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Co-authoring Strategies in Business Research

Deirdre McQuillan

Technological University Dublin, deirdre.mcquillan@tudublin.ie

Volume. 2

Academic Writing for Business Researchers: A Peer-led Student Handbook Series

Co-authoring strategies in business research

Edited by Dr. Deirdre McQuillan,
College of Business, Technological University Dublin

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Academic writing for business researchers – peer-led student handbook series

Handbook 2

Co-authoring strategies in business research

Edited by: Dr Deirdre McQuillan, Head of Research, College of Business, Technological University Dublin

Forward

Welcome to the second in the series of peer learning handbooks developed by PhD and MPhil research students to help assist their peers along the academic writing journey. This handbook addresses co-authoring strategies in business research. The students are discovering much to debate about co-authoring in academic writing. While co-authoring has shown to lead to higher research output and productivity for researchers, there are challenges. Not least ensuring a fair contribution of each author can be expected in an ethical approach. Recognising different co-authoring strategies is very helpful before embarking on a co-writing exercise. Strategic approaches to co-authoring might be because of multidisciplinary expertise that can speed up the socially constructed process of developing a paper. It may either be sensible for early career academics to bring in publication expertise to a writing team to help position work and manoeuvre the publication minefield. It may simply be two writers with similar background and expertise grafting to share workload and support each other towards a common goal.

Overall, while the authors in this book span the debate from the benefits of and approaches to co-authoring to the challenges and practical concerns, the evidence remains that co-authoring can ensure more output for writers. However, it should be a planned and strategic process that should be a fun co-learning experience.

The handbook is structured starting with Chapter 1 by Tara Holland and Saba Shahzadi tracking the emerging popularity in academic co-publishing over recent decades and defining what co-authoring and co-authorship means. Chapter 2 offers strategic approaches to co-authoring to ensure that it does assist researcher productivity. Contributions to chapter 2 are co-authored by Duke Debrah Afrane, Joanna Kossykowska, Akanksha Lohmore, Edi Oliveira and Kevin Paul Corbett. Moving to Chapter 3, the authors Thi Ngoc Dao, Intesar Madi, Christina Kenny, Rawayda Abdou and Lindsay Harrison offer insights into the darker side of co-authoring including the lack of standards within business disciplines and the need for fair contributions. The handbook finishes with Chapter 4 offering practical guidance for overcoming the challenges of co-authorship, especially the need to define roles and responsibilities and plan upfront to foresee and minimise potential problems that might occur as the work progresses. Chapter 4 is co-authored by Clodagh O'Reilly, Talal Sorour, Elun Hack and Shubham Sharma.

Well planned academic co-authoring should be an educational and enjoyable process where roles and responsibilities are understood and respected. All academics will have co-authoring opportunities as their PhD or research work progresses and reflecting on the issues in this handbook will help healthy writing relationships to evolve and prosper.

Deirdre McQuillan
Editor

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Chapter 1. Defining co-authoring in business research

By Tara Holland and Saba Shahzadi

This chapter starts by outlining the growing trend towards co-authoring in academic writing, highlighting some of the macro and the micro level influences on this trend. It then discusses more fully what is meant by co-authorship and co-authoring.

1.1 The emergence of collaborative writing approaches (Tara Holland)

In recent years, there has been growth in the nature and scale of scientific collaboration. This was not always the case, in 1950 only 8% of articles written in the *Journal of Political Economy* (*JPE*) and the *American Economic Review* (*AER*) were co-authored. By 1993, the proportion of co-authored articles in *JPE* and *AER* had risen to 40% and 55% respectively (Hudson, 1996). The trend towards co-authorship originated in the natural sciences, but is now seen in all disciplines (Acedo et al., 2006). The primary drivers for the increase in co-authorship can be traced back to two factors – the change in evaluation criteria by government of third level institutions, and to a lesser extent, improved networked technologies between academics across disciplines and geographies (Van Wesel, 2016).
Both of these macro and micro drivers will be explored in the literature, to better understand the key issues affecting co-authorship. It should be noted that although the focus of this work is co-authorship in business research, only three papers could be found which refer to co-authorship in business (Acedo et al., 2006; Klafke et al., 2018; Irina Lokhtina et al., 2020), which is in itself an interesting finding. Many of the discussions and proposed solutions in the literature, can be applied across disciplines, and come from the natural sciences, engineering and education.

Macro Challenge - Third Level Evaluation Criteria

Since the early 1980s university policies have increasingly been influenced by a need for accountability, at least in EU countries. Without a Citation Index it is questionable if the number of citations would be as important as it is now (Van Wesel, 2016). This has led to a focus on publication rates, which are important for both individual and insititutional performance, and are important criteria in achieving external funding from government and other professional bodies (McGrail et al., 2006). Marfarlane refers to authorship attribution as 'the currency of academia' (Marfarlane, 2017). This inevitably leads to pressure on researchers to publish, and some authors argue this leads to the advent of such practices as duplicate publications, multi-authorship and inflating references (Van Wesel, 2016).

Implications for Co-Authorship

The increase in co-authorship has been attributed to more interdisciplinary papers, more multi-institutional clinical trials, but also to gratuitous listing of co-authors (Van Wesel, 2016). Gift authorship for instance including the head of a department or a lab, is a common practice in some disciplines (Matias-Guiu & Garcia-Ramos, 2010), as is adding other researchers out of courtesy or an expectation of reciprocity (Webster et al., 2009). The practices of gift authorship, courteous authorship and adding authors for reciprocity have become common practice in some institutions. Elliott (2013) states that as these practices become more widespread, scholars have come to see these practices as the norm, and as the accepted way to conduct research. "There is no intentional deceit taking place, just an assumption that this practice is perfectly acceptable" (Elliott, 2013 p. 627). However, Klafke et al. (2018) reference a worrying trend in Brazilian research, where researchers have been known to 'pay for publications' in order to increase publications and citations, in order to secure government funding (Klafke et al., 2018).

Micro Challenge - Researcher Collaboration

Much has been written in recent years about the problems associated with authors from different disciplines collaborating on research articles. Practices in co-authorship are not standard across all research disciplines or geographical areas. In disciplines such as philosophy most papers are single authored, while in an area like physics, papers have multiple authors as standard (Cutas & Shaw, 2015). Similarly, in some disciplines the last author is the principle investigator, or the head of the department or the most senior researcher, regardless of how much he or she has contributed to the publication (Masters, 2011). In addition to this, different disciplines and even different institutions have conflicting expectations of the various authors contributing to an article. These expectations are not always discussed in advance (Phillippi et al., 2018).

Rethinking Collaboration

Lokhtina, Lofstrom, Corner and Castello (2020) take an interesting approach. They focus specifically on the co-authoring that takes place between doctoral students and their supervisors. Research in this area typically focuses on how to support students and their writing, but Loktina et al. identify the idea of writing as a developmental process related to research competences and identity development. The authors suggest that more education is needed for supervisors as to their conceptions of how writing works and the role of writing in their research activities (Lokhtina et al., 2020).

