

# International Co-Authorship in Publications During and Succeeding PhD Study: A case study between Universiti Teknikal Malaysia Melaka and Technical University of Denmark

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## ABSTRACT

A significant number of local academicians were awarded opportunity to study abroad for their PhD. However, this figure is contradicted with the number of scientific articles published by one academician with his/her PhD supervisor. With the strict criteria being set by the Times Higher Education 2014 Ranking with regard to citations and internationalism, it is of great interest to strategize on the co-authorship work between local academicians and their foreign PhD supervisors. To illustrate this, a case study is presented in this paper involving an academia from Universiti Teknikal Malaysia Melaka (UTeM) and his former PhD supervisor from the Technical University of Denmark (DTU). A series of published journal and proceeding articles are listed, of which collaboratively written by both parties. The articles comprise the ones being published during and after PhD completion, with some awards achieved at the respective conferences. This case study is aimed to inspire other academicians in adapting the same strategy.

**Keywords:** International co-authorship; PhD abroad; research collaboration

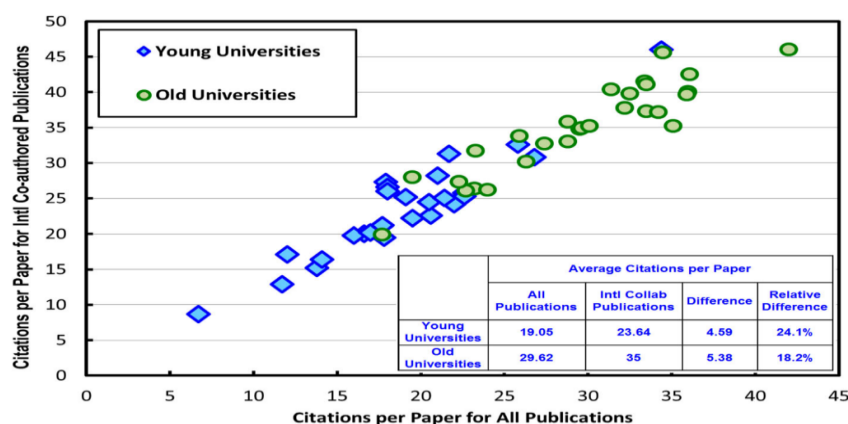
## 1. INTRODUCTION

In 2019, a total of 73,314 Malaysian pursued their studied abroad across 56 countries, including Masters and PhD study. As one of the developing countries, Malaysia through the Ministry of Higher Education has been offering substantial amount of financial allocation in funding its academicians to write their PhD abroad (Wan, Kuzhabekova & Ispambetova, 2022). The two main sponsorship scheme, i.e., Bumiputera Academic Training Scheme (SLAB) and the Institutional Academic Training Scheme (SLAI) offers attractive package in funding the tuition fees, air tickets, insurance while also providing monthly allowance. Studying abroad closely engages Malaysian PhD candidates with international supervisors of one particular university, which opens the door for well-documented research collaboration and thus, joint publications.

In fact, globalization and enhanced scientific communication has also boosted up international research collaboration in the last decade, between the developed and developing

countries (Low, Kabir, Koh, & Sinnasamy, 2014). Not that improving the quality of published articles out of it, coverage and impact could also be significantly widen, which are strongly beneficial for authors coming from the developing countries. For instance, in India, Kundra and Kretschmer, (1999) and Basu (2000) have conducted studies focusing on the quality and quantity of Indian scientific publications and international research collaboration. Same goes for Colombia, which authors have demonstrated positive impact by international co-authorship on their local team productivity capacity (Ordóñez-Matamoros, Cozzens, & Garcia, 2010).

