How Is Interdisciplinary Research Performed in Korea?

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ABSTRACT

The purpose of this study was to figure out how interdisciplinary research (IDR) is performed in South Korea, in terms of platforms, process, and outcome and evaluation. To achieve the purpose, this study employed semi-structured interview with researchers who had experiences of IDR. The results are as follows. First, regarding platform of IDR most informants conceptualized IDR in terms of multidisciplinarity and IDR was motivated by personal interests, interdisciplinary nature of home discipline, or external forces like research funds. Second, in the process, the informants perceived that their researches were largely implemented at multidisciplinary level and problems in communication and relationship between team members were raised as main challenges. Cultural aspect was revealed to affect interaction and relationship between team members. Finally, the informants mainly suggested tangible outcomes when asked about results of IDR and it was considered that such responses were influenced by meritocracy of evaluation system.

Keywords: interdisciplinary research (IDR), platform, process, outcome, evaluation

1. OBJECTIVES

Various fields in today’s society are undergoing unprecedented changes in response to globalization, and academic realm is not an exception [1]. As needs of the society and characteristic of valued knowledge have been changed, academic researchers are given pressure and, at the same time, have motivation to effectively react to the change. One of the most recognizable changes in academe is observed in types of pursued research that is represented by shift from discipline-based research to interdisciplinary research (IDR).

IDR is considered to have several benefits over traditional disciplinary research. Research that does not solely based on single discipline (i.e. IDR) has been reported to be useful to solve complicated real-world problems and allow comprehensive understanding of phenomena [2] [3]. Recently, increased number of IDR and researchers who conduct IDR is obviously observed in Korea [4] [5]. To promote this change, Korean Research Foundation (KRF) has provided official fund for researchers to design and implement IDR by announcing “project of IDR support”. The attention to and investment on IDR seems to emerge with multiple purposes, including to raise the nation’s competitiveness in the globalized world, to solve real problems effectively, and to produce new knowledge.

There have been a lot of researches to understand and improve IDR. They could be categorized around three major themes including conceptualization of interdisciplinary approach [2] [6] [7] [8] [9] [10] [11], process and elements involved in IDR [12] [13] [14], outcomes and evaluation of IDR [15] [16] [17]. Results from these studies feed back to the practice of IDR, contributing to development of the area.

Although a lot of researches transgressing boundaries between disciplines have been produced in Korea, attempts to investigate IDR as an object of inquiry have not been given much attention. In other words, we have little to talk about reality of IDR done in Korea.

Regarding Korean studies on IDR most focused on suggesting needs or ideal status of IDR [4] [18] [19] [20] [21]. On the other hand, experiences researchers go through in IDR are relatively not well-known. Given the current movement toward IDR in Korea, however, it is considered to be necessary to identify how IDR is operated, in order for current researchers to understand their practice and achieve higher quality. In this respect, this study aimed to figure out how IDR is performed in Korea.

Toward this end, three research questions were identified.
1. With what platforms (i.e. background, concepts, and images of IDR) do the interdisciplinary researchers enter into the research process?
2. What happens in the process of IDR?
3. What are the outcomes of IDR and how are they evaluated?

The results of this study would contribute to understanding of Korean experience in terms of IDR. Not only that but it would facilitate discourses between researchers worldwide who are interested in the theme and help them to reflect on common factors and unique differences in IDR practice. It would lead to discuss about constructive future of IDR in this globalized world. In this respect, this study has implications for
importance of intercultural understanding in research globalization.

2. THEORETICAL BACKGROUND

A lot of different terminologies were suggested by scholars to refer research which is not confined to a single discipline. As well as, the definition and typology of IDR varies according to scholars.

Definitions of interdisciplinarity during 1970s and 1980s distinguished multidisciplinarity and interdisciplinarity, focused on disciplinary integration [10] [22] [23]. Some of the typologies advocated transdisciplinarity as the most desirable form of interdisciplinary approaches. Klein (1990) indicated that to some extent, general consensus about distinction between multidisciplinarity, interdisciplinarity, and transdisciplinarity was achieved among scholars.

Multidisciplinary work juxtaposes disciplines without any integration and disciplinary elements retain their original identity [9]. However, interdisciplinarity integrates the elements of the involved disciplines. It is a process of addressing a problem that is too broad or complex to be solved by a single discipline [29]. Transdisciplinarity was defined as a comprehensive framework constructed through an overarching synthesis of disciplinary worldviews [9]. Klein (2005) suggested general systems, structuralism, Marxism, policy sciences, feminism, and sociobiology as leading examples of transdisciplinarity, which transcends the narrow scope of disciplinary views.

