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Faculty members' perspectives at King Abdul-Aziz University about interdisciplinary research programs

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Educational process has suffered greatly from the traditional curriculum specifically focused on only one system. On the other side, we find that interdisciplinary programs, in recent times, is a prerequisite for many occupations in the labor market and it has been proven that students who learn through interdisciplinary studies have mastering high and complementary skills of thinking . The current study seeks to monitor the opinions of faculty members toward interdisciplinary programs at King Abdul Aziz University. the attitudes of 564 faculty members in eighteen Faculties of the University have been investigated and it has been found that the percentage of those who know what are the interdisciplinary program was about 56%, also 20% of the respondents from the faculty members confirmed that they have the experience and practice in the field of interdisciplinary programs. Also, 78.5% of them reported that interdisciplinary programs help in finding jobs for graduates. In the same vein, approximately 75.1% of them indicated that these programs offer cooperation between scientific departments within the same college and between the different colleges. The researchers came out with some recommendations for the need to focus on studies and interdisciplinary programs in the University education.

Key words: Interdisciplinary programs, labor market, faculty members, sustainable development, community participation

INTRODUCTION

It has been suggested that a new specialist field might be emerging which includes most of the terms and the issues normally grouped under the heading of interdisciplinary. Gabriele Bammer (2010; 2013) suggests that this field, which she calls 'integration and implementation' has become increasing important in recent years and that a community of researchers has emerged with a shared interest in this field.

There are considerable benefits in encouraging interdisciplinary research, particularly where the objective of the research is to achieve useful economic, social, environmental or cultural outcomes. The real world does not always present its problems and opportunities conveniently aligned with traditional academic disciplines so mechanisms are needed to facilitate interactions and collaborations between researchers working in widely different fields

Discussions of the need for, and the benefits of interdisciplinary research are not new (Bammer 2012). Complex "wicked" problems cannot be solved by one discipline in isolation. Experts from diverse disciplines need to come together and work collaboratively in a whole-of-problem approach to help addresses societal challenges. Instinctively researchers know that this is needed. However, it appears disparate to the way universities and governments largely reward and recognize high quality research. Bringing researchers together in a complex landscape fraught with challenges is high risk and can often fail. Nevertheless, when it works well, the rewards in terms of both funding scholarly and 'real world' outcomes can be substantial. Discussion of the need for and benefits of interdisciplinary research often centers around two questions: how do we define it; and how do we measure it? In light of this problem, we

must be cautious in approaching definitions of interdisciplinary, especially as it pertains to challenge-led research.

Among the varied buzzwords adopted by universities, funding agencies and government administrators are interdisciplinary, multidisciplinary, trans-disciplinary and post-disciplinary research (Bammer, 2013; Coles, Hall et al. 2006; Frodeman et al. 2010). None of these perfectly define interdependent research efforts across disciplines, nor eloquently counterbalance specialism with generality – though all certainly capture the zeitgeist.

What is the purpose of interdisciplinary Studies in Higher Education for the undergraduate?

There are four important aspects of the roles that the interdisciplinary studies can play, namely:

1. Integration of knowledge: the means to link and integrate the intellectual, professional and technical schools to reach the output of high-quality built on a basic and natural sciences. For example, there are some social problems, such as the phenomenon of religious extremism, cannot be solved through one specialty but through interdisciplinary studies a program can be formulated combines a number of disciplines, such as history, political science, sociology, law, economics, religion, and psychology, which helps to a deeper understanding and more comprehension to resolve this problem.
2. Modes of thinking: means developing the ability to view issues and blend information from multiple perspectives to challenge their assumptions and deepen their understanding, taking into account the use of research methods and investigation of diverse disciplines to identify problems and solutions for research outside the single system-wide.
3. Integration: Integration means to recognize and confront the differences between the various disciplines to gain access to the unit integrated comprehensive knowledge of the permitted and the most by seeing any one specialty. According to Veronica Mantilla and Howard Gardner (2003), the main role of the interdisciplinary studies is to achieve integration between knowledge and ways of thinking for two or more disciplines. the phenomenon of overlapping between scientific disciplines and branches in rehabilitation, education, and scientific research programs can be accommodated through interdisciplinary studies. For example, we find in the King Abdul Aziz University in specialty "water" shared between the three colleges, is the Faculty of Meteorology (science and management of water resources), and the College of Engineering (Water Desalination Technology), and the College of Earth Sciences (Hydrogeology) then it can achieve integration between the three colleges to work interdisciplinary studies program combines three faculties in this specialty.
4. Knowledge producing: the need for interdisciplinary studies are now stronger than ever, due to the fact that many of the problems the bidding interest to the community cannot be solved adequately by allocates a certain one, but require a combination of studies with clear visions depends on modern methods and qualified researchers to produce new knowledge. In addition to that interdisciplinary studies help universities to keep up with the latest development in a lot of disciplines worldwide to meet the ongoing modern societies that require higher degrees of specialization dynamic requirements. Amin (2012)

