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AN ASSESSMENT OF METHODOLOGY OF MODERN INTERDISCIPLINARY RESEARCHES IN SOCIAL SCIENCES

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Abstract

With the second half of the 19th century, interdisciplinary research becomes gradually high specialization in modern science. In other words, this research emerges as a reaction against the scientist incarcerating themselves in a narrow field. With the development of technology, it is seen that interdisciplinary used to be incompatible in the past, but now a days, it is more aliasing. Interdisciplinary research is defined as enhancing the intellection which is fulfilled by individuals or groups, solving the problems which remain out of the single discipline or research application field. It is also a research style which integrates the data, methods and techniques, tools, perspectives, concepts and theories from the two or more disciplines or from specialized knowledge fields. Even though many literatures develop intellection of interdisciplinary research, it still remains a difficult and indefinable concept. The polysemy of interdisciplinary concept becomes more and more remarkable with the augmentation of differences in the organization of science. In order to avoid this situation, in addition to general interdisciplinary research terms, a number of new terms are also used. These are listed below: to establish cooperation between science or science issues which are more or less unrelated to each other it is called "multidisciplinary" research; to put into practice a mutual axiomatic for a range of scientific research is called "transdisciplinary" research. After the Second World War, interdisciplinary research statement, including the meaning of teamwork, is now widely used. All research related to creativity and innovation show that new ideas come from different perspectives. In this study, "interdisciplinary research" concept is widely addressed.

Key words: Interdisciplinary, interdisciplinary research, interdisciplinary approach, interdisciplinary teaching and learning, discipline between science.

1. Introduction

The person, who wants to describe, explain and interpret the relationship between nature, society, people, culture; encounters with a large bunch of options such as from art to philosophy, religion to mythology and from tradition to science. These activities can generate consistent and valid descriptions, explanations, predictions, about the same issues which are as much as same with the others. The division of these activities is the method that they use. Social science examines the people living in the society and mutual interaction of group of people. Due to the fact that social science often deals with difficult and complex cases, that's why It is completely different from many of the natural sciences (Baloğlu, 1997; Çelebi, 2004).

Developments in the science and technology in the world have revealed new approaches. Nowadays, there are not thinking and evaluation anymore in only one area for revealing the results of research, other disciplines, which support these thinking and evaluation, are being effectively used for the research. The structure of social life is increasingly complex since the birth of human; therefore, there is a requirement of research and analysis. Within the historical development, the fact and process of research have always been referenced topics. Previously, the requirement of research starts with practical needs, thus, its importance increases with the proliferation of science. With the development of social sciences, the requirement of research is

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not only meet the practical needs but also it is started with the scientific purposes regarding all aspects of individual - society relations (Turna, Bolat ve Keskin, 2012; Aziz, 2013).

The purpose of academic research which is conducted by either sociologists or anthropologists or political scientists, they try to find answers to theoretical questions among themselves. It is not possible to think without comparison. Any lack of comparison, all scientific thoughts and all scientific research are the same way. Nowadays, comparisons are made in many areas. The social research cannot be perfect. The ultimate goal is to produce knowledge, to provide a better understanding of the world and search for the truth. Social researchers would like to share clearly the methods of research and finding with other science and other people (Neuman, 2013 II). Each data collection method catches different moment of reality and when they are used alone, they all have limitations. This case is seen as a necessity in the social sciences and applied fields. Social researches thinks about questions related to the social world and based on science requires following a series of processes to produce new information. The content of social life is not simply explained by psychological factors. At this point, community structure differs from the structure of the individual. In this context, the interdisciplinary approach emerges as a necessity. Different disciplines can pull and push each other; they are also merged and separated from each other. Being irrespective of their content, generally, these all are associated with being mystic quality (Durkheim, 2013; Neuman, 2013 II).

Interdisciplinary Studies can range from the study of any subject that does not fit neatly into existing disciplines to the deliberate juxtaposition and synthesis of disciplines. In the context of a liberal arts curriculum, interdisciplinary courses, majors, and/or minors can provide students with opportunities to understand how knowledge is constructed and continually reconstructed. Students can also acquire the skills of using multiple perspectives and synthesizing new approaches using those perspectives to solve complex problems. Developing an understanding of and seeking answers to complex questions often requires integrating knowledge and methods from multiple disciplines. Reflection on and integration of disciplinary knowledge is central to interdisciplinary studies (https://www.beloit.edu/interdisciplinary).