They also believe that writing in academic genres requires a sense of self as a writer, and suggest that writing retreats for doctoral students may offer opportunities for both their writing and the authorial identity that they project in their writing (Lokhtina et al., 2020). Hakkarainen et al.'s study on how collaborative authoring in doctoral programs socially shapes practices of academic excellence is a novel solution. The authors contend that getting PhD candidates to use the article-based approach to completing their PhDs, and focusing on solving collectively shared research problems related to a supervisor's research projects, emphasises the importance of acculturating doctoral students to work iteratively with shared research objects, and enhances their collaborating skills (Hakkarainen et al., 2014). The doctoral students received first-hand experience of writing abstracts, selecting suitable publication forums, framing and justifying arguments and addressing reviewer feedback.

To help guide collaboration and avoid ambiguity in co-authoring, Phillipi et al. have created three authorship grids based on best-practice guidelines for co-authoring. The author grids are tailored to quantitative research, qualitative research and literature synthesis, and are designed to be customized in advance of collaborative projects, so that all authors are aware of their roles, responsibilities and contributions (Phillippi et al., 2018).

Concluding Thoughts

Whether intentional or not, there are research practices taking place in some institutions, in order to improve that institutions ability to receive government funding (Klafke et al., 2018; Van Wesel, 2016). While raising awareness of the issue may help, it is unlikely to change in the long-term, until the evaluation criteria that drive these practices changes. Van Wesel (2016) suggests an alternative evaluation approach for example, could be to examine the teachings of practices. These teachings could be distilled from scholarly guidebooks, such as methods texts, editorial guidelines or codes of practice.

In the interim, there is already evidence of improvements in education and training for young researchers. Even in the last decade, the availability of research integrity and academic writing modules has grown. Lokhtina et al. (2020) believe that a bigger focus on education and training could make a difference. The authors point out that "a discourse of 'publish or perish' permeates much of academia (McGrail et al., 2006), but we do not identify a similarly powerful discourse relating to sustainable writing practices, authorial voice or integrity" (Lokhtina et al., 2020, p.7).

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1.2 Defining co-authorship (Saba Shahzadi)

In this contemporary world with the advancement of technology and the availability of relevant material, composing a relatively better book or an article is a challenging task. At this time of the technologically advanced world, we have to adjust our internal and external factors in order to pass on our bits of knowledge, examination, and investigation, recorded as a hard copy. Simultaneously, we have to work with the outside world: timetables and cutoff times, editors and distributors, and eventually with our readers. We add another arrangement of components when we work with coauthors. How might we explore these measurements in manners that permit us on the whole to deliver our best work? First, we should characterize the term co-authoring which signifies 'be a joint writer of any book or article' while the activity of working with somebody to create something is called collaboration. Hence, the joint effort is "a cooperating procedure that connects with at least two members who cooperate to accomplish results they couldn't achieve freely" (Salmons, in press). The term shared keeping in touch with itself is tricky. While it shows up now and again in articles about both hypothetical and instructional parts of the structure, it has an assortment of implications. The term is utilized to allude to Co-authoring a separate segment of a book/article or to compose a whole book/article together. In this piece of work, the author utilized the term reciprocally with coauthoring. In this work, co-authoring writings suggest significant association and shared dynamics and duty among a bunch of individuals in the composition of a common archive (Morgan et al., 1987). At the point when Ede and Lunsford (1990) considered co-authoring in the business, the majority of what they noticed was "various leveled" coauthoring, in which authors split the work. The individuals who coauthored "dialogically," then again, didn't set up set parts; all things being equal, they esteemed finding shared objectives and mixing voices. The procedure was a basic piece of the item. This mixed, dialogic model of collective writing appears to hold the most guarantees for writing (Golub, 1988) because it makes writing outside of the box and to express fully (Flower and Higgins, 1991; Higgins, Flower and Petraglia, 1992). This definition welcomes us to consider the process to interact and engage with others to get the desired results.

Collaborative writing with numerous creators has extra difficulties, including changed degrees of the commitment of coauthors, the arrangement of reasonable credit through origin or affirmations, acknowledgment of a variety of work styles, and the requirement for clear correspondence. Miscommunication, an absence of initiative, and improper devices or composing approaches can prompt dissatisfaction, postponement of distribution, or even the end of a task. To give knowledge into coauthoring writing, the author utilized the information from the Global Lake Ecological Observatory Network (GLEON) to outline 10 straightforward standards for coauthoring writing in business research. A co-authoring paper can be a consequence of a solitary discrete exploration venture or the result of a bigger examination program that incorporates different papers dependent on normal information or techniques. The composition of a coauthoring paper is implanted inside a more extensive set of arranging and coordinated effort among colleagues. Our suggested rules incorporate components of both the arranging and composing of a paper, and they can be iterative. It will assist with returning to the standards as often as possible all through the creative cycle. With the 10 guidelines laid out underneath, a guideline is given for coauthoring in business research (Vicens et al., 2007; Boland et al., 2017; Weinberger et al., 2015):

1. At the beginning of writing, the team must be built wisely.
2. The leader of the team must have leadership qualities because it is required for the timely completion of the research.
3. All authors must agree on the data management plan which must be circulated among the members in the early stages of the research.
4. Authorship guidelines must be collectively decided.
5. Decide tools for the research collectively.
6. The writing plan must be discussed collectively.
7. The timeline must be set and followed.
8. Transparency must be there in the work.
9. Cultivate diversity in the writing.
10. Ethical considerations must be considered in coauthoring research.

Kumar (2013) aimed to examine the research coauthoring in business and management in Malaysia. According to the project Wawasam 2020 of Malaysia, the government's main focus is on research. The researchers examined the network of 285 businesses of different organizations in the period 1980-1990. The finding of the study shows that ties of different researchers have a significant impact on the research performance. Different organizations in Malaysia collaborate in research and progress. Moreover, the researcher also found that internationally published articles are cited more than locally published articles.

Day & Edocise (2001) in their book aimed to explore the advantages of co-authoring in business by using a phenomenological approach in order to explain their experience of writing together. The participants of the study included coauthors of both genders i.e. male and female working together in different fields like education, business, medicine, etc. Their findings show that co-authoring requires peacemaking on the writing process, peacemaking in this context means to agree to one plan for writing a piece of work which is the goal of all the co-authors. Thus, they concluded that coauthoring develops trust and care among the coauthors.

In a nutshell, coauthoring is a process which involves multiple authors to do research together in order to achieve a common goal. The aforementioned studies show that coauthoring is commonly being done in different fields particularly in business because it adjusts the internal and external factors of the coauthors from the field of the business. Thus, coauthoring develops trust among coauthors in research.

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Chapter 2. Strategic approaches to co-authoring

By Duke Debrah Afrane, Joanna Kossykowska, Akanksha Lohmore, Edi Oliveira and Kevin Paul Corbett

This chapter explains different approaches to co-authoring presenting readers with various strategic approaches that can ensure fruitful and productive output. The chapter explains how the social construction of knowledge can be elevated when multiple authors are involved and draws on bricolage as a theory within the business domain to help explain this. The chapter also alludes to international cross cultural and contextual issues that might influence co-authoring.