The Problem of the Study

interdisciplinary studies are considered an important requirement in light of rapid development in the fields of science and knowledge and scientific research, where all the departed of Science are aware deeply in specialties achieving scientific impressive discoveries, achieving a great scientific and technological revolution, but this knowledge treasures marred by fragmentation and lack of verification to take advantage of complementarily links between the various sciences, along with the omission of the role of the humanities and social sciences and normative science to enrich the other knowledge and scientific research areas, making interdisciplinary studies worldwide demand for universities and research centers, to meet the needs of the community and the labor market, as well as the great usefulness for students seeking to create a more comprehensive and complementary scientific mentality. Where it helps to reduce unemployment among graduates, the researchers here tried to survey the faculty members' opinions about the nature and the importance of interdisciplinary programs.

Significance of the Study

Interdisciplinary research is a necessary consequence of framing wicked problems. Often the problem is not convincing researchers to contemplate interdisciplinary research projects, but to find ways to integrate interdisciplinary projects onto existing proclivities and motivations, and to cultivate interdisciplinary engagement in grass-roots, researcher-led fashion. There have been various attempts to organize interdisciplinary research with varying levels of complexity, uptake and productivity.

Purpose of the Study

The purpose of this study is to investigate the attitudes of faculty members at King Abdul-Aziz University about the importance of interdisciplinary programs as a fundamental base to support the local market with qualified graduates in different fields. Moreover, it aims to enhance establishing new programs that suit the challenges that we face.

LITERATURE REVIEW

Many researchers conducted studies in the field of interdisciplinary research; the researchers reviewed some of these studies:

O'Brien et al. (2013) studied how stakeholders participate in interdisciplinary collaborations. They find that stakeholders learn from their participation, information is shared and behavior is changed through collaborative work. One of the most valuable activities in an interdisciplinary project is the way they are forced to articulate research goals much more clearly so that other participants who do not have a background in the same discipline, will understand. They also conclude that the holistic approach taken from the beginning of the project enabled them to address real-world issues together. However they find, like Lyall et al.(2011), that success takes time; relations need to be built and trust developed between researchers of different disciplines and between stakeholder and researchers. They also observe that the epistemological differences between the academic disciplines can be greater than the differences between stakeholders and researchers. There are some other interesting studies that do not fall into the categories above. One example is the ethnographic study by Rhoten (2004), which raised the question of how much contact people from different disciplines actually have with each other in interdisciplinary research projects. There are also some studies which looked at the different ways of organizing interdisciplinary research, such as Palmer (1999) or Lengweiler (2006). The former found that strategies could be developed to facilitate boundary crossing between different disciplinary groups. The latter studied the relationship between organizational culture and interdisciplinary practice and concluded that interdisciplinary research is much more nuanced than many earlier studies imply and suggested a typology of interdisciplinary research styles based on the cognitive differences of the participants and the projects' need for intense collaboration

Bruce et al. (2004) analyzed the projects in the 5th EU framework program; their analysis was based on data gathered in workshops, questionnaires and interviews with researchers and research managers. Their study identifies many barriers to practicing interdisciplinary research. They note, among other things, that the main motivation to collaborate is the interdisciplinary nature of many of the research questions, but at the same time they note that career progression is traditionally associated with specialization within one discipline. They suggest that interdisciplinary cooperation does not happen by itself, but needs conscious effort to overcome communication problems and promote greater cohesion.

Klein (1990) suggested that there are phases of development of interdisciplinary tending towards convergence or integration; she called this the Integrative Process Model. Klein's model started out as a linear model; however she refined this as a result of new findings in her research. She described the process as one including disciplinary depth and trans disciplinary breadth resulting in a synthesis.

