

# Collaborative Research in Higher Education

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**Abstract:** *Today's global development landscape is evolving at an unprecedented pace. Harnessing the power of partnership is critical to accelerating development progress in the wake of scientific and technological advancements and increased access to information and communication. Partnerships between development actors and academic researchers represent an unparalleled opportunity to leverage the unique capabilities of the higher education community to solve critical global challenges. International higher education partnerships promote shared learning and capacity building in a variety of ways and can have impact at both the institutional and community levels. Collaborative research studies that use cross-country and multidisciplinary partnerships can facilitate a more holistic view of a research question and can help find answers or solutions that respond to local needs. The research conducted under these types of partnerships plays an important role in improving policies, strengthening program implementation, and advancing innovative solutions in the field of development. A few colleges are likewise trying different things with virtual learning spaces and have been without giving courses and learning material on the web. This paper focuses on recent trends in education to promote open science and participatory research, and discusses how key factors necessary for successful collaboration can usefully contribute to the training of future conservation professionals through group work and research-based learning programmes*

**Keywords:** Collaborative research, Multidisciplinary partnerships, Virtual Learning spaces, Research based learning programmes etc

## I. INTRODUCTION

One of the difficulties for training in applied science controls is to recognize and build up new standards of training that react to the changing needs of a division. Ground breaking is fundamental for scholastic establishments and preparing focuses, since the target of preparing projects is to deliver experts equipped for working successfully not just at the purpose of their underlying section into the working environment, yet in addition later on. Current powerful moves in science, training and society can be viewed as an open door for more noteworthy commitment with arrangement and instructive bodies in and outside legacy protection field to increase crisp points of view for an increasingly responsive and significant future.

### 1.1 Types of Collaborations

The term "collaboration" in academic research is usually thought to mean an equal partnership between two academic faculty members who are pursuing mutually interesting and beneficial research. Today, however, many collaborations involve researchers of differing stature, funding status, and types of organizations. Even if the two principal collaborators are similarly powerful, a collaboration frequently involves several other people from the research groups of the PIs, including post-doctoral fellows, research staff members, graduate students, and/or undergraduate students. Are these research group members aware of the agreements reached by the PIs? Do they understand the provisions of these agreements? Do the agreements protect the interests of the research group members; for instance do they protect the interests of graduate students in completing their dissertations and publishing their results? Administrative staff may want to raise these questions as they work with researchers to set up the sub awards, collaborative agreements, or other types of agreements intended to formalize the collaboration.

Some examples of the variations in collaborations that can occur:

- Members of two research groups in different departments of the same institution work together on a project. No external funding is involved, and the work is divided reasonably equally between the two groups. All those

involved meet together regularly to review their progress and plan for publication of their results.

- A researcher from a private company works with the research group of an academic faculty member for several months. During this time the non-academic researcher pursues his own project while learning about current techniques and research questions from the graduate students in the group.
- In order to complete a large data collection for which a senior researcher has received federal funding, the researcher has organized a collaboration with three junior faculty members at other institutions who were previously his graduate students.
- In order to learn a new technique, a graduate student travels to another institution several times over the course of a year. Each time she stays for 2-3 weeks, and participates in the research of the other research group.
- Needing an analysis of the effect of a new compound on living plants, a researcher who is only familiar with laboratory analyses contacts an agricultural researcher she met at a conference. They agree to each carry out their own analysis of the new compound, and then combine their results for publication.
- To gain a more global perspective on a public health question, a collaboration among ten research groups in six countries is established. All research groups independently apply for their own funding. The collaborators agree that all data collected regarding the question they are studying will be made available to the entire collaborative as soon as the graduate student most directly involved in gathering the data set has completed his/her dissertation.

### 1.2 Transformation in science research

Research in standard science is ending up progressively increasingly collective, global and issue orientated. This change is occurring at various levels, denoting another period with desires for progressively comprehensive and responsible research exercises that can prompt more prominent worth included for society – including assuming an instrumental job in the acknowledgment of the Agenda 2030 for Sustainable Development (UNESCO, 2015a:9).