2.1 Co-authoring as a strategy (Duke Debrah Afrane)

Writing is a long and complex process where an author put several ideas together into a document that could be published in an academic journal (Ragins, 2015; Tucker, Parker, & Merchant, 2016). The long and complexity of the writing process results from the originality and clarity of ideas that is inherent and required throughout the writing process. Co-authoring (more than one author) is an effective way of simplifying the process of writing as it enables resources to be put together during writing (Bozeman & Youtie, 2015; NOËL & ROBERT, 2004). Tucker et al. (2016); Mark & Clyde (1996), therefore, identified a co-author as an individual who has made some form of contribution in a written document that has been published in a journal. Such collaboration among authors has been shown to be enjoyable (Tucker et al., 2016), ensured the quality of the manuscript (Bozeman & Youtie, 2015; Tucker et al., 2016) and an opportunity for authors to learn from each other (Mark & Clyde, 1996). However, the process of co-authoring is not without challenges and problems (Bozeman & Youtie, 2015; Frassl et al., 2018; Tucker et al., 2016); these challenges include: determining the relevance of author contributions, avoiding potential conflicts among authors and other unethical practices (author trading, hierarchy pressures and son on). To overcomes these challenges, Frassl et al. (2018); Bozeman & Youtie (2015) identified certain strategies as essential. These strategies have been broadly classified into role allocation, co-authorship guidelines, writing team selection and leadership.

First is the allocation of roles to co-authors. This allocation includes deciding on co-author selection, responsibilities of each author and how to maintain or enhance relationships with them (Frassl et al., 2018; Tucker et al., 2016). Frassl et al. (2018) stated that such allocations must be done early in the writing process. In so doing, not only will timelines be met by the co-authors, but also, review feedbacks can be assigned to the respective authors whose roles within the manuscript have been specified. Again, crediting roles of authors is that straightforward (Bozeman & Youtie, 2015). This is because there might be other people in the background playing significant roles in the process, but may not be considered as co-authors. This reality has been acknowledged through the existence of author trading (make me an author in yours and I will make an author in mine) and hierarchical authority (using power to become a co-author) within the publishing space. Due to this, authors must agree on the co-authorship guidelines so as to streamline the writing process (Frassl et al., 2018). Co-authorship guidelines can be the document the highlight the roles of each author and establish those contributions of authors that deserves credit in a journal (Bozeman & Youtie, 2015; Mark & Clyde, 1996). Any form of author trading and hierarchical pressures has to be highlighted in this guideline. According to Bozeman & Youtie (2015) this guideline is referred to as contributorship policy and is an effective way of establishing the order of authors (either first or second author) on the published manuscript; current developments suggest attaching this policy to the manuscript when submitting to a business journal (Bozeman & Youtie, 2015). See Figure 1 for a summary of the strategies.

Figure 1: Co-authoring strategies

Writing for publication in a journal is a craft that requires skills and effort from the authors (Ragins, 2012; Tucker et al., 2016), but, the existence of multiple authors might suggest different writing styles (especially when the research is multi-disciplinary). As a result, Frassl et al. (2018) intimated the need for the writing team to be wisely chosen. Ideally, one principal writer will be required to coordinate the research activities of the co-authors (such roles should also be highlighted in the guidelines). For example, Bozeman & Youtie (2015) established a situation where diverse range of contributions are received from co-authors (research, experience, and data analysis); the principal writer will now put these contributions together in a way that fit the requirements of the journal. Apart from ensuring fit with journal, adopting a principal writer will ensure that one language runs through the entire manuscript (Bozeman & Youtie, 2015). Underlying these already established co-authoring strategies, is, leadership by the principal author (Frassl et al., 2018). This is because there exist a social exchange relationship between authors and quality of published manuscript (Tucker et al., 2016). That is, the efforts authors put in the development process of a manuscript will determine its overall quality. Leadership, is therefore, required to build trust among co-authors (Frassl et al., 2018) and ensure that every co-author understands their responsibilities required under the exchange process (Tucker et al., 2016). Exhibition of such leadership should not only be limited to the principal author (leader), but also, co-authors must show their leadership through commitment to their roles and the passion with which they pursue these roles. Tucker et al. (2016) stated that, doing this, will enhance the exchange relationship between authors and the quality of the manuscripts presented to journals.

Overall, co-authored papers suggest that members with diverse backgrounds, values and experiences come together to produce new knowledge (Frassl et al., 2018; Ragins, 2015). However, the quality of this new knowledge is inherent in the sought of interactions (communication, recognition, task allocation and commitment to task) that occur among the co-authors. Tucker et al. (2016) identifies such interactions as an exchange relationship existing between co-authors and quality of manuscripts. As a result, laying down rules and guidelines through which author contributions can be made is an essential way of enabling flow of information in an environment that is safe and understanding and also help prevent potential conflicts among the authors (Frassl et al., 2018).

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2.2 Co-authoring to improve productivity (Joanna Kossykowska)

Researchers have published their studies for a variety of reason. They may wish to advise policy, increase debate amongst colleagues and provide input to participants. The main reason to publish is to share the results of a study so that others can learn from it. The secondary reasons include job expectations and issues of tenure and promotion for academic faculty. Publications are increasingly crucial of a university academic's career, despite discipline, specialization, or country. In response to this demand, academics are engaged in collaboration as a natural catalyst to increase the quality and quantity of publications produced (Zutshi et al., 2012). Collaborative writing outcomes can lead to a variety of outputs, such as conference papers, journal articles or grant and funding applications, as all are likely to be positive outputs from the collaborative process. Co-authorship presents many opportunities and challenges; nevertheless, joint authorship is a helpful way for young scholars to get started in publishing. Key ideas related to choosing and working effectively with co-authors and essential qualities in a co-author are discussed in this article. Further, the paper explores the positives and negatives of writing in collaboration and concludes by recommending co-authoring as an essential supportive and collaborative practice for professional development.

By definition, collaborative writing can be conceived as writing undertaken by groups of people of different disciplines (interdisciplinary collaboration), either belonging to the same country or to more than one state (international) (Katsouyanni, 2008). Collaboration offers a means of sharing knowledge, resources, expertise, and data, and is seen as a means of expediting research performance. A further driver that has prompted enhanced levels of collaboration is the desire for broader intellectual contribution to research questions and interpretative discussion. As Melin (2000) has pointed out, it is assumed that at a more personal level, people, by nature, are social beings, and naturally looking for interaction with others for collaborative endeavours and personal rewards.

Co-authoring in journal articles is not uncommon (Yeo & Lewis, 2019), and academics across the disciplines are engaging in this practice. There are various reasons for collaboration. When people share overlapping interests and experiences, and a combination of complementary skills, more often, the collaboration arises. Hyland (2016) argue that authors who have similar interests and experiences may want to collaborate as the process often leads to "synergistic creativity". Also, a co-author may serve as a "critical friend", challenging assumptions and pointing out shortcomings (Yeo & Lewis, 2019). For a more extensive publication, collaboration is an alternative which allows authors to share the burden and submit the task in a shorter time frame.