2. The Purpose of Study

Of course, many social science is associated with. For this purpose, it can not be considered independent of each other. Developing and changing world results in the emergence of new areas every day. None of any academic discipline is not enough alone anymore. An academic discipline thinking itself as an island and not being related to other humanitarian studies make itself shallow and locks in a narrow space. Interdisciplinary wall should be demolished and Interdisciplinary studies should be carried out without any limits or restrictions. Science is a social institution and it is a way of creating knowledge. The research methodology makes social science as scientific. Social sciences such as anthropology, psychology, political science and sociology, are related to the examination of people-belief, behavior, interactions, institutions and so on. The subject of a science determines the techniques and tools to be used. It is related to an interdiscipline or an interdisciplinary field, which is an organizational unit that crosses traditional boundaries between academic disciplines or schools of thought, as new needs and professions emerge.

3. Conceptual Framework Of The Study

3.1. What are Interdisciplinary Studies

As a concept, interdisciplinary means that combining and including two or more disciplines. Interdisciplinary approach is being defined in different ways. According to Cluck (1980) and Kline (1995) Interdisciplinary approach combines and includes two or more
academic disciplines or study areas; according to Jacobs (1989) it is an information opinion and program approach using multiple disciplines of the language and methods in order to try one subject, topic, problem or test; according to Erickson (1995) it is "theoretical integration of concepts from different disciplines"; according to Gürkan and Gökçe (1999), the disciplinary model which is a traditional method of curriculum design, tries to procure acceptance the separate and independent disciplines" and according to Yıldırım (1996) it is defined as traditional subject areas are presented by bringing them together around the certain concepts in a meaningful way".

From the definition and approach above, interdisciplinary education combines common elements in the disciplines and it is understood that interdisciplinary education aims to create a meaningful integrity. Instead of having disjointed Interdisciplinary educational approach from each other, as a ladder complementing each other, it is a topic that subject areas are in need of others (Kanatlı ve Çekici, 2013, p. 224). Interdisciplinarity involves the combining of two or more academic disciplines into one activity (e.g., a research project). It is about creating something new by crossing boundaries, and thinking across them (https://en.wikipedia.org/wiki/Interdisciplinarity, date of access, 11.04.2016).

As a working definition of interdisciplinary research, we refer you to the definition set forth in a National Academies’ report: “Interdisciplinary research 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” (https://www.nsf.gov/od).

Interdisciplinary concept always accepts that there is a richness of the discipline, they are linked each other and there is no single correct answer of the real-life problems. In addition to that, interdisciplinary concept provides a combination of solutions in contrast to topics such as science, mathematics and languages. Cognitive, affective and creative bring the capacity into the forefront in order to find new and better ways to express the ideas (Çoruh, 2010, p. 9). Interdisciplinary research combines components of two or more disciplines in a the search or creation of new knowledge, operations or artistic expressions. Interdisciplinary education merges components of two or more disciplines in a single program of instructions. Interdisciplinary theory takes interdisciplinary knowledge, research, or education as its main objects of study (Nissani, 1997, p. 203)

### 3.2. Emergence of Interdisciplinary Approach

Even though Interdisciplinary approach seems as 20th century, this concept has a historical background. This approach has also important place in Greek philosophy. The idea of integrating the interdisciplinary approach is firstly seen in Plato's Politeia. Interdisciplinary researches are born as a response to high specialization in modern science in the second half of 19th century. In other words, scientists should not limit themselves in one field (https://wikipedia.org/wiki/Interdisciplinarity). According to Ausburg (2006) although interdisciplinary and interdisciplinarty are frequently viewed as twentieth century terms, the concept has historical antecedents, most notably Greek philosophers.

