

Elements of students' expectation towards teacher-student research collaboration in higher education

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Abstract— In academia, the teacher–student relationship relies on research collaboration, and this topic is considered important in the field of higher education. In university-offered programs, research collaboration hinges on what teachers and students expect from each other. Teachers expect better learning outcomes from students, while students expect expertise, support, and balance between creativity and criticism during their study period. This literature review-based research study explores teacher–student research collaboration where teachers and students interact with each other. Research articles written in the last five years were accessed from university databases for this study. This research work highlights and provides guidelines to competent authorities of higher educational institutions and research experts on the basic elements of research collaboration among teachers and students. Such guidelines promote better learning outcomes, such as academic and research achievements. The findings of this study mention teacher–student elements that help students in gaining academic achievements and teachers in publishing more work for a successful academic research career. This study sheds light on student expectations of teacher–student research collaboration. They expect expertise, support, creativity, and criticism from the teacher in academic research collaboration.

Keywords—education, educational innovation, research collaboration, students' expectation, teacher-student, relationship, higher education, learning outcomes

I. INTRODUCTION

Recently, education has become a top priority in countries around the globe, since the purpose of promoting education in both developed and developing countries is to decrease poverty and produce skilled manpower. For future career development, every year a large number of students enroll in higher education, in both local and international institutions [1]. Some of the students apply abroad to be admitted to world-renowned higher education institutions, the purpose of which is to acquire quality education and to secure their future by getting a well-paid job [2]. At the beginning of doctoral academic programs at universities, students face challenges in finding suitable supervisors. Because of its high cost and the ambiguous or ill-defined nature of the responsibilities, university supervision is not fully supported by college and university administrators [3]. This lack of support is most visible in the low status given to teacher-student supervision when tenure and promotion decisions are made and in the common practice of assigning low-cost research associates or part-time faculty to supervision positions. Proposals for

improvement must be sensitive to the complex set of cost-benefit factors that forms the basis of current practice [4]. The supervisor should always be a true leader and role model for students. He or she leads them to perform successful research and to pass the program they are enrolled in, for teacher–student research collaboration is based on mutual research benefits. According to scholars, there are three core elements that are important for international PhD students to consider when selecting supervisors, namely expertise in the research area, support for the student, and balancing creativity and criticism [5]. What is needed is a model of supervision that fully uses the skills and strengths of university supervisors but operates within the existing constraints of the student–teacher experience. The objective of this study is to theoretically explore teacher–student research collaboration to achieve better learning outcomes in the form of improvement in academic writing, research publication skills, and time management during studies at the university level.

The set objective of this conceptual article was achieved using a literature review to identify and link engagement mechanisms among teachers and students that better learning outcomes and academic achievements. According to evidence collected from published literature and combined in the context of research collaboration, students expect four key elements from their teaching supervisor which help them to achieve their academic goals relating to course and research work [5]. An evidence-based study of the literature contributes to developing new ideas and exploring new research domains [6].

II. RESEARCH METHODS

This narrative review of the literature is based on published articles in the area of teacher–student research collaboration in higher education. The aim is to identify a knowledge gap in the existing literature. This will enable us to come up with strategies to improve teacher–student research collaborations for better learning outcomes. Research articles for this review paper were accessed from university databases, i.e. Web of Science. We used search terms such as “Teacher-student”, “research collaboration”, “relationship”, and “higher education”, from years 2016 to May 2020. Before start of data collection process, we derived keywords from our established research topic. After formalizing keywords, we made a combination of keywords and ran a search query on the Web of Science database. After running the search query, we got list of relevant articles. To refine the data, we first excluded

reviews and other similar articles. To ensure the relevance and quality of papers located and included in this review, we screened titles, abstracts, keywords, and also the content of the papers. We went through all collected articles and confirmed the relevance and quality of the articles to be included. After the process of identifying articles for this study, we included articles from journals and conference in this study. This review is reported and divided into two sections as shown in the tables below (Table I and Table II). In the next section of this article, we build our discussion on the relevant collected evidence from the searched literature.