One of the best reasons to collaborate is simply that collaboration enhances effectiveness. There is strong indication that "co-authorship" is a systematic determinant of scientific productivity. The co-authored scientific papers are more likely to be accepted for publication to higher impact journals than sole-authored articles. Wuchty, Jones and Uzzi (2007) find that papers with more than one authors garner more citations and research by Gaughan and Ponomariov (2008) echoes those findings. Other significant benefits of collaborative writing are the potential contribution to the creation of academic knowledge (Katsouyanni, 2008). Early career researchers can reap benefits through collaborative publishing with mentors or supervisors, developing networks with academics, and contributing to the faculty's research output. Moreover, the literature on co-authoring lists a range of benefits ranging from practical to affective. For example, Hart (2000) provides a list of the benefits of collaboration. They included: improved quality of article; useful expertise of co-author; having better ideas; having a different perspective; the division of labour; a chance to learn from the co-authors; greater frequency of publication. What is interesting, the literature emphasizes mainly pragmatic reasons for co-authoring with a production of a final manuscript for publication seeing as the primary goal. Moreover, Smith and Lewis (2018) valued the process itself and recommended co-authoring as a valuable form of professional development and academic collaboration.

While the benefits of collaboration are evidential, an array of problems can arise. These apply primarily to credit decisions, co-author attitudes and co-author relationships (Bozeman & Youtie, 2016). A common complaint is that collaborators may exclude deserving participants and undeserving ones included. Problems can also arise in the naming order on the publication, in other words, whether the author name is at the first, middle or last position. Research by Noel and Robert (2004) revealed a list of negative aspects of collaborative writing. The most negative aspect was making the task more difficult because of different writing styles, following by difficulties with managing schedule; unequal division of work; more difficult coordination; managing people's emotions, and conflicts between members. One participant wrote: "Handling reams of successive handwritten changes is no fun, but handling emailfuls (sic) of successive electronic documents is no easier (…)" (Noel & Robert, 2004, p. 73).

The author of this article does not have a personal experience of co-authoring. However, the roundtable meeting with peers gives her the opportunity of identifying the process of co-authoring in publications. The discussion brought the importance of the acceptance of a diversity of writing styles and the need for consistent communication. It comes for attention that miscommunication and inappropriate tools or lack of leadership can lead to frustration, delay of publication, or even the termination of a project. One of the participants mentioned that more often, the provision of fair credit through authorship or acknowledgements are the main challenges faced by the joint authors. However, most journals have established ethical guidelines that regulate co-authorship, to avoid different types of ethical misconduct. The quote of Foucault (1969): *"Authors are writers, but not all writers are authors"* might be appropriate in this place.

To conclude, studies showed that co-authoring would continue to grow (Conn et al., 2015). The benefits presented by engaging in co-authorship generally outweigh the challenges. Co-authorship, like other skills, takes practice and is not always a perfect process. Learning intentional planning, effective communication, and having clear expectations will help avoid many of the challenges. When issues arise, the authors should remember that research dissemination and manuscript publication are worthy goals and engaging in co-authorship is often part of the process. Learning from the wisdom of more experienced authors and intentional planning will promote successful endeavours in co-authorship.

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2.3 Constructing co-authorship (Akanksha Lohmore)

Knowledge is a result of social construction, especially in the social sciences. The benefits of having (more) coauthors are many, including the expanding stock of knowledge and increasing specialization in research require researchers from varying disciplines to collaborate in order to achieve intellectual diversity and innovation (Barnett et al., 1988; Katz & Martin, 1997; McDowell & Melvin, 1983). Collaboration in academic research to produce knowledge has been proven to be an effective strategy in all disciplines, and more so in the social sciences and business studies. Macro level analysis in management studies confirm the existence of clear upward trends in the average number of authors per publication in management and adjacent fields (Acedo et al., 2006; Manton & English, 2007; Smucker & Grappendorf, 2004, Liu et al., 2016). To address this upward trend of co-authorship, this paper seeks to summarise about what co-authoring or collaboration refer to in the business research landscape, the benefits and motivation of collaborative research and co-authorship, patterns in authorship in business and management research and the need to include the gender dimension in the conversation of co-authorship.

Collaboration, Co-authorship & Benefits

Katz and Martin (1997) suggest that collaboration is commonly known as the working together of individuals towards a common goal. Thus, a 'research collaboration' could be defined as the working together of researchers to achieve the common goal of producing new scientific knowledge. However, they point to the complexity of collaboration and the difficulty of defining of this social activity. Partly, because of the notion of a research 'collaboration' being largely a matter of social convention among scientists. It is difficult to achieve consensus as to whether which degree of formality of links between researchers and scholars deems fit to be called as collaboration. What constitutes a collaboration therefore varies across institutions, fields, sectors and countries, and very probably changes over time as well . Whereas co-authorship is a form of collaboration in which collaborators publish their research outcomes through paper or electronic media, not all collaborators publish an article together (Katz and Martin, 1997). That is, co-authorship is an “explicit product” of scientific collaboration (He et al., 2012).

Motivation of Co-authorship

With a wide increase in complexity of research problems and interdisciplinarity of knowledge, co-authorship has become a necessity if not a norm. A variety of scholars have argued that interdisciplinary science has a positive influence on knowledge production and innovation (e.g. Gibbons et al., 1994, Schmickl and Kieser, 2008). Today, interdisciplinarity is also stimulated by a variety of funding instruments, on the university level (Sa, 2008), on the national level (Lepori et al., 2007), and on the international level (Bruce et al., 2004). The goal of many of these programs is to stimulate collaboration among individual researchers as a means to promote interdisciplinarity. Studies have shown that research collaboration can bring co-authors greater research productivity (Katz and Martin, 1997, Lee and Bozeman, 2005) and research impact (Gazni and Didegah, 2011, Sooryamoorthy, 2009).

Motivation to Collaborate

Among the factors which motivate collaboration are funding agencies' need to save money, the growing availability and falling (real) cost of transport and communication, the desire for intellectual inter- actions with other scientists, the need for a division of labour in more specialised or capital-intensive areas of science, the requirements of interdisciplinary research, and government encouragement of international and cross-sectoral collaboration.

The steady increase in the number of co-authors in management may partly be due to the productivity explanation (growing complexity of research) and the network explanation (increasing ease of collaborating). However, Liu et al. (2018) suggest that the strategic explanation (motivations unrelated to research quality) also contributes to this trend. Besides increasing reseearch efficiency and bringing in new skills as main reasons for collaborating, many are motivated to collaborate purely for instrumental reasons for co-authoring, such as increasing the likelihood of having their manuscripts accepted for publication. Yet another instrumental reason might include adding someone to a manuscript as a favor that may later be reciprocated, thereby increasing the publication counts for both parties (Liu et al., 2018).

Patterns in Co-authorship

Liu et al. (2018), also found preferences for adding co-authors to a paper depend on the number of authors currently on that paper, whereas one’s authorship position seems to matter less, except in the unique case of a dual-authored paper: there we found that being second author significantly decreases willingness to add co-authors (relative to being first author). Researchers in Entrepreneurship and Organizational Behavior are significantly more open to adding co-authors to an existing manuscript than their peers in other subfields of management. it may be that in certain subfields like Entrepreneurship and Organizational Behavior, the threshold for adding co-authors is lower and/or that hiring and tenure evaluations penalize many-authored publications to a lesser extent than in other subfields.