In Europe, scientist is motivated to go for international co-authorship for the sake of academic reputation, scientific recognition and opportunity for research funding (Kwiek, 2021). Meanwhile, the effect of international co-authorship can also be perceived on the citation impact for articles that are co-written by authors from old and young universities (Khor & Yu, 2016). The study shows that both did benefit from this kind of collaboration, as demonstrated in Figure 1. In this case, Universiti Teknikal Malaysia Melaka (UTeM), can be considered as a much younger university as it was established in 2000, as compared to Technical University of Denmark (DTU) that was established in 1829. In fact, DTU has just been ranked no. 104 in the world In QS World University Rankings 2023. For UTeM to get into the list, two important criteria to be taken into account are of course the number citations and internationalism [8]. It is therefore of great interest to strategize on how these two criteria can be scored; that is by utilizing the existing international network between UTeM academicians with their former PhD supervisors. This paper elaborates the effort that has been made by me (the main author) in jointly publishing a series of articles with my PhD supervisor, i.e., Clara Velte from DTU, during (from 2016 to 2019) and after completing my PhD.



**Figure 1:** CPP for internationally co-authored publications against CPP for all publications for top young and old institutions in the Times Higher Education 2014 Ranking (Khor & Yu, 2016).

## 2. Collaborative writing and publications

At DTU, PhD candidates are given two options to either submitting their final written dissertation in terms of a complete monograph or compilation of either journal or proceeding articles (article-based PhD thesis). The latter is very typical for most of universities in the Scandinavian countries, where a comprehensive synopsis must be written on how each article relate to each other (Lee, 2010; Anderson & Okuda, 2019). Note that the included articles could also be the ones that have not been published, yet whether still under review or already in a complete manuscript. Being an academician myself, this article-based thesis appeared to be more tempting as I could boost up my research portfolio at the same time. At the time I submitted my thesis, I have successfully published two journal articles and one proceeding paper, together three complete manuscripts being ready for submission. The co-authorship publication also continued after I completed my study.

### Co-authorship during PhD study

Not only being given opportunity to decide on the type of PhD dissertation I wanted to go for, my supervisor was also flexible in choosing which conference or journal to which I wanted to submit my research articles. I purposely chose to submit to local conference and journal in order to contribute to our national research scenario, especially when the submitted articles are jointly affiliated with a Danish institution, which is lacking in the overall pattern of co-authorship in Malaysia (Cheng, Hen, Tan & Fok, 2013).

We first published an article "Experimental Evaluation of Kolmogorov's  $-5/3$  and  $2/3$  Power Laws in the Developing Turbulent Round Jet" in the Journal of Advanced Research in Fluid Mechanics and Thermal Sciences (Yaacob, Schlander, Buchhave, & Velte, 2018), which is the same paper that I presented during the 1st International Symposium on Fluid Mechanics And Thermal Sciences held at Malaysia-Japan International Institute of Technology, Kuala Lumpur in May 2018. This SCOPUS-indexed publication cum our debut co-authorship since the first day of my PhD enrolment has really ignited our interest to publish more articles in the near future. Within the same month, I attended and presented another paper at another local conference, i.e., 1<sup>st</sup> UTM Emerging Scientists Conference 2018, organized by and held at UTM, Skudai. Our international co-authorship on this paper has vaguely contributed to my entitlement on the Best Oral Presenter (Physics track) during the closing ceremony. Most importantly, the same article "Mapping of the turbulent round jet developing region using a constant temperature anemometer (CTA)" has been published in the Malaysian Journal of

Fundamental and Applied Sciences Special Issue on Natural Sciences and Mathematics (ESCon 2018) (Yaacob, Schlander, Buchhave, & Marika Velte, 2018).