TABLE I. LIST OF JOURNAL PAPERS (2016 – MAY 2020)

	Keywords	Publication Years	Number of Publication	Total number of papers
Journal	Teacher–student + research collaboration	2020	1	21
		2019	9	
		2018	3	
		2017	3	
		2016	5	
	Teacher–student + research collaboration + higher education	2020	1	7
		2019	3	
		2018	1	
		2017	1	
		2016	1	
	Teacher–student + relationship	2020	36	426
		2019	148	
		2018	96	
		2017	65	
		2016	81	
	Teacher–student + supervision relationship + higher education	2020	7	63
2019		22		
2018		11		
2017		12		
2016		11		

TABLE II. LIST OF CONFERENCE PAPERS (2016 – MAY 2020)

	Keywords	Publication Years	Number of Publication	Total number of papers
Conference	Teacher–student + research collaboration	2020	0	11
		2019	2	
		2018	2	
		2017	5	
		2016	2	
	Teacher–student + research collaboration + higher education	2020	0	1
		2019	0	
		2018	1	
		2017	0	
		2016	0	
	Teacher–student + relationship	2020	0	31
		2019	4	
		2018	8	
		2017	16	
		2016	9	
	Teacher–student + relationship + higher education	2020	0	10
2019		0		
2018		2		
2017		6		
2016		2		

III. ELEMENTS INVOLVED DURING TEACHER-STUDENT RESEARCH COLLABORATION FOR BETTER LEARNING OUTCOMES

This section covers the evidence collected through digital resources (i.e. Web of Science database) in the form of published articles both journal and conference proceedings.

Firstly, we will explain the mutual interests of teachers and students in research collaboration. Secondly, we will explain in detail each factor that we found from published literature in Web of Science database during 2016 to May, 2020.

Teacher–student interaction is important for better outcomes in the form of publication, as the teacher plays a critical role as a supervisor. The teacher’s area of expertise is also important for PhD students when they are interested in continuing their research [7]. The teacher helps his mentees choose a research topic, and his moral support helps them build their confidence [3]. Teacher support boosts students’ confidence in participating in academic activities and leads to better outcomes. In some situations, teachers award hardworking students, which helps them overcome the financial pressure of better learning outcomes in the form of research publications and higher grades [8, 9]. Different higher education institutions around the world have their own programs with course and research syllabi designed in accordance with international and national educational standards [10]. To promote education and research, governments and universities offer scholarship programs to attract more and more students. To get scholarships, students directly contact faculty members in the relevant departments of funding agencies or universities for acceptance letters as potential applicants [11]. The faculty members of the universities then become research supervisors of the students. To complete programs successfully, students must pass course work and execute research under the supervision of a mentor (teacher). During teacher–student research collaboration, the teacher allows her students as independent researchers to propose their research topics and execution plans. The teacher as the supervisor is responsible for providing guidance and ensuring the quality of work [12, 13]. Students expect the following from their teacher (supervisor): expertise, support, and creativity and criticism [5].

A. Expertise

In higher education, teachers are responsible for carrying out both teaching and research activities individually and/or in a group. In a group, teachers mostly supervise their students. To enhance teaching skills, academics develop teacher education development programs which improve the academic leadership of teachers [14]. For this, well-reputed universities have designed and implemented an ICT-based teacher evaluation platform, where registered students evaluate their teachers each semester [15]. This evaluation helps administrative staff to analyze students’ opinions about teacher expertise/competencies and to propose professional workshop training programs. To improve individual expertise, teachers (supervisors) establish and arrange workshop training programs to identify their own and also their students’ needs for better performance [16]. Students’ self-assessment and initial knowledge help them identify their needs for developing their individual competencies [17, 18]. During their research studies, some of international PhD students have weak collaboration with their teacher (mentor) due to their lack of communication skills [19]. Poverty, prior education, and family backgrounds of local PhD students may also cause communication gap and societal difference among other students and teachers [20]. To improve students’ communication skills [21], supervisors can guide them to academic writing courses and help them with time management skills during research studies [22]. For successful research collaboration, especially with PhD students, teachers require some core expertise to help their

students. They must know how to set and achieve goals, arrange communication development activities, and apply technology-based learning approaches (game-based learning) [23, 24]. Teachers can expect their PhD students to build three important competencies – fairness, honesty, and trustworthiness – to form better relationships and successfully achieve academic goals.

B. Support

In higher education, the research achievements of PhD students are based on their capabilities in terms of setting academic goals and achieving them within a set time frame, where teachers' support positively affects the successful execution of research [19]. The outcome of doctoral students' collaborative research partially depends on their teacher (mentor) [25], and sometimes teacher–student conflicts occur due to expectations between them [26, 27]. To achieve academic goals, a better relationship between teacher and student is vital for avoiding conflicts during academic research collaboration. To access higher education, new international and local students secure scholarships for doctoral programs through the support of teachers (as potential supervisors) [28]. Teachers (academic research supervisors) expect their PhD students to execute given research tasks within a given timeframe. In the earlier stage of academic research collaboration, complexities occur in the student–teacher relationship due to students' lack of research skills, new environment, and research interests [29]. To overcome these complexities, the teacher (supervisor) provides them with guidance on the selection of the research topic based on his practical experience and theoretical skills in creating ideas and designing research [30]. Alternatively, the teacher can engage her student as a group member of government- or industry-funded research projects [31]. These methods can socially and financially support and help PhD students select a potential topic for their future research and enable them to learn and share knowledge with their fellows for personal development [17]. So, involvement in ongoing (government or industrial) funded projects, appreciation, and awards in the form of financial support always encourage PhD students to learn and develop new skills to avoid conflicts and build successful academic careers.