Some studies have taken some the idea of the integrative approaches mentioned earlier and tried to develop them by carrying out micro-studies of interdisciplinary collaboration. Some of these have found that researchers develop particular ways of communicating, such as a common language or pidgin Galison's (1997). While others such as (Matilla 2005) found that degree and nature of communication changed greatly as the object of research was changed and developed. Olsen (2009; 2010) found that go-betweens and short-cuts were used to bridge the gaps in knowledge between the different disciplines, while Enberg (2006) found that shared project histories also served to help different researchers integrate their knowledge in R&D projects.

DESIGN AND METHODOLOGY

The researchers used the descriptive analytical method to clarify the concept of interdisciplinary programs, its importance, and its role to find solutions for some problems. The researchers used a questionnaire to investigate the opinions of the faculty members about the interdisciplinary programs and its importance. They distributed 1100 questionnaires with a percentage of 25% from the total faculty members who form 4400. The respondents who agree to fill in the questionnaires were only 564 male and female faculty members. The researchers used the social sciences package (SPSS) to analyze the data.

Population of the Study and its sample

The Table 1 shows the number of faculty members in the various colleges at King Abdul-Aziz University and who fill out the questionnaire of the study, where the Faculty of Arts accounted 17%, followed by the Faculty of Science 16.6%, then the College of Home Economics 14.7%, followed by Faculty of Medicine 9.8 %, then the Faculty of Economics and administration 8.2%, the Faculty of Meteorology 7%, then the College of Computing 6.8%, followed by the Faculty of Design and Arts 6.2%, then the College of Engineering 3.7%, and the faculties of Applied Medical Sciences and Environmental Design 3.3%, and the Faculties of Law and Earth Sciences by 1.1%, and the rest of the colleges between member or two or three, example the College of Marine Sciences and the Graduate School of Education, the School of Nursing, and the English Language Institute, and the Institute of Tourism with 0.2%.

Table 1: Population of the study and its sample

College	N.	Percentage	College	N.	Percentage	College	N	Percentage
Home Economics	95	14.7	Geology	7	1.1	Designs and arts	40	6.2
Sciences	107	16.6	Meteorology	45	7	sea science	3	0.5
Economics and Administration	53	8.2	Applied Medical Sciences	21	3.3	Engineering	24	3.7
Arts	110	17	Tourism Institute	1	0.2	Computers	44	6.8
Environmental Designs	21	3.3	Institute of English language	1	0.2	Graduate education	2	0.3
medicine	63	9.8	Nursing	1	0.2	Law	7	1.1
Total	564	100						

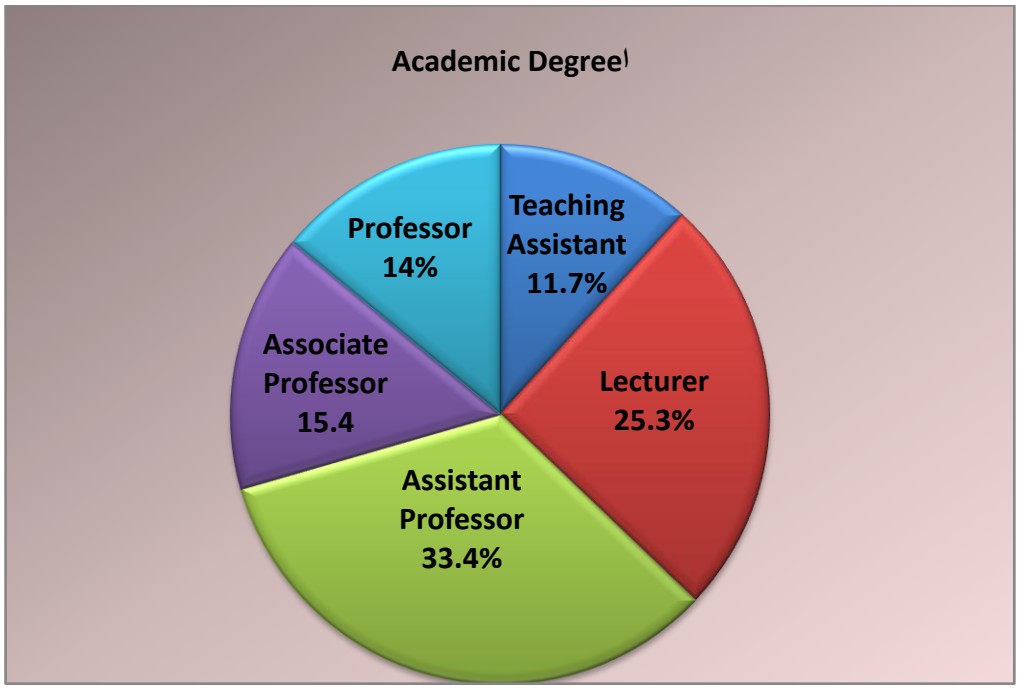
Source: Field study 2015

RESULTS OF THE STUDY

Academic Degree of the respondents from faculty members:

As shown in Figure 1 that 210 faculty members whose academic degree is assistant professor at a percentage of 32.5%, followed by 159 whose degree is lecturer by 25.3%, and 97 members are associate professor with the percentage of 15.4%, and 88 members are professor with a percentage of 14%, and followed by 74 member are teaching assistants with a percentage of 11.7%. And it signed in the category of assistant professor. And when collecting the categories of teaching assistant and lecturer together it became a percentage of 37%, a ratio affect the trends analysis, these two categories marked by the beginnings of the journey they had limited scientific expertise which reflects on the validity of the answers.

Figure 1: Academic degree for the respondent faculty members



Source: Field study 2015

Knowledge of the intra- programs for respondent faculty members:

There is knowledge about intra programs for faculty members at the university, where the percentage of the total of those who has knowledge or some knowledge is 56.2%, while the percentage of those with no knowledge is in the range of 43.8% of the sample of the study.

Practice and previous experience of intra programs:

There is a number of respondent faculty members have the experience and practice in the field of intra-teaching programs, as the number of yes answers about 20.1%. As well as about 25% answered to some extent. On the other hand, the proportions of those who do not have the experience or the practice reach 48% of respondents. The limited experience and practice can be explained by the lack of knowledge of the existence of programs and the variation in the academic degrees between the faculty members.

The need for intra programs

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- The study also showed aspects of the knowledge of intra programs among faculty members on their opinion about the urgent need for those programs, we find that 22.9% of the respondents believe that there is an urgent need for those programs, while both who see a need for programs or to some extent represents about 56, 5%.
- 78.5% of those who associate the interdisciplinary programs confirm that it helps in creating job opportunities for graduates.
- By the same token, we find that about 75.1% of the participants believe that these programs allow cooperation between academic departments within a college. Moreover, 54.7% of them believe that these programs allow cooperation between colleges of common trends within the university (see Table 2).

Table 2: The need for interdisciplinary programs

Indicator	Yes		No		To some extent		Total		Percentage	Mode
	N	Percentage	N	Percentage	N	Percentage		Lost	97.8	
The need for intra programs	145	22.9	267	42.4	220	34.8	632	14		No
Replace the specialized programs with intra programs	362	57.4	68	10.8	200	31.7	631	15	97.7	Yes
Intra programs provide job opportunities for graduates	499	78.5	21	3.3	116	18.2	636	10	98.5	Yes
intra programs allow cooperation between departments	477	75.1	24	3.8	134	21.1	635	11	98.3	Yes
Intra programs allow cooperation between colleges	335	54.7	75	12.3	201	32.8	612	34	94.7	Yes
Promote the intra-program level to the level of the offered programs	402	63.7	47	7.4	182	28.8	631	15	97.7	Yes
developed Intra programs elevate the level of knowledge of the specialties list	425	67.4	42	6.7	163	25.8	631	15	97.7	Yes
developed Intra programs elevate the level of applied Specialties list	391	62.9	29	4.7	202	32.5	622	24	96.3	Yes

Source: Field study 2015

Most important results of the Study

The results of the study on the faculty members' perspectives about interdisciplinary research programs and its importance showed the following percentages:

- 62.9% of the respondents see a great importance of the intra studies.
- 67.4% of respondents see it is a way for improving the knowledge Applied scientific concepts.
- 78.5% find it helps significantly to the creation of employment opportunities.
- 75.1% find it allows collaboration between academic departments within the college and beyond it.

RECOMMENDATIONS

The most important recommendations that emerged from the views of faculty members about intra programs at the university came as follows: -

- The need to encourage scientific departments to promote intra-companies.

- The need to motivate colleges to activate the intra programs between them.
- Smooth the procedures and regulations guide to facilitate the continuation of interdisciplinary programs.
- Taking into account the labor market when the development of these programs.
- Coordination with government departments to facilitate the populating of the graduates of these programs.

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