However, this is rather than purely an emotional response and it is indicated by the force of sciences which are in our age. Conventional research methods, in the meantime team Works, are not enough to find solutions for the complicated problems. Not only academicians but also society, state and economy increasingly expect solutions from the science. The high specialization in the discipline results in communication problems, an increasing fragmentation of knowledge and need of re-check of scientific research. After the Second World War, interdisciplinary research expression is used in English language including means of team work
and nowadays it is possible to see this expression gain an importance and widely used in many field (Klein, 1990).

### 3.3. What is the Purpose of Interdisciplinary

The main objective of the interdisciplinary approach is both to learn the chosen topic as a meaningful whole and it offers students the opportunity to examine the same issues in terms of the different disciplines (Yalçın ve Yıldırım, 1998). Through the interdisciplinary regulation, both information regarding specific disciplines and skills are learned and they are integrated in a meaningful way (Aydın ve Balm, 2005). It is believed that omnidirectional thinking is one of the most important objects for the interdisciplinary education. Interdisciplinary approach is a natural consequence of the developing and changing knowledge areas. Within the scope of the information and skills are gained by discipline from different disciplines, to perceive the outside world, to be able to make sense the information and to develop the ability on thinking, these become an important object (Yıldırım, 1996). Interdisciplinary needs multidisciplinary and supra-disciplinary studies in order to overcome both large-scale social and limited problems more than ever (Efe, 2013, p.138). Interdisciplinarity involves researchers, students, and teachers in the goals of connecting and integrating several academic schools of thought, professions, or technologies along with their specific perspectives in the pursuit of a common task.

Interdisciplinary instruction entails the use and integration of methods and analytical frameworks from more than one academic discipline to examine a theme, issue, question or topic. Interdisciplinary education makes use of disciplinary approaches to examine topics, but pushes beyond by: taking insights from a variety of relevant disciplines, synthesizing their contribution to understanding, and then integrating these ideas into a more complete, and hopefully coherent, framework of analysis. In dealing with multi-faceted issues such as teenage pregnancy, new drug development, genetically modified foods, and health care access, interdisciplinary perspectives are needed to adequately address the complexity of the problems and to forge viable policy responses. Interdisciplinary teaching is different from multi- or cross-disciplinary teaching in that it requires the integration and synthesis of different perspectives rather than a simple consideration of multiple viewpoints (https://serc.carleton.edu/econ/interdisciplinary/what.html).

### 3.4. Benefits of Interdisciplinary Approach

Interdisciplinary relations is becoming more apparent day by day. All these developments oblige to raise a high quality and qualified people and also to educate these people within the multidisciplinary field instead of single area. According to Stember (1998), the interdisciplinary approach requires more or less integration even some changes in discipline. Within the narrow limits of disciplines approach, it is not possible to teach and examine these new fields (Çimen, 2014). According to Aslantaş (2013) interdisciplinary studies, completed their lack of discipline-based work, some can be called negative situations created by the specialization creates a positive alternative in terms of conversion (Kanatlı ve Çekici, 2013, p. 223).

When the person is in different environments, meets with different people, looks through the different events and situations with the eyes of different people, become a habit, it means that the sense of curiosity is already on the path and reaching viability in the first period of your life. The most important thing is to re-examine the events and phenomena through the eyes of different people with different perspectives from a different place. Social relations which are done with self-conscious and pessimistic people, should cover large areas. However, that kind of social relations cause the existing prejudices becomes more concretion and to reinforce the wall.
which limit a narrow perspectives (Şimşek, 2003). Consequently, in a situation, more realistic planning can be done and fast solutions for problems can be provide.

For the person who has the habit of looking to events from various aspects, it is easily said that research topics are infinite for that kind of person. Many researchers develop different methods in this regard. For example, Don Murray recommends the researchers to take different likeness. He says that "Imagine that the issue should be reviewed point of view from a writer, historian, and author of a police novel or gossip columnist. Using their point of view and style, write a few pages and try to see the topic from different perspective" (Kırcaali-İftar, 1999; Ergun, 2006, p. 33-34). Miscellaneous thinking might be considered among the most important achievements such as thinking and evaluation skills, experience extraversion, interdisciplinary education by integrating different disciplines. It is also evaluated as an indicator which aims to develop high level thinking skills (Kanatlı ve Çekiçi, 2013, p. 224). Education is a field of interdisciplinary study. Its theories and concepts are taken from psychology, sociology, anthropology, political science and so on (McMillan ve Schumacher, 1984; akt: Balcı, 2013, p. 59).