In light of the reason that open and community learning frameworks are stronger and effective, current strategy standards at national and universal level are fixated on ideas of duty and receptiveness. The previous alludes to the re-contextualisation of science's essential objectives to mirror the fabulous cultural difficulties, while the last spotlights on the manners in which research is attempted, coordinated effort is drilled, and information is scattered. Basically, together these outline a move towards re-characterizing objectives and rethinking the procedures out of which progressively viable research results can determine.

The study process in open innovation environment: theoretical stance and its practical implementation

The methodology of the promotion of university students' collaborative skills in open innovation environment used by the author in Riga Technical University is based on two main principles:

- studies should be organised close to what takes place in a real enterprise starting from the identification or generation of new opportunities and resulting with the creation of new products and services having solved real life problems;
- students should have a number of collaboration channels both inside and outside the university for the creation of new products and services.

As argued by researchers and specialists in the field of entrepreneurship education, traditional teaching and learning methods such as lectures, literature reviews and examinations do not activate students' entrepreneurship (Gibb 2002; Hannon et al. 2005; Heinonen and Poikkijoki 2006; Sogunro 2004). They consider that the most effective way to promote students' entrepreneurship is to "push" students into entrepreneurship through the structuring of learning as an entrepreneurial process.

### 1.3 Reflective Practices in education

Reflective learning environments can assist students to construct meaning actively and reflectively. Complex learning activities which require students to learn from multiple forms of information before responding tend to elicit active consideration of multiple inputs when students make judgments on how to proceed (Stepien & Pyke, 1997). The authenticity and real-life experiences associated with classroom learning activities can help students think reflectively

by providing real situations and contextualized knowledge about new information that they are learning. Reflective teaching methods can assist the growth of reflective thinking in students. For example, teachers who prefer inquiry-oriented activities help students by asking thoughtful questions. Explanation-oriented teachers describe concepts to students, thereby prompting reflective thinking based on newly presented information (Moon, 1999). Teachers who use wait-time effectively can prompt students to think reflectively before they react (Rowe, 1974). Finally, reflective scaffolding tools—such as interactive journals, question prompts, and concept maps—can prompt reflective thinking (Griffith & Frieden, 2000). For example, Teachers noted that students who participated in interactive journal writing perceived the journal as a tool which helped them think about personal experiences, summarize their learning, and share their learning experiences with others.

Research is frequently undertaken through the collective efforts of many individuals, and it often results from researchers who work together from different academic departments. It is also increasingly common for multiple institutions to work together on projects. Yet collaborative research can pose many ethical challenges, largely because of the number of people, institutions, and resources involved.

One should be aware that coworkers can be at different stages of their careers and can have different expectations in terms of what they aim to accomplish while conducting research. What may lessen the chance that a personal or professional conflict will affect the work environment is if researchers, especially trainees, have an opportunity to voice concerns about the situation. Typically, the project or laboratory director should set the tone by handling conflicts in a reasonable and consistent manner. For example, a disagreement among researchers can occur if laboratory resources are shared. Yet clear communication about when each researcher is entitled to have access to laboratory equipment can be very useful.

A complexity associated with research is the growth of interdisciplinary and multi-institutional research. It can be a difficult challenge for researchers, especially on large collaborative projects, to review the work of their colleagues, because they might be located in different regions of the world. However, researchers need to be diligent and thorough since, as potential authors, they are responsible for at least part of the published work that may result from the research. Collaborative research generates many ethical issues pertaining to authorship. Conventions vary in different fields regarding the kind of contribution to a project that is needed before researchers are entitled to have their names listed on a publication. In general, each researcher must make a "significant intellectual contribution" or a "significant scientific contribution" to a project before being listed as an author.

## II. CONCLUSION

A growing body of research documents the generative conditions established for teacher learning when schools foster collective responsibility for student learning and well-being. However, the evidence base related to learning opportunities for teachers in schools and classrooms is weak, especially with regard to science. This, too, appears to be an area with too much potential to ignore. In particular, building school infrastructure that systematically develops the science and science teaching expertise necessary to engage all students meaningfully in the new vision embodied the Framework can work proactively to ameliorate differences between schools that have ready access to such expertise and those that struggle to connect with it.

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