to cross disciplinary boundaries in order to develop new knowledge (Tress et, al, 2005). The main difference between IIS and MIS is the scope of integration and cooperation offered, thus IIS approach main concern is to connect diverse ideas across disciplines (Petts et al, 2008; Klein, 2008) and thus enabling the researcher to analyze the understudy phenomenon by using diverse perspectives (Hunt & Thornsbury, 2014). The very need to amalgamate different disciplinary viewpoints comes up when the researcher seeks to solve the real world problems. The complex nature of the real world problems invites perspectives from different domains so that a clear understanding can be established (Wickson et al, 2006). IIS therefore allows researchers from different disciplines to join hands to solve a problem with a methodology and analysis procedure on which they have unanimously agreed on (Hammer & Soderqvist, 2001). Therefore IIS calls for larger level of collaborative initiatives by the researcher than that of MIS as having consensus is the key which will then lead the researchers to decide upon an agreed methodology and analysis procedure (Robinson, 2008).

Literature also traces sub categories of IIS approach, Unidirectional Interdicsiplinary integration scheme (UIIS); in which a single discipline can overshadow the research process and this the integration process (Jakobsen et, al. 2004) and Goal-oriented Interdciplinary integration scheme (GIIS); in which the problem(issue) in hand guides the research process. UIIS approaches are considered to be problematic for theoretical reasons as when one disciplines over shadows the research process it restricts the entire research process thus binding to the methodological and paradigmatic assumptions of a single discipline thus hampering the trust of the entire research team involved in the integration process.

Kutilek & Nielsen in (2010) proposed a new division of IIS approach. Hence dividing it into 'big' and 'small' IIS approaches, while Big-IIS approach was related to the integration between disciplines that widely dissimilar from each other for instance natural and social science. On the other hand Small-IIS deals with the integration between different sub-disciplines i-e within social sciences. It depends on the type of real world problem which makes the researcher to choose that which sub type he would employee (Hinrich, 2008; Jansen, 2009).

Transdisciplinarity

Transdisciplinarity integrative scheme (TIS) is considered to be most needed yet its implementation is thought to be challenging. Researchers have also shown a skeptical behavior while discussing the practical implementation of TIS in research process and has questioned that whether it is achievable or not. Researcher pointed out that the pre requisites for a TIS research actually makes it

an "a megalomaniac endeavor" (Pohl, 2005) as a result it is practiced very seldom (Tress et al., 2005). TIS based research allows a transcendence of different perceptions thus recreating the disciplinary map in a comprehensive framework that reflects a systematic projection thus encompassing how real world problems can be addressed (Petts et al, 2008; Attwater et. al, 2005). Tress et al, in (2005) attributed TIS as an approach that provides highest form of integration. TIS is regarded as a way through which social science and natural sciences can collaborate in order to solve real world problems (Walter et al., 2007).

TIS can be sub divided into "consulting" and "participatory" forms. Where the former approach takes inputs from the participants yet they are not actively involved in the research process, while the later considers the input and the active involvement equally important (Mobjörk et al., 2010). Some researchers also suggests that the consulting form of TIS can be regarded as IIS as for TIS the involvement of participants in the research process is crucial (Tress et al, 2005). TIS has a strong resolve to solve the real word problems (Wickson et al, 2006; Walter et al, 2007)for which, as Phol in (2011) argues, it utilizes flexible methodologies that aims to solve the phenomenon under study thus focusing on the issue rather than discipline minimizes the risk of unidirectional research thus removing intellectual precedence of a single discipline. Attwater et al, in (2005) advocated using pluralistic rather than unitary methodological approach so that all disciplinary concerns are voiced out equally in the research process. Researchers has also equated TIS with holism suggesting that by using dialectic thinking it tends to solve out differences that arises in the research process (Jackson, 2006), thus it's a medium through which researchers could see reality in a more systematic and holistic way. The core element of TIS is 'transcendence' – a innovative procedure in which larger levels are transcended the smaller level frameworks (Rapport, 1997) thus providing creativeness and serendipity to the research process which is not limited to the domains of single discipline that reaches beyond a single discipline (Stock, 2010; Muldavin, 2008; Girard & Hubert, 1999). TIS advocates for a holisticness which calls for significant amount of determination from the researchers that are engaged in the process. To be more obvious researchers involved need to widen their thinking horizons and let go of disciplinary chauvinism (Giri, 2002). Naveh in 2005 suggested that the TIS based research enables to create new knowledge thus opening new knowledge ventures which then helps to create new disciplines (Mobjork, 2010). Hochtl et al in 2006 suggested that TIS is a problem oriented approach which makes implementation not a necessary component for the approach yet, studies that are incorporating TIS do contain an element of implementation as well (Jackson, 2006; Hochtl et al, ,2006).