Concepts and methods taken from various disciplines, enrich the information based on research in education. Any educational issues or problems are researched in various ways. A scan research, experimental research, case studies, etc. (Balci, 2013, p. 59). Variation is as important as eligibility in the scientific method. As the phrase goes, there is not single and absolute path for research of any kind of subject. Successful researchers are the people who can benefit from alternative methods in their studies. for this reason, it is required to determine the best methods which may be appropriate in the selected topics and use these methods skillfully as complementary to each other (Şimşek, 2012, p. 57).

"To begin with, a discipline can be conveniently defined as any comparatively self-contained and isolated domain of human experience which possesses its own community of experts. Interdisciplinarity is best seen as bringing together distinctive components of two or more disciplines. In academic discourse, interdisciplinarity typically applies to four realms: knowledge, research, education, and theory. Interdisciplinary knowledge involves familiarity with components of two or more disciplines. Interdisciplinary research combines components of two or more disciplines in the search or creation of new knowledge, operations, or artistic expressions. Interdisciplinary education merges components of two or more disciplines in a single program of instruction. Interdisciplinary theory takes interdisciplinary knowledge, research, or education as its main objects of study."

In turn, interdisciplinary knowledge and research are important because:

- Creativity often requires interdisciplinary knowledge. Immigrants often make important contributions to their new field.
- Disciplinarians often commit errors which can be best detected by people familiar with two or more disciplines.
- Some worthwhile topics of research fall in the interstices among the traditional disciplines.
- Many intellectual, social, and practical problems require interdisciplinary approaches.
- Interdisciplinary knowledge and research serve to remind us of the unity-of-knowledge ideal.
- Interdisciplinarians enjoy greater flexibility in their research.
- More so than narrow disciplinarians, interdisciplinarians often treat themselves to the intellectual equivalent of traveling in new lands.
- Interdisciplinarians may help breach communication gaps in the modern academy, thereby helping to mobilize its enormous intellectual resources in the cause of greater social rationality and justice.
By bridging fragmented disciplines, interdisciplinarians might play a role in the defense of academic freedom (https://en.wikipedia.org/wiki/Interdisciplinarity, Nissani, 1997).

3.5. Disadvantages of Interdisciplinary Approach

Even though both interdisciplinary and multidisciplinary researches have obvious benefits such as receiving many incentives from research funding providers and policymakers, the researchers who are interested in these researches, can often face daunting obstacles and discouraging situation. According to Porter and Chubin (1985), the lack of data is the first obstacle in interdisciplinary researches. Individual communication or culture is the inhibiting factors in the traditions of academic institutions and organizations. Therefore, the interdisciplinary and multidisciplinary works are often very difficult to achieve. For example, the identification and evaluation of results and outcomes may vary between different disciplines. The people who are dealing with multidisciplinary study may lose their credibility in their "fundamental disciplines" (Childs ve Tether, 2010; akt: Efe, 2013, p. 141-142).

The recognition of multidisciplinary studies can be difficult because of not being a clear classification or not being dependent to fundamental discipline. On the other hand, another drawback of the interdisciplinary approach is to have the problem of institutional recognition (Young, 1995). Large number of literatures tries to improve interdisciplinary research approach but it still remains as a very difficult and highly uncertain concept. Despite the barriers and drawbacks, the foregoing discussion forcefully call for a mild shift (in both attitudes and institutional arrangements) towards interdisciplinary knowledge and research. To overcome the negative sides of specialization, to retain its vitality, the academy must cultivate interdisciplinary knowledge and research. It mustnever forget that a vibrant community of scholars -just like a thriving ecosystem-nurture specialists and generalists, diversity and interconnections. The case for interdisciplinary education, it seems to me, is not as straightforward as its knowledge and research counterparts. Because educational philosophies are shaped in part by ideology, intuition, and aesthetics, the controversy about the extent, timing, and need for holistic education may well be irresolvable. Here I can do no more than offer a personal view. The soundest course of action may again involve enriching the vast disciplinary archipelago with idiosyncrasies and bridges. At the global level, this implies a wide range of disciplinary and interdisciplinary educational programs. At the institutional level, this implies encouraging students to take at least one consciously integrative course. (Nissani, 1997, p. 214).