In the same year in November, my home university UTeM organized a conference, i.e., Symposium on Electrical, Mechatronics and Applied Science. Having some unpublished experimental data in hand, I took this opportunity to submit another paper with an intention to support my home university's event. Being tied up with time towards my final PhD deadline, I asked one of my co-authors, who was a DTU Master student under the same research group led by my supervisor, to fly to Melaka and present the paper on behalf of me. This time around, our paper "Validation of Improved Laser Doppler Anemometer (LDA) Based on the Fully Developed Turbulent Round Jet" (Yaacob, Schlander, Buchhave, & Velte, 2018), was announced to bring home The Best Paper Award by the organizer. Again, it shows how a collaborative writing could significantly contribute to the quality of a scientific article. This paper has later been published Proceedings of Symposium on Electrical, Mechatronics and Applied Science 2018 (SEMA'18).

Just after my thesis submission, while waiting for the viva date to be announced, I managed to present a poster "Turbulence Measurements in the Centerline Region of a Turbulent Round Jet Using a Software-Driven Laser Doppler System" at The 6th Mechanical Engineering Research Day (MERD'19). The poster presented part of my collaborative research work with my supervisor and luckily was announced to win one of the Best Poster Awards by the organizer. The two-page abstract submitted for this poster has then been published in the Proceedings of Mechanical Engineering Research Day 2019, which is indexed by WOS (Yaacob, Buchhave, & Velte, 2019). The full paper of this abstract "Statistical Description of the Turbulent Round Jet Developing Region Along Its Centerline" (Yaacob, Buchhave, & Velte, 2019) was then submitted and successfully published in Journal of Advanced Research in Fluid Mechanics and Thermal Sciences, indexed by SCOPUS.

### **Co-authorship after PhD study**

As mentioned before, this collaborative writing does not halt at the end of my PhD journey in November 2019, especially when we still have some more ready manuscripts and unpublished data out of my experimental work. In 2020, we submitted a two-page abstract "Turbulence Measurements In The Developing Region of a Turbulent Round Jet Using a Software-Driven Laser Doppler System" (Yaacob, Schlander, Buchhave, & Velte 2020) to The 7<sup>th</sup> Mechanical Engineering Research Day 2020, organized by UTeM. The full paper of this "Mapping of

Energy Cascade in the Developing Region of a Turbulent Round Jet” (Yaacob, Buchhave, & Velte, 2022) was then submitted and successfully published in a SCOPUS-index journal, Evergreen in 2021.

In November 2021, we submitted and presented a two-page abstract to The 7th International Conference and Exhibition on Sustainable Energy and Advanced Materials (ICE-SEAM 2021). Though the paper elaborates and demonstrates only a small part of my whole PhD project, I was again announced as one the Best Presentation Award recipients during the closing ceremony event. This paper “Residence Times Representation of Turbulence Measurements by a Novel Laser Doppler System” (Yaacob, Schlander, Buchhave, & Velte, 2022) was then successfully published in Proceedings of the 7th International Conference and Exhibition on Sustainable Energy and Advanced Materials (ICE-SEAM 2021), which is part of Lecture Notes in Mechanical Engineering book series.

Both being academicians at our own home universities, my supervisor and I did also remotely extend our co-authorship work in writing non-technical / education-based articles succeeding my PhD study. Back when I was at DTU, I did assist my supervisor for couple of times in conducting experimental courses for DTU Masters and Bachelor students. We managed to submit and published three proceeding (Yaacob & Velte, 2019; 2020a; 2020b) and one SCOPUS-indexed journal articles (Yaacob & Velte, 2021). This synergetic collaboration bloomed with an offer for me to undergo an external research stay at DTU in August 2021 for two months. The experimental data collected during this period will be our next capital in writing more scientific articles in the near future.

### **3. CONCLUSION**

In conclusion, this case study-based paper has highlighted the effort and initiatives made by the first author from an amateur university (UTeM) in getting engaged with a superior researcher from one of the world top universities (DTU) in terms of co-authorship of a series of journal and proceeding articles. It shows that how a regular PhD student-supervisor rapport can be elevated into a fruitful international collaboration even succeeding a PhD study. It is recommended that similar strategy could be implied to other academicians pursuing their PhD study abroad, especially at the high ranked universities worldwide.

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