Li et al., (2013) also suggest that identifying structural position in relevant academic networks via collaboration with colleagues from different research groups. A scholar can identify his or her structural position in the network and formulate a co-authorship strategy according to the future position where he or she wants to be (Li et al., 2013). Nevertheless, one caveat is that collaborating with too many different scholars might put a researcher at risk of being distrusted by prolific scholars and losing chances to co-author with them.

Rijnsoever & Hessels (2011) confirm that female scientists are more engaged in interdisciplinary research collaborations. Further, a scientist's years of research experience are positively related with both types of collaboration. Work experience in firms or governmental organizations increases the propensity of interdisciplinary collaborations, but decreases that of disciplinary collaborations. Disciplinary collaborations occur more frequent in basic disciplines; interdisciplinary collaborations more in strategic disciplines. We also found that in both types of disciplines, disciplinary collaborations contribute more to career development than interdisciplinary collaborations.

Women and Co-authorship Patterns

Co-authorship trends also have implications for female academics. Research has documented widespread evidence of gender biases in academia (Brown & Goh, 2016). For example, Budden et al. (2008) found that after a certain journal in 2001 introduced a blind review process, articles with female first authors were much more likely to be rejected prior to 2001 than after 2001. Literature also points that women are less likely to be in the most prestigious author positions (Caplar, Tacchella, & Birrer, 2016; West, Jacquet, King, Correll, & Bergstrom, 2013) and that papers with female lead authors are less likely to be cited (Brown & Goh, 2016; QuiñonesVidal et al., 2004). Most recently, Sarsons (2015) found that female authors receive less credit for published work than their male co-authors on the same paper. The analysis of the scientific production of Italian academics shows that women researchers register a greater capacity to collaborate in all the forms analyzed, with the exception of international collaboration, where there is still a gap in comparison to male colleagues.

These findings pose a serious dilemma for female authors: on one hand, they may want to invite co-authors (especially male co-authors; see McDowell & Smith, 1992) to counteract a gender bias that seems to penalize papers authored by women (Brown & Goh, 2016; Budden et al., 2008; Caplar et al., 2016; Lariviere et al., 2013), in order to increase their chances of publishing and being cited. They also risk receiving less credit for their work if male co-authors are added (Sarsons, 2015; West et al., 2013).

This latter concern may discourage female first-authors from inviting (or allowing) co-authors to join a research project. Liu et al. (2018) reflect on the dilemma facing female authors, which pits a desire to publish and be cited (and thus to add male co-authors as a means to counter the gender bias) against a desire to receive proper credit for their published research (and thus to avoid adding male co-authors).

Conclusion

Previous literature has established the benefits of co-authorship are undeniable. Building onto that, this paper summarises what co-authorship in management looks like, common patterns reported and the dimension of gender in these patterns. The literature on co-authorship in management is can be used to inform early stage researchers to make informed decisions about co-authoring strategies.

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2.4 Bricolage as a framework for interdisciplinary writing collaboration (Edi Oliveira)

Co-authorship has been growing steadily within the social sciences in the last 50 years or so (Acedo et al., 2006). Liu et al. (2017) stated that the need for more interdisciplinary research within management is one of the reasons for increased co-authorship. The combination of discipline expertise allows the emergence of new knowledge that would not be possible otherwise. Similarly, interdisciplinary research is heralded for focusing in solving real-world problems (Manathunga et al., 2006). However, Forman and Markus (2005) highlighted that not all interdisciplinary collaboration results in co-authorship due to the narrow focus of academic journals. Other challenges presented by them relate to the need to make a compromise as researchers from distinct disciplinary orientations may interpreted the same data differently. In response to such claims, this paper presents bricolage as a framework to facilitate interdisciplinary writing collaboration as a synergistic partnership.

Bricolage is a term used across different disciplines and is not unknown to business scholars. Here, by applying an interdisciplinary approach, different scientific fields are brought together in this creative dialogue (Montuori, 2005). Borrowing the use of the term from Lévi-Strauss (1966), Baker and Nelson (2005) defined bricolage as “making do with “whatever is at hand”” (p.330). Similarly, Patton (2015) explained the concept as “combining old things in new ways” (p.154). Based on the definition of the bricoleur as a quilt maker, Kincheloe (2001) suggested bricolage as the possibility to transcend limitations imposed by disciplinary boundaries, and “naïve over-specialization” (p.683). The role of the bricoleur then is to engage in boundary work, questioning established disciplinary assumptions as she or he moves through unknown territory.

From a phenomenological hermeneutics perspective, bricolage implies establishing a Gadamerian fusion of horizons (Gadamer, 1975) as an agreed understanding in-between different perspectives. For Gadamer, when differing viewpoints are brought together, the fusion of horizons is less about finding an accepted common understanding by assimilation of traditions (e.g. disciplinary assumptions). It is rather superseding what was there before. A new knowledge does not negate tradition, but it consists of a deeper appreciation in the very act of questioning it. For Mazzei and Jackson (2012), that is what “writing between-the-two in the threshold” (p.541) represents. The threshold embodies the space in-between the subjectivities of two (or more) authors (or the boundaries of two disciplines) which is articulated as a space of becoming. The “in-between-becoming-I” (p.457) is characterised as a process of deterritorialisation. This can be interpreted as the loss of subjectivity and the certainties granted by keeping within disciplinary boundaries. Hence, the interdisciplinary writing collaboration will force authors to re-interpret what they thought to be known. For Gadamer (1975), that is what the fusion of the horizons consists.

The narrative of Forman and Markus's (2005) interdisciplinary collaboration fits the definition given by Mazzei and Jackson (2012) on writing in the threshold. The uncertainties brought about from their differing perspectives and interpretations of the data made them question their disciplinary assumptions. Consequently, this opened space for the construction of new knowledge. However, contradictorily as it may be, because they were cognisant of the challenges to publish the research results as co-authors, they decided it was more strategic to part ways (the paper cited here is about the process of their collaboration, rather than the research findings).

Kincheloe (2001) attributed the resistance of journals to publish interdisciplinary research to the fact that reviewers cannot establish an agreed measurement for research quality. He also acknowledged that the argument of superficiality against interdisciplinarity is fairly endorsed. It may take a lifetime to master the tenets of one discipline alone. However, he also pointed out that the question is not whether to surpass discipline boundaries, as by the turn of the 21st century it is a reality. The question is how to assure research rigour within an inquiry that adopts multiple methods and diverse theoretical and philosophical positions. As articulated further (Kincheloe, 2005), quality within interdisciplinary collaboration is the measure in which research uncovers new and relevant insights that are directly connected to specific contexts. The bricoleur is guided by an epistemology of complexity, rather than "certified processes of logical analysis" (p.324). Quality is achieved whether the research methodology and epistemology served its intent (i.e. research problem) and whether findings allowed a new understanding fit-for-purpose (i.e. relevancy). Specifically regarding the quality of a co-authored paper, within bricolage it can be understood as a narrative process that must account for the complexity of social phenomenon. It should consider the multiplicity of social reality, the embeddedness and intersection of contexts, the discourses that shape social ontologies, and knowledge as interpretive artefacts (Kincheloe, 2005). In the articulation of a novel understanding of a common problem, bricolage allows researchers to be guided by "whatever is at hand" (i.e. the own research purpose; Baker & Nelson, 2005) in order to combine old things in new ways (Patton, 2015).

