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REALITY OF TRANS-DISCIPLINARY RESEARCH IMPLEMENTATION WITH "RESEARCH TEAM" APPROACH: AN INSIGHT INTO NEGATIVE FACTS AND FIGURES

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Abstract. Complex problems in global development require cooperation among specialists from numerous backgrounds. Consequently, trans-disciplinary research seems to be appreciated due to its exploration of expertise far beyond the the specific boundary of an individual branch. This study seeks to identify negative aspects of the Research Team as an approach to the path of trans-disciplinary research. It was carried out at the National Economics University with 400 participants selected randomly from 20 faculties. Research methods covered questionnaires, semi-structured interviews, and documentary analysis in their institutional studies. It was revealed that despite the values of the Research Team from a theoretical perspective, this approach was not well adapted in reality. The relationship between academics and stakeholders was weak and the practical application of societal solutions was not largely implemented.

Keywords: reality, relationship, research team, solution, trans-disciplinary research.

1. Introduction

In a research exploratory training workshop for postgraduate scholars organized by Rhodes University (2016) [1], it was strongly demonstrated that the world had been trying extremely hard to handle complicated obstacles, ranging from clean water to a peaceful world. The research scope of these problems has gone beyond any individual discipline's coverage. Consequently, it is crucial to analyze these issues from multi-dimensional perspectives. Current research themes should be responsible for the sustainable development of the world, which means that these days the temporary studies' objectives must be closely linked with societal benefits (Anne, Nils, Emily, Beth, 2015) [2]. Therefore, academic research should not only tackle theoretical and practical troubles but also help to construct a socio-research bridge. This challenging context raises the requirement of improving trendy research under the harmonious cooperation of different disciplines and the intimate link with societal demands for global sustainable development purposes. As a result, there is a growing acknowledgment of research approaches with various sorts of expertise to renew integrated knowledge and science, which is co-called trans-disciplinary research (Anne, Nils, Emily, Beth, 2015) [2].

To introduce trans-disciplinary research into the reality of contemporary study, one of the proposed innovations is named trans-disciplinary team, team-based research, collaborative team, or group think (Mandy, Michael, Gillian, Alison, 2018) [3]. This can be explained simply due to

the participation of numerous researchers with a variety of specializations in the same study. Also, the engagement of these academics illustrates the compatibility between the need to tackle new world problems and improve global human resources competency for social development. Concerning the theoretical aspect, the above solution seems to fit well with the requirement of multi-expertise involvement. Concerning the practical aspect, it is expected that this proposal helps to renew knowledge covering multi-specialization and serving societal-linkage purposes. Both of these strict and complex specifications lead to the need for an evaluation of the application of that suggestion in the real context. Therefore, a study on research teams in response to trans-disciplinary research under the enrichment of global human resources in the new research age should be carried out to demonstrate this innovation's benefits and drawbacks.

This study aims to provide an overview of trans-disciplinary theory based on the comparison with other confusing concepts of multi- and inter-disciplinary research. Then, there is an in-depth discussion related to knowledge integration in a trans-disciplinary approach. Especially, the findings of this research concentrate on the analysis of the negative side of the "Research Team" in the reality of a specific institution.

2. Content

2.1. Literature review

2.1.1. Trans-disciplinary research: An overview

Definition

The concept of trans-disciplinary can be figured out based on the increasing level of complexity in carrying out studies initiating from multi-disciplinary, inter-disciplinary to trans-disciplinary.

Multi-disciplinary: "Multi" means "many". This research practice brings more than one field of study to engage in coping with a particular societal problem. Therefore, it can be referred to as participatory research (Pohl and Hirsch, 2007) [4]. There should be a root discipline as the starting point, which will be applied to other research branches to access the problem solution. Although different academic areas are employed, they share the same purpose of serving the core discipline. Therefore, they collaborate to finalize the mutual response to the original question (Nicolescu, 1997; Sue, 2004) [5] [6].

Inter-disciplinary: "Inter" means "between". There is co-ordination and interaction among different sorts of expertise in inter-disciplinary research. This approach aims at solving a complex societal problem in the world (Lattanzi, 1998; Sue, 2004) [6] [7]. Agreeing with this opinion, Pohl and Hirsch (2007) [4] also demonstrated that inter-disciplinary research should be about a study mode, in which, there must appear an orientation of co-ordination and integration among academics from various branches. Specifically, it was analyzed by Nicolescu (1997) [5] that multi-disciplinary study was linked with a roadmap framed by one discipline, whereas inter-disciplinary would refer to the transference of methodology from one research branch to others to introduce new applications, discuss new analysis and generate new disciplines.