Identifying the Differences among the Integrated Approaches

The aforementioned debate highlights the most used schemes for integration in the literature – Multidisciplinary integrative scheme (MIS), Interdiscpilinary integrative scheme (IIS) and Transdiciplinary integrative scheme (TIS). To briefly

Outline the discussion Table given below summarizes the differences and similarities among the three approaches. The shaded part signifies that "yes" the respective integrative scheme has the particular component while the blank part of the table shows that the integrative scheme does not have this component. Moreover the half shaded part portrays that there is mixed opinion regarding the component where certain researchers considers it important and certain considers to be un-important. The components that are taken into consideration have been induced from the literature defined in the section above. While taking out the common ground amongst the three integrative schemes the table projects that all three approaches are thematic based, comprises of diverse disciplines and all share knowledge amongst disciplines.

Table 1
Highlighting Difference and similarities among integrative approaches across the coding scheme

	Aid in synthesize new disciplinary domains and theories	Focuses on solving problems	Follows an iterative process in research	Insight are taken from diverse disciplines	The stakeholders are part of the process	Aid towards knowledge sharing across disciplines	Thematic	Coordination exists	Integration exists	Cross epistemological boundaries goes beyond epistemological barriers	Employs pluralist methodology	Process involves putting results into practice
MIS												
IIS												
TIS												

Multidisciplinary integrative scheme, at the most basic level offers minimal integration without disturbing the boundaries of disciplines involved Interdisciplinary integrative scheme move a level up and offers integration by allowing the disciplines to cross their boundaries in order to create new agreed upon methodologies that would aid in generating common knowledge, awareness insights and in some cases new disciplines as well. Transdisciplinary integrative scheme comprises of researchers and other stake holders as well who provide inputs to transcend disciplinary domains in order to provide a holistic picture of the phenomena under scrutiny. From the brief over view of all three integrative schemes it is evident that all – Multi, inter and Trans disciplinary integrative schemes come with their own definite purpose of integration it is therefore productive to use these approaches when the nature of integration among different disciplines is known. Yet for more general situations where the nature of integration amongst disciplines is not known or unspecified, the term "Consilience" is proposed to be used.

Relevance of Consilience in Management domain

Consilience means the utilization of more than one visual angle in the scrutiny of a phenomenon. With regard to the contemporary organizations and their innate complexity the best study often is Consilience (Wilson, 1998). Taking insights from different disciplines and then integrating and diffusing them to get a holistic picture of a phenomenon is a way through which Consilient Theories, Models, Approaches and frameworks can be created. Management studies undergo this practice by borrowing theories from different disciplines.

It is critical to comprehend the notion of the evolving traits of an organization as an intricate and nonlinear living system. The evolving qualities of these systems can be articulated with the help of the behavior of their different rudiments in collaboration with one another and also with the surrounding environment. It is also important to note that these evolving traits are not and cannot belong to any individual component of the group and neither can they be explicated by combining the all the properties of those individual components.

There has been an observed practice of conceptual borrowing from the other disciplines to the study of the sciences concerning organization. This has led to the incorporated research in the field (Huff, 2000; Mowday, 1997). As evident that the organizations are made up of different individuals and the knowledge about their needs, the traits of their personality, the biases they have in their judgments or even their selected paths towards the decision making process, all are of utmost importance for the study of the organizational behavior (Schneider, 1987). All the organizations are attached to a larger spectrum of socio-economic world which include the prevailing social and political cultures, population mentality, markets and technological availabilities, etc., and therefore, it is nearly impossible to make significant hypothesis in this field without taking the aid of sociological, political and economic premises into consideration (Scott, 1995). There is also another reason to opt for the approach of Consilience towards the study in the fields of management and organizations which is the applied nature of the discipline (Zald, 1993; Johnson, 1962; Van de Ven, 2007). This practice of borrowing the theory is said to improve the evolution of the present theory (King et al, 2010).

Theories from different disciplines having close proximity with the organizational research and other sponged notions play a vital role in its development and this practice of borrowing is so much widespread that it has literally become a balancing of shortfall through these basic fields (Ilgen & Klein, 1989). Sometimes the concepts are borrowed from other sciences belonging to sociological studies. This is known as "horizontal borrowing," For example, the social and mental development of the community (Davis, et.al 2005) or the economic insights that are related to the market volume and structure (Zenger & Hesterly, 1997) can be used as helpful tools for the study of the organizational sciences. At other times, the practice of borrowing the concepts that were created on the different stages of the analysis is common in the research practices for this

field. This is known as "vertical borrowing". Several existing positions in the organizational research have their basis in the concepts that are practiced on individual levels (Argote, 2011), decision making process in the organization (Cyert & March, 1963), and the identity of the organization (Albert & Whetten, 1985) are a few examples of vertical borrowing. Both these types of theory borrowing have proved to be tremendously essential and productive in the field of organizational research. This borrowing practice has helped the organizational studies to develop and evolve very swiftly and prove its credibility as a genuine investigative field for the scholars in the short span of its life. It has promoted the relation between the basic fields of social sciences and the organizational research (Gordon & Howell, 1959; Agarwal &Hoetker, 2007). Moreover this practice of borrowing has enriched the literature of the organizational studies.