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2.5 International and contextual approaches to co-authoring (Kevin Paul Corbett)

This researcher sourced four journal articles for this assignment. The first by Eisend & Schmidt (2014) investigates how business research scholars' internationalisation strategies influence their research performance and how this relationship is moderated by the availability of different knowledge-based resources. Smith (2014) explores the under-researched interface between entrepreneur and family business stories and in particular the form and structure of second-generation entrepreneur stories. Arbaugh, Asarta, Hwang, Fornaciari, Bento & Dean (2017) examine the productivity of business and management education (BME) scholars across multiple disciplinary areas (i.e., accounting, economics, finance, information systems, management, marketing, and operations/supply chain management). While Marcelin, Rabarison, & Rabarison (2019) evaluate the collaboration of the Centre for Disease Control and Prevention Research Centres (PRCs) on public health activities with Community Agencies and organisations. They do so by studying the relationships between co-authors from the PRCs and the Community Agencies that published at least one article together in the first year of their research programme.

According to Eisend & Schmidt (2014), business research is part of the social sciences and covers areas with different specialisations in terms of international focus (e.g., taxation has a more national focus than international business), as well as variations in method applications (e.g., conceptual papers and qualitative methods are more common in management research than more formal and analytical approaches which are seen primarily in operations research). Arbaugh *et al*. (2017) highlight the potential for mutual support and cross-fertilisation of ideas. They help identify key BME authors across different business disciplinary areas and therefore avoid the silo-based approach of studying BME research within a single disciplinary area. Arbaugh *et al*. (2017) believe BME researchers will benefit from the discovery of common BME topical interests across disciplines. Their hope in developing the first cross-disciplinary database of key journals, authors, and topics in BME research is that a holistic view of the field will benefit both current and prospective contributors, as pointed out in the implications section of their article. The writers assert that findings from studies similar to theirs should help retain and attract more scholars to BME research. By providing the field with the same metrics that are used to assess scholarly productivity in other disciplinary research areas will, they believe, have implications for decisions about merit pay, promotion, and tenure. Arbaugh *et al*. (2017) recommend that the programme encourages these influential authors to expand their efforts in facilitating collaborative activities among their colleagues in the network. They argue that to adopt this strategy in business research should lead to an increase in the number of collaborations between network members and hence, the number of co-authorships.

Eisend & Schmidt (2014) look at strategies of co-authors in the business research domain with a view to the international stage. Their results demonstrate that the augmentation of complementary knowledge resources (i.e., when researchers lack language skills and foreign market knowledge) positively influences the performance of a collaboration-based internationalisation strategy (i.e. collaborations with international researchers). The collaboration-based strategy also improves performance for less experienced researchers, but this advantage diminishes with increasing research experience. Citing both Kocher & Sutter, (2001) and Stremersch & Verhoef (2005), they report that the internationalisation of authorship in leading business journals traditionally published in the U.S. and dominated by U.S. authors has increased remarkably in recent years For instance, authors from European countries, such as the Netherlands and Germany, have experienced high growth rates in terms of top economic journal publications (Cardoso, Guimaraes & Zimmermann, 2010). The share of articles in leading economic journals by European researchers has steadily increased in the period from 1991 to 2006 at the expense of publications by U.S. researchers. Their study investigates how scholars' various internationalisation strategies impact scholars' research performance. They investigate this issue by examining international business journal publications by German-speaking scholars. The findings support previous results regarding the effectiveness of collaboration in terms of research performance. However, collaboration does not always lead to enhanced productivity and output quality. It enhances research quality only under certain circumstances, such as, the writing of conceptual papers or due to researchers' lack of experience or market knowledge. It appears that business research scholars with a German affiliation do strongly benefit from international collaboration on conceptual papers because of language skills as a particular knowledge-based resource: The success of conceptual papers depends, more than many other types of papers, on fluent English proficiency (e.g., analytical and empirical). Kocher & Sutter's (2001) study presented in this paper provides interesting results for other countries with academic markets that strive for internationalisation.

Turning to the micro level, Smith (2014) discusses some very practical implications in relation to conflict resolution within family businesses. The storying process allows individuals the freedom to author their own stories and place in family and family business history. His paper highlights the contribution that an understanding of the interface between entrepreneur and family business stories can bring to understanding this complex dynamic**.** His literature review tells us more about strategies used by second-generation entrepreneurs in order to become entrepreneurs than about the way they tell their stories or build their identities. The main focus of the study contributes to the development of theory. Smith (2014) summaries that more time and research is needed to develop theory which can then be tested through deductive methods, thereby contributing to practice. He thus states this paper makes an incremental contribution to the developing theory on the topic. His most telling statement is that both generations need to respect the stories each other tell, particularly in traditional small businesses where the business entity may often carry the name of the founder thus denying the second-generation a separate identity. Moreover, second-generation entrepreneur stories are less about overcoming disadvantage than they are about overcoming advantage. Smith (2014) comments that he brings interesting narrative elements into play such as the notion of second-generation entrepreneurs' stories and in particular how second-generation entrepreneurs use the overlapping stories to build their identity. He concludes that his paper makes an incremental contribution to the field of entrepreneurship and family business research because it directs the research focus away from the myth of the first-generation entrepreneur of humble origins to highlight an alternative social construction of the entrepreneur – namely second-generation entrepreneur stories.

Looking now at the paper by Marcelin *et al.* (2019), which evaluates the collaboration on public health activities by studying the working relationships between co-authors from the PRCs and community agencies. They discovered that just over 400 articles in this collaboration had over 1,800 individual authors and just under 8,000 co-authorship relationships (links) in over 200 peer-reviewed journals. Nevertheless, Marcelin *et al.* (2019) report network density to be low; only 0.5% of all potential co-authorships were realised with actual co-authorship much less than potential co-authorships. They found evidence of collaboration in the PRC co-authorship network but recommend room for improvement. The PRCs took minimal advantage of their collaborative potentials when compared with other health-related citation networks that had higher network densities. This report is the least encouraging of the papers by Eisend & Schmidt (2014) and Arbaugh *et al.* (2017) and this one concerning the success of co-authoring strategies. Marcelin *et al.* (2019) recommend that the current programme encourages what it terms 'these influential authors' to expand their efforts in facilitating collaborative activities among their colleagues in the network. Information brokers (authors with high closeness centrality) and co-authorship mediators should be encouraged to communicate more with each other to increase the number of collaborations between network members and hence, the number of co-authorships.

All four papers discussed here report, in the main, the advantages of co-authoring and three advise on how to improve such cooperation on the road to publication in business journals. The fourth paper by

Smith (2014) while discussing family businesses illustrates how second- generation entrepreneurs written stories can be co-authored to narrate an alternative entrepreneurial identity within a family business setting. From a review of this literature, co-authoring is favoured over single authorship for a variety of reasons, including increasing the performance levels of the writers (notably less experienced researchers) accompanied by a call for cross-fertilisation of ideas by avoiding the silo-based approach of studying BME research within a single disciplinary area.