Trans-disciplinary: According to Sue (2004) [6], trans-disciplines implied "across the disciplines, between the disciplines and beyond and outside the disciplines". So, the scope of this approach has gone out of the fixed boundaries of specific branches themselves, which includes the intersection among various majors and exceeds far more destinations related to the researched problems. Therefore, trans-disciplinary study is used in cases of solving complex societal issues to understand the world, not just to figure out responses to these problems in the world (Sue, 2004) [6].

This reveals that new knowledge is formed due to the bridge between the complex societal problem and academic background. In other words, new findings and interactions are identified, which bring about a new view of the natural world and the real context (Nègre, 1999) [8]. In

short, trans-disciplinary resolves complications and narrows the gap between science as well as other research areas and reality to make them closer linked to the life world (Rhodes University, 2016) [1].

Especially, in trans-disciplinarity, it is crucial to stress the involvement of stakeholders in the society in the process of cooperating with academics to figure out the solution to life-based problems serving sustainable development purposes (Kathrin, 2015) [9].

In short, trans-disciplinary research deals with complex societal problems from the perspectives of different research branches and stakeholders in society, who collaborate to build up a scientific and life-world bridge.

Trans-disciplinary knowledge co-production

It should be highlighted that in trans-disciplinarity, knowledge is co-produced by academics and other groups from society. In other words, trans-disciplinary research results from a the knowledge-joint partnership between specialists from various specializations, different sectors, and multiple levels of decisions. This ensures the linkage between academic context and practical relevance or socially responsible science (Polk, 2015) [10].

Trans-disciplinary knowledge base

This is a new kind of knowledge, which is supplementary to mono-disciplinary knowledge and combines both new perspectives and reality-based experiences (Sue, 2004) [6]. Trans-disciplinary knowledge results from specializations between and within various disciplines, as well as between academic fields and practical aspects. Therefore, in some other sources, the the trans-disciplinary knowledge base can be replaced by the so-called trans-disciplinary knowledge integration (Jay, 2015) [11] or new intellectual outer space (Lattanzi, 1998; Sue, 2004) [6] [7]. In specific, the former term mentions knowledge merger and consolidation among different sorts of expertise. The latter is in contrast to intellectual inner space, which means disciplinary knowledge (Lattanzi, 1998) [7].

This demonstration of trans-disciplinary knowledge completely matches with the concept of trans-disciplinary research, which is attached to complex societal requirements, comprised of various disciplines, and compatible with the sustainability of real life. Trans-disciplinary research differs from other approaches in the way of shaking hands with stakeholders and serving sustainable development purposes.

2.1.2. Research Team

Collaborative Team/Group Think/Trans-disciplinary Team are synonyms of this term as an innovation to access trans-disciplinary research. It was summarized that this method was considered an indispensable part of a successful study (Barbara, 2008) [12]. The procedure of a team-based study can be described based on a model of four stages namely “development, conceptualization, implementation, translation” (Stokols, Hall, Vogel, 2012) [13]. Respectively, the first step works out the definition of the problem and sheds light on the competencies of participants. In the second phase, the collaborative group establishes questions, models, hypotheses, and designs in response to the proposal. Then, the prepared study should be put into action. Consequently, the last stage helps to integrate research findings into the sequence of “discovery-development-delivery” so that further plans can be employed to improve societal issues.

To conclude, in responding to more and more global complicated issues, a trendy research approach so-called trans-disciplinary should be highly appreciated due to its involvement of various kinds of expertise, engagement of different partners besides academics, and linkage with life world. The innovation of the Research Team is one suggestion expected to bring about success in trans-disciplinary study, which should be further analyzed to figure out its drawbacks in a specific context, especially to demonstrate the harmony in collaboration among researchers themselves and with other stakeholders.

2.1.3. Trans-disciplinary Research and Research Team in Vietnam

According to Bui (2018) [14], after Doi Moi and the end of the trade embargo on Vietnam in 1980-1990, a variety of multi-lateral as well as non-governmental organizations came to Vietnam to support its development process, which included UNDP, WB (World Bank), ADB (Asia Development Bank), etc. Along with their financial assistance was the technological and research guidance through studies and projects, which embedded the recognition of trans-discipline right in those early days of social development. In particular, one of the requirements for a feasible research proposal to get approval of support was its engagement of social, economic, and environmental aspects, which at the same time took into consideration the benefits and drawbacks for residents during the development process. It can be seen that this kind of research approach should always analyze societal problems in people's real lives. Also, he stated that researchers were discussing this approach in specific aspects such as modern science (by Vu Cao Dam), and cultural studies (by Phan Thanh Ta). However, there has been no academic work on the application of the Research Team in accessing trans-disciplinary.