3.6. The Barriers to interdisciplin ary Knowledge and Research

In a recent case the promoters of an interdisciplinary program were called up on to formally explain how their program would achieve disciplinary depth. Experts tend to view with suspicion people lacking a firm anchor in any discipline. Regardless of the quality of their work, interdisciplinarians often experience difficulties securing research grants, going on exchange programs, publishing, gaining recognition, securing a job or being promoted: “Researchers who identify themselves professionally with cross-disciplinary categories face the entire panoply of gatekeeping mechanisms, which by and large favor existing disciplinary categories” (Klein, 1993; cite: Nissani, 1997, p. 213-214). Because most participants in interdisciplinary ventures were trained in traditional disciplines, they must learn to appreciate differing of perspectives and methods. For example, a discipline that places more emphasis on quantitative "rigor" may produce practitioners who think of themselves (and their discipline) as "more scientific" than others; in turn, colleagues in "softer" disciplines may associate quantitative approaches with an inability to grasp the broader dimensions of a problem. An interdisciplinary program may not succeed if its members remain stuck in their disciplines. On the other hand, and from the disciplinary perspective, much interdisciplinary work may be seen as "soft," lacking in precision,
or ideologically motivated; these beliefs place obstacle in the career paths of those who choose interdisciplinary work. For example, interdisciplinary grant applications are often refereed by peer reviewers drawn from established disciplines; not surprisingly, interdisciplinary researchers may experience difficulty getting funding for their research.

Interdisciplinary programs may fail if they are not given sufficient autonomy. For example, interdisciplinary faculty are usually recruited to a joint appointment, with responsibilities in both an interdisciplinary program (such as women's studies) and a traditional discipline (such as history). If the traditional discipline makes the tenure decisions, new interdisciplinary faculty will be hesitant to commit themselves fully to interdisciplinary work. Other barriers include the usually disciplinary orientation of most scholarly journals, leading to the perception, if not the fact, that interdisciplinary research is hard to publish. In addition, since traditional budgetary applications at most universities channel resources through the disciplines, it becomes difficult to account for a given scholar or teacher's salary and time. During periods of budgetary contraction, the natural tendency to serve the primary constituency (i.e., students majoring in the traditional discipline) makes resources scarce for teaching and research comparatively far from the center of the discipline as traditionally understood. For these same reasons, the introduction of new interdisciplinary programs is often resisted because it is perceived as a competition for diminishing funds.

Due to these and other barriers, interdisciplinary research areas are strongly motivated to become disciplines themselves. If they succeed, they can establish their own research funding programs and make their own tenure and promotion decisions. In so doing, they lower the risk of entry. Examples of former interdisciplinary research areas that have become disciplines include neuroscience, cybernetics, biochemistry and biomedical engineering. These new fields are occasionally referred to as "interdisciplines." On the other hand, even though interdisciplinary activities are now a focus of attention for institutions promoting learning and teaching, as well as organizational and social entities concerned with education, they are practically facing complex barriers, serious challenges and criticism. The most important obstacles and challenges faced by interdisciplinary activities in the past two decades can be divided into "professional", "organizational," and "cultural" etc. obstacles (https://en.wikipedia.org/wiki/Interdisciplinarity; Khorsandi, 2011).

4. Conclusions and Recommendations

The relationship of interdisciplinary becomes more obvious day by day. Nowadays, it is really important to have skills that require interdisciplinary studies (Hopcan, Polat ve Adıgüzel, 2014, p. 288). Interdisciplinary research is style of a research that reconciling the data, techniques, tools, perspectives, concepts and / or theories from two or more disciplines or from the field of specialized knowledge, in order to develop basic understanding fulfilled by the teams and people, to solve problems which remain outside of a single discipline or the research application area. Interdisciplinary teaching students different to merge the information in the area to help integrate and students who analyzes through concept, the synthesis level it is an approach to focus the thinking. This approach to revitalize the teaching environment, students' creativity and most importantly, providing the use is of utmost importance to guarantee the teaching would encourage them to be involved against the course. This important program approach in many countries (especially in America) almost

Despite the use in schools at all levels significantly, the content of this teaching approach in our country, there are very few resources for how to use importance (Aybek, 2001).