In general, organization science is very disjointed and is constantly pursuing knowledge from a number of ways (Rao & Pasmore 1989). Moreover, Weick & Quinn in (1999) organization theories lack in integrative contributions. The increasing diversity with increasing number of widespread discourses, as, in (2005), Caldwell has mentioned, makes it quite hard to see the factors that all those theories, models, and concepts have in common. Compact knowledge that relates to organization, despite all actions, is still rare. Organization science is not getting any nearer to a position of any commonly accepted body of knowledge, even after decades of research. Obviously, this condition is directly associated with the paradigm diversity, organization science (Morgan, 1990) as organization theory and research is highly influenced by paradigms (Astley & Van de Ven, 1983). The blockade on the paradigmatic level cannot be resolved unless there are ways found to put together different visions and insights. Caldwell (2005) points out that this means that such pathways are intensely required which can connect different positions and eliminate the gap of incommensurability on the paradigmatic level. If such pathways couldn't be formulated, dissatisfactory blind alleys will remain that will entrap discourses on organization science. This discussion leads the research towards following research questions:

1. What schemes of integrative studies are being used by the researchers?

2. What is the scope of the integrative schemes?

3. Does the scope of the integrative schemes impede in studying the complexity of the problem in management theory and practice.

4. Can an integrative scheme be developed for understanding the complex management problems?

Material and Methods

The research method employed in this research operated under the umbrella of interpretive and critical discourse analysis, thus the research not only

critically evaluates the problem in hand but also is suggestive in nature so that the critique that has been highlighted can be channelized (Stahl, 2008). Cukier et al. (2009) recognize four steps in directing empirically grounded critical discourse analysis: (1) Describing the body of data to be analyzed: The body of the data that is used for this study is based upon *test search*, The *text search* enabled the researcher to find the most relevant material for the purpose of this research, The researcher used "integrative schemes", "integration", "cross discipline studies" search words for acquiring the relevant data (2) Examining content and coding: The acquired data from step 1 was examined and coded, the refined coded scheme is tabulated in table 1.1. (3) Reading and interpreting the text: The text was read thoroughly for interpretative and critical analysis. The interpretive and critical analysis was however not a step wise process, the researcher moved back and forth to deduce constructive conclusions from the acquired data.(4) Explaining the findings: explicitly addressed under section (1.7).

Result, Conclusion and Future Direction

The paper critically evaluated the IRS terms that are most commonly used i.e Multidisciplinary, Interdisciplinary, and Transdisciplinary and highlights that the stated integrative schemes come with their own convinced purpose of integration which can be applied when the nature of investigation is known. Yet the daily management problems are of complex nature, to define a domain of the problem is subjective, thus for more general situations where the domain of the problem is unspecified, the term "Consilience" is proposed to be used.

The paper is an attempt to explain the meaning of the concepts that are used for integrative research. The researcher has highlighted that while dealing with different integrative approaches there exist a perplexity. However by reviewing the literature it is evident that the main focus of multi-inter and transdispilinary integrative approaches is to provide a better understanding of the real world complexity. In order to avoid perplexity the research proposes that the term "Consilinece" should be used in order to refer to all types of integrative researches.

The research offers a call for consilience in the domain of management science building up the logic that what needs to be reconciled are the two cultures that persist in the field of management- management as art and management as science. While expounding to the reason that why this very reconciliation is needed the paper sets out a brief list of drivers that pulls the attention of modern world in general and management in particular towards consilience. Thus it can aid forthcoming researcher in building a Consilient theory in management domain.

The field of organizational studies is taken as fragmented and frequently independent field with separate perspectives and paradigms. Moreover the paradigm wars and paradigms diversity of the field opened up a debate that the

organizations theories lack in integrative contribution which makes it quiet difficult to comprehend the commonalities among the theories. The notion of finding commonalities is important as all the past, present and potential theories of organization seek to solve the complex organization problems. Yet when seen in separated silos it gives a fragmented understanding about the organization. The idea here is to encapsulate all these fragments in order to see a holistic picture of the organization.

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