2.2. Research description

Research subject: **Negative aspects of Research Team for Trans-disciplinary research implementation**

Research scope and scale: institutional projects in the academic year 2021-2022; 20 lecturers randomly and conveniently selected from 20 faculties, National Economics University -> 400 lecturers from 20 majors in total

Research questions:

- How **practical** is the operation of the Research Team for Trans-disciplinary research purposes?
- How **strong** is the relationship between academics and stakeholders?
- How **applicable** are the solutions to societal problems?

Research methods:

- Survey: Questionnaire: a set of questions in descriptive form was adapted to evaluate individual participation in research-based teams. The questionnaire was released to 400 participants at the end of the recent academic year (2021-2022)
- In-depth interview: 5 questions were delivered during each 30-minute session of the interview. This method was carried out with 2 representatives from each faculty. There were 40 sessions. These 2 researchers were chosen based on the name list of institutional studies leaders in the the previous year (2021-2022), who was supposed to have experience in managing research groups. (This list was provided by the Department of Science Management of the university). The number of interviewees was decided based on the limited time and funding of this research.

Ethical issue: each interviewee was asked for his/her approval of being recorded, if the answer was yes, then, the session was recorded. Otherwise, the content would be taken notes by the interviewer.

- Documentary analysis: A collection of 100 institutional studies was used to analyze the engagement of the research team in the latest year (2021-2022). On average, there were 5 works representing a faculty. These studies were supplied by the Department of Science Management.

Data collection and analysis

- Questionnaire: 300 valid responses to the questionnaire was used for the analysis. The researcher calculated percentages of evaluative comments (as suggested in the questionnaire) to give a conclusion related to the research questions.
- Interview: 40 sessions were encoded from 1 to 40 for the objectivity of the research and purposes of qualitative analysis. The expected evidences were:

+ nouns: denoting teamwork method, negotiation, discussion, knowledge exchange, collaboration, mutual understanding between disciplines

+ nouns: stating teamwork process and leadership: concept, development, delivery, translation

+ verbs: showing actions of group members when they collaborate, agree, disagree, build bridges

+ adjectives: describing complex, complicated, multi-dimensional, challenging problems

+ adjectives: modifying trans-disciplinary knowledge, which is new intellectual, outer space, transformational, life world, reality-based

+ nouns: demonstrating drawbacks, advantages, and issues in teamwork

Expressions with the same meanings and those with contrastive meanings would be categorized in the same group, which should be estimated in percentages to provide a conclusion relevant to the research questions

- Documentary analysis: 100 provided studies in both English and Vietnamese were coded from 1 to 100 to sort out the number of trans-disciplinary works, diversification of team members' majors, and concluding the capability of translation in knowledge.

Expected evidence were nouns and verbs in the studies' titles, which respectively meant linkage with societal problems and actions of solutions.

2.3. Findings and Discussion

Limited number of researches with the trans-disciplinary research team

Based on documentary analysis results, the first noticeable and disappointing fact was the low rate of trans-disciplinary research at National Economics University. Every year, there are 2 opportunities for lecturers to register to carry out institutional research. On average, the total number is about 100 works, of which 70% is carried out in Vietnamese, and the rest is in English. Last year, the situation was not an exception. Among those studies (100), although all of them were group work, only 20% were team-based trans-disciplinary approaches. This shows that the trend was not highly recognized at the university.

Statistics from the questionnaire supported the same conclusion as described in the following chart:

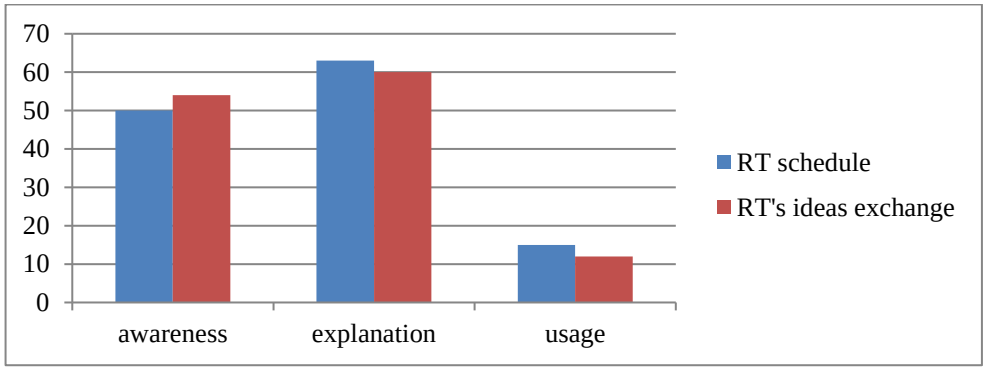

Chart 1. Practicality of Trans-disciplinary Research Team (RT)

It is obvious that despite their high awareness and even great capability of explaining research team procedure and its characteristics, lecturers hardly involved in the research team to carry out trans-disciplinary research (13%). Clarification for this fact was prioritized in the interview with the follow-up inquiry about reasons for a low number of trans-disciplinary team-based research. Then, responses revealed psychological reasons.