C. Balancing creativity and criticism

Creativity and innovation are critical elements for the teacher (supervisor) [23] during the time of supervision, when

the teacher is responsible for providing creative learning opportunities for students within classes, seminars, meetings, and research activities [32]. A creative environment helps students to promote their interests. Available resources and relevant training enhance teachers' creative pedagogical concepts and teaching abilities [33]. Creativity is not based on individual ideas but rather interaction and socio-cultural context [34]. Criticism is also critical in academia when it occurs during supervision, research collaboration, and in the interactions between teacher and student. Sometimes criticism produces conflict and disagreement as well [35]. Balancing criticism and management skills makes supervisors capable of effectively handling this situation [22]. According to scholars, teaching professors encourage and strictly apply teaching guidelines so students can actively participate in class activities and course work [36]. Teaching professors (teachers) criticise their students, highlight their strengths and weaknesses, and help them to improve their writing and speaking skills. This can be achieved through rewarding students, which has a positive effect on their attitude. Punishment has a negative effect on students' attitudes toward their learning outcomes [37]. Feedback from teachers during class is considered to be a useful tool for changing students' behaviour [38]. Criticism is an important element of teacher (supervisor) behaviour during class or in front of student research groups. The content of this criticism should be mostly based on topic selection, proposed ideas, required data and analysis skills, and target groups (respondents) [39]. The content of criticism usually provides a basic outline to students of how to select and perform their academic tasks. So, balancing creativity and criticism will help both teacher and students to go from novice to expert [22]. Balancing creativity and criticism is a key element within student–teacher research collaboration, where teachers engage their PhD students through interactive teaching methods and also review their work through frequent meetings related to their research progress and activities. It will help them to develop a professional working attitude and put focus on their academic activities. During supervision, positive criticism motivates students and helps them to improve their academic research skills for better outcomes. A balanced teacher–student relationship helps both to build trust, produce high-quality academic research outcomes, and also build long-term research collaboration.



Fig. 1. Theoretical research model

IV. IMPLICATION OF THE STUDY

The practical implications of this study relate to both students and teachers. Firstly, our proposed model highlights important elements of research collaboration that help both students and teachers form long term relationships on the basis of trust. Better learning outcomes are produced as a result. Secondly, emotional intelligence (EI) needs to be employed to improve the relationship between teacher and student. EI is considered a skill, and it can be developed and practiced by both teachers and students during their research collaboration and also in their professional lives. EI allow teachers to build trustworthy and productive relationship with students based on follow-up, the identification of their own negative emotions, open-mindedness, and the identification of others' needs. EI helps students in adapting to new environments, increasing self-awareness, reducing stress through the recognition of certain situations, and enhancing social skills and confidence. All of this allows students to better understand situations and respond appropriately. Finally, financial support in the form of awards enables students to form a better collaboration with their supervisor. Balance in creativity and criticism is important: the teacher should be open-minded and allow his or her students to come up with innovative ideas related to their research interests, and then the teacher should provide critical comments for improvement. This will create an academic relationship in terms of a sense of ownership, and it will motivate students and make them feel their innovative ideas have value. Hence, this relationship between teacher and student is a more concrete research collaboration, as everyone will feel they have a common interest in the research collaboration.

V. CONCLUSION

Teacher–student research collaboration is a core element of the teacher and student academic relationship. Students expect teacher competency during supervision, namely expertise, support, and balancing creativity and criticism. Teacher expertise, teaching, and academic leadership skills are considered driving factors in teacher evaluations by students through existing ICT-based online evaluation systems. Financial support of degree programs encourages students to promote collaboration and to acquire a higher degree under the guidance of one of the faculty members. Sometimes teacher awards in the form of financial support encourage students to actively participate in academic and research activities. Balancing creativity and criticism helps teachers engage, provide opportunities, and create an environment in which their students can improve creative learning skills. In this environment, criticism is handled through the balancing and management skills of the teacher, which help avoid possible conflicts and disagreements during the time of research collaboration between teacher and students. These above-mentioned research collaboration elements help students in their academic achievements, and they help teachers publish more work for a successful academic research career.

A. Limitations and future work directions

This paper has some limitations. Firstly, we only used the Web of Science database for data collection. Secondly, data was collected from only the most recent 5 years. Thirdly, we did not consider culture or geographical location in our data collection. For future work, anyone can use same combination of keywords and extend period of search including consider other database such as Scopus, EBSCO, and ProQuest. This

will help researchers to expand upon this study in future research.

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