Some scholars who adopt rigorous and narrow definition of interdisciplinarity do not accept all kinds of interdisciplinarity stated above as IDR. This study, however, applied broader definition of IDR which involves all three types above regarding initiating stage of IDR in Korea and to make the results rich and comprehensive, and thus applicable to other contexts.

Researchers who were interested in how IDR was implemented have studied on motivations, needs and conceptualization that interdisciplinary researchers conceived about interdisciplinarity [2] [25]. Laberge, et al. (2009) investigated perspectives of interdisciplinary researchers on value of interdisciplinary health research. The respondents expressed wide variety of views. Lattuca (2001) explored various backgrounds from which informants in her study became interdisciplinary and revealed intellectual and personal influences on their commitments to IDR throughout their lives.

In this study, we categorized these elements into “platform” recognizing that researchers start their interdisciplinary work from and with the elements. The concept of platform owed to Walker (1971) who used the term to refer concepts, theories, aims, images, and procedures that curriculum developers carry with them to deliberation where experts in various fields participate.

A lot of literature on the process of IDR has been cumulated, focusing on interaction, collaboration, and dynamics in team-based work [14] [27] [28] [29]. Oughton and Bracken (2009) found that explicit negotiation is prominent feature in IDR process. Repko (2009) suggested a set of steps in IDR process, including using disciplinary insights and dealing with conflicts between relevant disciplines. Nair, Dolovich, Brazil and Raina (2008) revealed that relationship and power distribution between participants played central role in the IDR, which could encourage or discourage the research process. Based on the literature review, this study identified its second question to figure out what happens in the middle of IDR process.

There are some research conducted on outcome and evaluation of IDR [2] [15] [16] [30] [31]. Lattuca (2001) found that conference presentations and papers, journal articles, monographs, books, promotion, tenure, learning from others could be outcomes of interdisciplinarity. In her comprehensive review of literature on interdisciplinary and transdisciplinary research evaluation, Klein (2008) suggested a framework consisted of seven principles: (1) variability of goals; (2) variability of criteria and indicators; (3) leveraging of integration; (4) interaction of social and cognitive factors in collaboration; (5) management, leadership, and coaching; (6) iteration in a comprehensive and transparent system; and (7) effectiveness and impact. The third research question was drawn by these literatures.

3. METHODS

This study employed semi-structured interview to achieve the purpose. 25 informants who had experiences(s) conducting funded interdisciplinary project were subject to the interview.

Participants

The sample was selected based on convenient sampling and snowball sampling methods in which informants introduced interviewers someone they know who would provide relevant information for the research. The sample population included 25 informants in 4 universities. Their majors represented variety of academic perspectives, including architecture, English novel, control system engineering, science philosophy, mechanical engineering, and etc.

Data Collection

The interviews were conducted face-to-face and individually to acquire specific information about their research practice. Two researchers did their interviews respectively. To improve reliability of data collection process, the interviews were based on same interview protocol, but not restricted to the questions in the protocol. In addition, they had several times of pilot interviews.

The interview protocol developed by the researchers of this study consisted of grand tour questions about platforms, process, and outcome of IDR and probing questions asking specific examples of their answers. Each interview lasted for about 30 to 40 minutes. All interviews were digital-recorded and transcribed using pseudonym and the informants were rewarded with honorarium for their participation.

Figure 3.2 Interview Questions

<table>
<thead>
<tr>
<th>Categories</th>
<th>Questions</th>
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</thead>
<tbody>
<tr>
<td>Platform</td>
<td>How do you define “interdisciplinary”?  What’s your motivation for interdisciplinary research?</td>
</tr>
<tr>
<td>Process</td>
<td>How was your research implemented in terms of types of interdisciplinarity?  How was communication between team members?  If the communication was not facilitated, what do you think the reason was?  Was role division between the members clear and reasonable?  How did role division influence the research process?</td>
</tr>
<tr>
<td>Outcome</td>
<td>What were the outcomes of your project?</td>
</tr>
</tbody>
</table>
Data Analysis
Transcriptions and field notes of the interviews were analyzed according to general analysis procedure of qualitative research. We conducted iterative and recurring process of categorizing words and main ideas from transcriptions. The process was made by tracking the ideas and memos the researchers wrote down while reading the transcriptions using Nvivo program. Then emerging variables were classified into the themes, and examined in terms of interrelationships. The process was continuously repeated and reviewed through categorization and re-categorization to establish valid and reliable themes and it included experts in higher education and qualitative research.
To improve validity and reliability of the study, triangulation and member check was employed [32] [33]. Transcriptions were compared to field notes that were written during the interviews and validity of categorization was reviewed by different researchers. As well as, we reported the results of this study to the informants and accepted their opinions to avoid distortion of results by researchers.
Scholars trained from single discipline are still preferred in Korean universities and research project. But on this starting point of interdisciplinary research, we should train and employ young scholars who have interdisciplinary experiences and are not limited in disciplinary paradigms. [K]

**Outcome and Evaluation**

Majority of the informants thought tangible outcomes, such as journal articles or project reports, are central outcome of IDR.