*Code 3: I **didn't want** to **argue** with people from other departments. It seems that they do not understand my specialization. It's **hard to discuss**.*

*Code 6: Different lecturers, different ideas. I **don't dare to argue** 'cause it cannot work for a final agreement. It might even cause problems in our **friendship.***

*Code 15: It's so **complicated**, that people in the team are not trained beforehand to serve the same purpose. They felt like the project and did it together. So, it was **impossible** for them to foresee the **conflicts** within their majors.*

*Code 27:More and more **conflicts** appeared. But the problem was **trouble with** the mutual decision. We understood the research in different ways. It was **such a mess**.*

*Code 38: Well, the **institutional project** was **not** something **too valuable** to dedicate great efforts. I've done it in a normal and traditional way with the group in my faculty and it's ok.*

*Code 19: we've never tried any teamwork with other departments. We know it might be interesting to explore new knowledge. However, it is **not a must** in the institutional project, so we did not want to experience it.*

Those examples showed two roots for the low rate of trans-disciplinary team research. Firstly, lecturers were resistant to confront a series of arguments among fellow teachers. They supposed that dissimilar specializations resulted in disagreements only; which would never end with the final decision. Also, these contradictions might affect their relationship as colleagues and friends. So, it was unworthy to operate the task. Secondly, institutional projects were not seriously appreciated as motivations for new efforts. These studies were conventionally carried out within one discipline of a particular department with the participation of several lecturers. There has been neither notification nor reward for cooperation among different faculties. So, the trans-disciplinary team was optional only, which might cause more opposition rather than promise mutual understanding.

The co-operative spirit with non-academic participants/stakeholders was in low harmony

The first and foremost problem to be criticized was indicated in documentary findings. The list of team members only included lecturers. Names of other kinds of participants and organizations were written in a separate section of "Partnership/Co-operating units". This showed 2 points: the form of research proposal application was commonly used for all kinds of research without any specific features regarding trans-disciplinarity, and there was no motivating policy specifically related to trans-disciplinary research.

Results from the survey illustrated that although there was a large number of lecturers understanding their cooperation with external partners, in reality, they faced obstacles in this relationship. Only about 10% of studies were carried out with different members of various majors. The mutual voice in working style was at a low rate (15%). Especially, the targets between lecturers and practitioners were evaluated for poor performance.

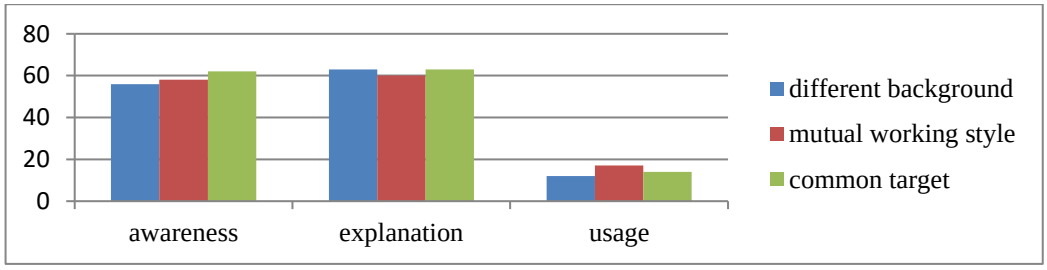

Chart 2. Relationship between academics and stakeholders

Regarding these figures, the interviewer raised questions about the causes of weak cooperation with stakeholders and the results shed light on these findings.

*Code 19: It was **not easy** at all to **discuss with the stakeholders**. They had **their own concerning point and benefits**. Not all of them cared about local residents' worries.*

*Code 30: Individuals and organizations working like business enterprises were **not cooperative** with contributions to the social solutions*

*Code 35: We found that working and persuading other people from society was **never an easy task**. However, this was the requirement of the research, so we had to decide whether the result was as positive as expected or not.*

*Code 38: Trans-disciplinary research means there must be a participation of other non-academic people, I mean, not lecturers like use. So, it was **compulsory** to work with them. We tried to do that to some extent.*

*Code 40: We did work together and it should have been a flexible manner. If they understood, yes, excellent, otherwise, we had to **accept** differences and keep going.*

It might be concluded from these quotations that team members themselves and other participants could not always reach an agreement at the highest point. This largely depended on the background, experience as well as beneficial concerns of the stakeholders. However, due to the requirement of trans-disciplinary studies, all research teams had to involve those partners and apply flexible working styles. Therefore, the weak cooperation in reality between academics and stakeholders could be explained by their contrastive perspectives, work and goals.