Developing and changing world results in new areas every day. It is seen that it is not possible to examine and teach these new fields within the narrow confines of the interdisciplinary approach. In this context, the need of interdisciplinary approaches increase every day. Discipline is a research field which improves advanced developing information and
produces brand new information. Discipline has unique education infrastructure, methods and content. Each discipline has its unique own doctrine, professional language, terminology, intellectual pioneers and followers (Berger, 1970; Becher, 1989; Parker, 2002). Interdisciplinary research, which leads to new knowledge, is one of the most productive and inspiring human interest for negotiations and connections. As an innovation and training methods, interdisciplinary research, which provides healthier environments and more prosperous lives, reveals a deeper understanding that will determine our temporal location and new inventions and technologies that will inspire young minds. All the researches related to innovation and creativity shows that new ideas come from different perspectives. All participants/stakeholders, who take part in various projects, agree on both the importance of multi-disciplinary study and its complexity. There are more relationships between the different layers and different segments of society. It is more difficult to deal with and discuss the subject from single perspective and one framework of a single discipline and there is a less chance of success. Within the development of technology, today there is more aliasing between disciplines which were incompatible is the past.

About the studies which are fulfilled by team of multi-disciplinary researchers, Cleuren, (2011) who has deep observations about the industrial area, underlines the following points: Engineers have been working together with ergonomists to develop new instrument products and environment. Sociologists and human resource professionals contribute to the transformation and data management. For a successful project, there is a need of mutual cooperation discipline and project stakeholders should be encouraged. The engineers should be taught to look at the sociological consequences, the outcomes and health practices. Sociologists and human resource professionals must understand the consequences of technological solutions. Thus, these might provide more accurate and balanced approach to research and multi-skilled scientists. In this process, all the sciences are relevant to each other and new discoveries lead to other train of events. Interdisciplinary studies are needed and inevitable. If the sciences stay inside their borders, they are deprived of the opportunity and time to seek solutions to specific problems remaining outside their fields. In the past, every single person set up their "closed", "competent", "one-sided" metaphysical system. Instead of that system in our age, "open", "constantly developing" and "versatile" system which is developed by scientists and experts raising from reality and technical aspects, in a short way, the systems which have an interdisciplinary research data take over ancient systems. In the traditional discipline-based education programs, recent studies show that there is more tending towards to interdisciplinary education programs emphasizing the unity and integrity rather than separation and fragmentation. Interdisciplinary concept accepts that every single discipline has richness, they are linked with each other and there is no single correct answer of the real-life problems. In addition to this, interdisciplinary concept gathers together the solutions of science, mathematics and languages. Interdisciplinary concept brings cognitive, affective and creative capacity into the forefront in order to find better and new ways of expression of thoughts. It is thought that the success of students will increase if various teaching methods, in which the students are active and the teacher guides them, are employed instead of using traditional methods in teaching Science (Balım ve Aydın, 2005; Özkök, 2005).

5. Suggestions

In developing of interdisciplinary programs, current and future needs, expectations, interests, and skills of students have an important place. The subject based on interdisciplinary program should be carefully chosen considering these needs, interests and features. Therefore, this developed program must be closer to the practical rather than theoretical. Such a program should give the opportunity to students think about the topics, to produce new ideas and to be an active participant in class. The concept, topic and problem which form the basis of interdisciplinary programs, should be truly in interdisciplinary characteristics. An important
topic should be selected for at least a few of disciplines which included in the program. The teaching based on interdisciplinary programs must be more effective than the teaching based on one discipline. For example, as a fundamental issue "divorce" concept is examined. It is assumed that through an interdisciplinary program, this issue is planned for two weeks as an unit by the knowledge and stills taken from the lessons such as: History, Sociology, Economics, Psychology, Law, Morality and Politics. Such an unit must be more effectively taught "divorce" concept processed as independent course than the lessons named above (Çoruh, 2010).

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