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Chapter 3. Challenges and ethical considerations of co-authoring

By Thi Ngoc Dao, Intesar Madi, Christina Kenny, Rawayda Abdou, Lindsay Harrison

This chapter reflects on some of the challenges and the darker side of academic co-authoring. In particular the authors emphasise the need to ensure fair contributions and standards of practice that appears lacking in the business domain. The authors also reflect on the strain that 'publish or perish' can put on authors and co-authoring approaches. Appropriate acknowledgements and ethical considerations need to be recognised in co-authoring activity.

3.1 Ensuring fair contributions with a work-load allocation matrix (Thi Ngoc Dao)

The role of collaboration in research has received increased attention across a number of disciplines in recent years due to there are more and more scientific projects these days that need many people to participate. In an analysis of the trend of collaboration in business research, Mishra & Ramesh (2018) find that although there is a decreasing trend of the number of authors in a group or team research in business, collaborative or multi authorship trend is increasing year by year in business research due to the collaborative effort of researchers. A multi-authored paper can be a result of a single discrete research project or the outcome of a larger research program that includes other papers based on common data or methods. However, there is an increasing concern that coauthorship leads to more difficult to determine an individual's contributions (Birnholtz, 2006; Bozeman & Youtie, 2016).

In many cases, research collaboration is essential because of its beneficial effects. One of the important advantages of co-authorship is enhancing effectiveness, which leads to high impact research, more citations (Lee & Bozeman, 2005). In addition, having a team of coauthors with diverse demographics and cultures usually broadens the scope of knowledge, experience, and background. Thus, collaboration attributes to the need to share resources (Bozeman & Boardman, 2014). While the benefit of co-authoring in research is clear, collaboration with multiple authors has additional challenges. Varying levels of engagement of coauthors lead to the difficulty in fair crediting to determine who will and will not be included as a co-author, and how to order the name of authors in the paper (Bozeman & Youtie, 2016; Frassl et al., 2018). Besides, these challenges of collaboration in research are also related to the acceptance of a diversity of work styles, and the need for clear communication (Bozeman & Youtie, 2016).

The research to date has been defined an author as a contributor to scientific knowledge. Similarly, collaboration in research is defined as where two or more authors or organizations work together to contribute new knowledge to their field of interest (Birnholtz, 2006). According to the International Committee of Medical Journal Editors (ICMJE, 2013) and Clement (2014), authorship responsibilities should be based on the criteria of substantial and effective contributions in four stages of writing a paper as a whole before and after publication: design ideas, collection data in the early stage; drafting the paper; writing and approving the final version and the accountability after publication. From the approach of authors' responsibilities, many researchers have developed various methods to quantify the contributions of an author in a multi-author journal article. Clement (2014) recommends creating a work-load allocation matrix where each researcher was asked to estimate his/her contribution and then this matrix can be used for deciding the rank of an author. Frische (2012) supposes that publishing every author's contribution online is a good way to self-evaluate their contribution in comparison with others over time as well. In a recent article, Frassl et al. (2018) propose ten rules of co-authoring in a publication which can be summarised as follows: (1) build the writing team wisely, which should be clear as to how the person can contribute to the paper ad qualify as a co-author and distribute specifics roles within the team to share the workload and increase the involvement of all co-authors by creating a set of guidelines to define the contributions and tasks worthy of authorship and be open to re-discuss the rules if needed; (2) implement a data management plan and writing strategy at an early stage and agreed upon by all co-authors; (3) create a plan early for version control, comments and tracking changes by the high-quality communication tools; (4) set clear timelines, and commit to them; (5) have all co-authors to confirm that they have contributed to the paper, agree upon the final text, and support its submission.

In conclusion, most business researches in recent days need the contribution of a group of researchers, and the level of the signification of their contributions could range from negligible to remarkable. Thus, determining the co-authorship strategies is an essential issue for every research project from before and after publication. At the early stage of writing collaborative multi-authored papers, a team should modify specifically project needs and authorship responsibilities by starting discussions early and making the decision-making process transparent. Then, all authors should revisit these rules frequently to keep them well fit for team works. Going along with a live work-load allocation matrix which every member can easily access is an effective way to track the contributions to ensure the fair credit of a single author in the research.

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3.2 The dark side of co-authoring (Intesar Madi)

Research collaboration and co-authorship are essential elements in the research community. Significantly, the number of co-authorship in research articles has increased over the last decades. According to (Floyd, Schroeder, & Finn, 1994; Ductor, 2015) In Business publications, the number of multi-authored papers increased from 18.3% in the 1960s to 47.7% in the 1970s to 60.1% in the 1980s to nearly 52% in the 2000s to 62.7% in 2011. This indicates that all journals in this field had experienced increases in the number of authors per article and a dramatic decrease in the number of single-authored journal articles (Manton & English, 2007). However, these trends of the increase in co-authorship are not only seen in Business publication but have also been noted in almost every field. In some scientific fields, such as high-energy physics and biomedicine, the tendency to co-author is spreading a lot (Dorte, 2016).

There are several reasons for this increase in co-authorship in journal articles. According to (Acedo, Barroso, Casanueva, & Galán, 2006), One of the main factors determining the increase in co-authorship is increasing specialization within science. It has become increasingly necessary to combine the skills of two or more scholars in the conduct of research projects, in the case of economics co-authored journal articles, it is increasingly possible and necessary to specialize in more narrowly defined areas within the profession. (Barnett et al., 1988). Another reason is that increasing the emphasis to publish, for the new researcher it is very important to get their work accepted and publish in scholarly journals, thus, the best way to do this is to co-author with someone who is an expert in their area of research. This will reduce the risks of having no publishing because of negative results, data sampling problems, or long peer-review processes (Henriksen, 2018). Moreover, it is a wide belief that collaboration and co-authoring have a positive impact on the quality of research. Ductor (2015) examines panel data on economists publishing from 1970 to 2011 to study the impact of collaboration on the researchers' output; he finds that there is a positive relationship between collaboration and productivity. By collaborating and co-authoring, researchers can increase their research productivity by sharing tasks, skills, and taking advantage of their expertise (Henriksen, 2018).

However, looking at the dark side of this, co-authorship might be an issue in several ways. One way in which co-authorship harms junior researchers is that they have to compete for funds. Junior researchers may lack both the required tools and the experience that make them appropriate for funds, as grant bodies and employers may take into account the different periods in which experience was accumulated and publications produced. This will influence junior researchers' negotiating power and the freedom to influence decisions about co-authorship against senior researchers (Cutas and Shaw,2015). Additionally, in the cases where authors, especially senior researcher, make no substantial contribution to the research (Bozeman & Youtie, 2016). In this case, it is very difficult to identify the individual's output and the amount of work that each researcher has made with the increasing number of authors per publication. It is very challenging if we could not identify the contribution of the individual if we do not know ''who speaks'', then who can claim the intellectual property over a published idea, as well as ''who is awarded of the work'' of the cited document (De Bellis, 2009; Henriksen, 2016).