Poor applicability of academic solutions to societal problems

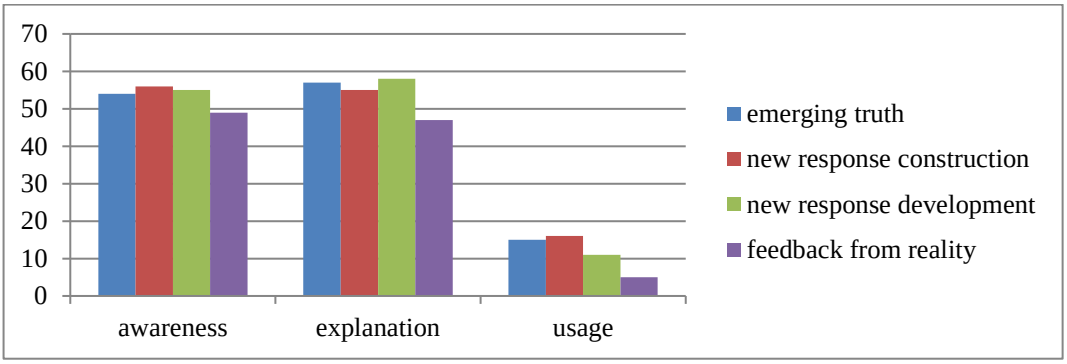

Chart 3. Applicability of academic solutions to societal problems

From an academic perspective, lecturers understood that teamwork in trans-disciplinary research would build up new knowledge because it aimed at solving social. However, they got limited feedback from fieldwork (5%). This means that except for the experimental research by lecturers, the unproductive participation of stakeholders resulted in limited real performance of proposed solutions.

The documentary analysis provided more obvious evidence for the above fact. All institutional projects completed with statistics evaluating an innovation or proposing future approaches to tackle arising problems in the research process. However, there were no studies followed up with any report or similar document giving results of the societal solutions suggested by the researchers.

Qualitative statistics in the interview helped demonstrate more ideas for those numbers in the chart. In responding to the question about the adaptability of their trans-disciplinary solutions, participants' answers concentrated on two points. The former was related to the pre-research stage, while the latter was linked with the post-research one.

*Code 4: We know that we would receive further comments about factual figures. We understand that other stakeholders would provide us with factual information. **But that's the***

process in the theory**. We did **not co-operate much** with the stakeholders, **not to mention receiving follow-up ideas from them.

*Code 18: I knew **beforehand** that the institutional project was something for the **institutional purpose only**. So, it **stopped** at the academic findings. Perhaps, if it were a project ordered by a province, the story would be different.*

*Code 23: I **didn't expect** much from reality. I finished the study by the suggestion because most of the other lecturers had done that. I just **imitated them**.*

*Code 7: We had **never applied** our **solutions** to the **real context** for further feedback.*

*Code 16: Our research was a trans-disciplinary one and it was an action research. But after the completion, we **didn't carry out** any more **relevant studies** to evaluate the proposal.*

62% of collected data was comprised of verb phrases stating poor adaptation of the trans-disciplinary solution *poorly implemented, hardly double-checked, and rarely commented on.* 51% of data was the the negative connotation of noun phrases like *no more feedback, limited number, and no further care*. Right at the beginning of the research, academics were well aware of the research circle with the step of receiving feedback for more problems to be resolved. However, in fact, after they defended their studies in front of the institutional project board, they stopped further research and paid no attention to any more comments from reality.

3. Conclusions

This study reveals that the Research team, as proved in theoretical sources, is a beneficial innovation in accessing trans-disciplinarity. However, in reality, the application of the research team in trans-disciplinary research proved specific drawbacks of poor co-operation between academics and stakeholders as well as weak adaptability of the proposed trans-disciplinary solutions. It cannot be denied that due to limited time, this study only engaged interviewees with trans-disciplinary experience, which leads to incomprehensive conclusions without opinions from non-experienced ones. Also, the number of trans-disciplinary research at the researched university was not large. Therefore, the examples of trans-disciplinary knowledge were not as diverse as expected. In short, further policies should be passed to encourage more trans-disciplinary research so that similar evaluations like this study can be carried out to explore deeper aspects of this approach, which is still a new emerging tendency in Vietnam.

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