Usually the outcomes are research reports. [C]

In this case, we have produced one English article and two Korean articles so far. [P]

Their views of outcome of IDR were likely to be affected by evaluation standards of funding organization, which will be discussed later.

As well as, some informants suggested discovery of researchers who shared interests with them, personal relationships with researchers in different disciplines, and training students as professionals in IDR.

Additional outcomes include training students to work on their theses and dissertations related to the project theme....... I felt that we have significant potential to construct a team on the topic in my local area. [P]

However, these invisible outcomes could not be effectively assessed by current evaluation system of IDR. The informants’ emphasis on publishing articles as outcome of IDR seems related to evaluation standards of funding organization. Some of them felt pressure for producing quantitative results, which discouraged high quality of IDR and led resistance of scholars to meritocracy.

It’s a problem that funding organizations require researchers to make visible and quantitative outcomes. It would render interdisciplinary research superficial and impede interdisciplinarity. [Y]

The informants suggested that evaluation on the process of research would be needed to facilitate and ensure IDR with high quality.

For valid evaluation to be enacted, evaluation on the research process, not on the outputs, should be made. [S]

There appeared marginalization of interdisciplinary researchers in evaluation process by privileged academic societies (i.e., association of traditional disciplines), which was often seen in reviews on interdisciplinary papers.

Interdisciplinary research is excluded by the scholars who have prestige in existing disciplines. Figuratively, doing interdisciplinary research is like “becoming a bat” in academe. [K]

On the other hand, an informant perceived interdisciplinary feature of his research would be an advantageous point in paper publication and acceptance of research fund.

No, I think interdisciplinary research has advantages in research funding and paper publication in academic journals. [J]

5. **DISCUSSION**

Based on the results, following conclusions could be made.

First of all, we explored how the informants conceptualized IDR and what makes them pursue it.

The result indicated that most informants defined IDR in terms of multidisciplinarity. Given that informants in the previous studies defined interdisciplinarity from multidisciplinary, interdisciplinary and/or transdisciplinary point of view [2] [25], the informants of this study seemed to have relatively narrow view of interdisciplinarity, represented by multidisciplinary perspective. Their conceptualization of IDR seemed to influence subsequent practice, resulting in multidisciplinary level of research.

As well as, it was found that IDR was begun from personal interests, interdisciplinary nature of home discipline, or external forces like research funds. The last type of motivation has recently given attention by some researches [34] [35]. They would be useful to understand how commodification of knowledge affects research practice.

Second, the informants perceived that their researches were largely implemented at multidisciplinary level. It would be understandable regarding relatively short history of IDR in Korea.

Issues including communication and relationship between team members were raised as main challenges amid IDR process. Large number of previous studies that focused on these issues [14] [27] [28] [29] indicates importance of interaction and relationship in IDR.

One of the interesting results was that cultural aspects had significant effects on relationship between members. In this study, Confucian culture in Korea was considered to create age-based hierarchical relationship that discouraged interaction in research team. In this case, clear and reasonable role division becomes more important and needs to be made at the planning stage of research for equal distribution of power among team members. Based on the results, suggestions for further studies that would examine relationship between cultural aspects and interaction in IDR process could be made.

Finally, the fact that the informants mainly regarded tangible outcomes as representative results of IDR indicated that they were influenced by meritocracy of evaluation system. The results suggested alternative form of evaluation that values research process, complementing weaknesses and side effects of evaluation of, mostly countable, research outputs. Establishment of qualitative standards for evaluation like Klein (2008) suggested is prerequisite conditions for interdisciplinary researchers to produce creative outcomes and improve quality of their research.

Although outcomes of IDR were not different from disciplinary research as Lattuca (2001) found, what interdisciplinary researchers experience in evaluation process was different from that of disciplinary researchers. One of the interesting results was that there exist discrepancies in perception of their status among interdisciplinary researchers. Further studies on what makes differences in their perception would be needed.

6. **REFERENCES**