To address these problems in co-authoring articles, Researchers such as Cutas and Shaw (2015) suggested some strategies on how to handle co-authorship disputes. Their first strategy was to establish a set of roles that aims to support all researcher and take the responsibility of informing them about the acceptable research practices. Since it is difficult to evaluate the authors' contribution unless they explicitly disclose their contribution to the readers. Brand et al. (2015) proposed a contributor role taxonomy ('CRediT') to assign contributions to authors of a research paper. The authors suggest that there is a need for standardised co-ordination concerning co-authors' contribution to a published paper. The authors recommended that all authors assume responsibility for role assignment, all contributors be allowed to review and confirm assigned roles and that all contributors be listed, whether they are part of the author list or not. Cutas and Shaw suggest another strategy that requires all journals in all disciplines to provide contributorship statements of all authors. This will enable greater transparency and discouraging misattribution of authorship. Smith and Master (2017) also suggested that individuals sharing their perspectives of research contributions to fairly distribute authorship credit holds tremendous value to the research team. While perhaps less "objective" at first glance, but this model is much more realistic because it adapts to the contextual realities of multi/interdisciplinary research teams and innovation in research. The authors recommend that journals to consider and adopt detailed contributorship and authorship order practices and declarations, and that institutions aid in the promotion of authorship and publication ethics and have mechanisms to address potential disputes.

To conclude by returning to the title of this assignment, co-authorship in business research has increased over the last decades. It is a wide belief that researchers who collaborate can optimize their research production higher than those who are sole-authors. (Medoff, 2003). Despite all disputes of co-authoring, it is an essential element in the research journey of all junior researchers, where they can exchange experience and required skills that are needed in their area of research.

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3.3 Reflection on poor guidance about co-authoring in the business domain (Christina Kenny)

Co-authoring has become increasingly common in recent years with it becoming common practice to co-author papers with authors both within and outside of your given research field. This ongoing and continuing rise in co-authoring can be attributed to numerous things including improved collaboration efforts between universities and departments within said universities as well as improved globalisation within research fields in general. While there are obvious benefits to co-authorship such as enhanced reputation in a new research field, new opportunities for networking and career expansion, there are also downsides (Tucker et al, 2016) as there is a need to balance expectations with realistic goals and values.

The processes, practices and methods that are routinely enlisted in co-authoring a research or review paper are not something that is openly or commonly taught at third level. Generally speaking, most students will assume the same processes and strategies undertaken. By their supervisor or supervisors. There are no global, strict rules or regulations that are adhered to publicly by researchers when co-authoring a paper and as such numerous opinions, strategies and attitudes exist depending on what part of the world you are in, what discipline or department you are in (Florence and Yore, 2004), what kind of a relationship you have with your co-author and what kind of research you are publishing. It is not a clear-cut straightforward exercise and hence numerous papers have actually been written solely on the different outlooks, sentiments and approaches taken. Similarly, there is a distinct and notable lack of publications that portray reflections on the co-authorship process (Tucker et al, 2016; Fan et al, 2020).

Aim

The overall aim of this review was to examine publications that investigated and researched co-authoring strategies in various contexts in order to gain a deeper understanding on methods, motivations and execution.

Methods

Papers were searched for manually on a range of reputable, academic search engines and hand-selected after reading the abstracts of papers deemed suitable. Papers were then narrowed down based on their relevance to the topic.

Results

Co-authoring strategies specifically in the business domain were lacking compared to studies carried out in other disciplines such as science and engineering and as such this review focused on a variety of disciplines rather than just business. However, the problems identified within the papers below present problems that can be universal in nature and not specific to any one academic discipline.

Bozeman and Youtie (2016) identified that there are two main problems encountered in co-authorship: excluding deserving authors and not including deserving ones. They hypothesise that problems like this arise for a number of reasons and depend heavily on various factors such as power dynamics, office culture and the pre-existing norms that are present in a given working environment. There appeared to be no one clear cause or occurrence that led to the predicament of whether to include or exclude an author. The decision varied widely depending on all of the above factors.

Florence and Yore (2004) carried out a very simple research study in which they explored the commonalities and differences present within five different and diverse co-authoring writing teams. For the purpose of their research they formed teams from different academic backgrounds including biochemistry, microbiology and earth and ocean sciences, allowing them to cover a range of biological scientific disciplines. The researchers then immersed themselves in an ethnographic study of the co-authoring teams. They examined and observed information on the dynamics between members of the teams and identified some key productive and unproductive areas. They also carried out interviews with participants to gain a deeper understanding. Amongst all groups followed planning, drafting and revising were common processes utilised, indicating that this was somewhat universal in co-authorship. The authors experienced a notable tension within all groups but argued that when conversations were heated between the researchers it was always over content, angles, strategies and ideas but never spilled over into being personal arguments and this was the key to the tension still remaining “healthy”. This study demonstrates some likely commonalities between co-authoring groups regardless of academic or research discipline. It also presents the concept or idea that although co-authoring might be a trying task, providing the constructive arguing and debating relates only to the research at hand then success can still be achieved.

Other studies (Ho et al, 2017) have indicated that co-authoring processes can allow researchers to expand their professional social networks and that collaboration, number of publications, academic connections and years in research all play a key role in the development of that academic social network. This demonstrates that co-authorship can actually have an offset effect on a researcher's overall success when taken into account with other factors.

Fan et al (2020) demonstrated that although co-authorship encourages diversity within research and the coming together of different perspectives, co-authoring communities do exist within disciplines. Many researchers repeatedly co-author with many of the same researchers. This does still provide a different outlook and perspective but repeated publication with the same co-authors does not allow for the same innovation that exists between to new co-authors.

Global location and local culture can also be soon to play a role in co-authoring strategies and behaviours. Kontinen and Nguyahambi (2020) noted that there was an asymmetrical relationship between north African research communities and south African research communities. Both sides of the continent rarely collaborate and co-author on international papers due to cultural differences and competitive mindsets.

Conclusion

The reason researchers participate in co-authorship are clear but the problems that can arise throughout the process are widely diverse and depend on a number of different factors. Co-authoring strategies rely on a number of moving factors that differ widely depending on the nature of the co-authoring relationship, the power dynamics that exist, local norms within the working environment, the part of the world you are residing/researching in and the academic field you work in. There is no clear-cut, repeatedly relied upon strategy for co-authoring.

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3.4 The strain of 'publish or perish' on co-authorship practices (Rawayda Abdou)

Research suggests that business journals have seen a significant increase in the number of co-authored articles (Manton & English, 2007). While collaboration productivity can be measured solely from the standpoint of publication counts, Bozeman et al. (2001) suggest that one should take a wider perspective on increments to scientific capacity. Research suggests that collaboration also has a significant beneficial impact on scientific and technical human capital (S&T human capital). Lee & Bozeman (2005) define the S&T human capital as " the unique set of resources the individual brings to his or her own work and to collaborative efforts". Thus, it not surprising that research collaboration produces a synergistic effect, boost effectiveness and productivity, and profit from a high citation counts (Wuchty et al., 2007). Extant literature suggests multiple reasons as to why co-authored articles in the business domain have significantly increased in recent years. The tendency towards interdisciplinary research that crosses disciplines and the consequential need to expertise in multiple disciplines, the need to statistical and mathematical input for data analysis, as well as the need for research documentation and publication expertise, are among these reasons (Manton & English, 2007). However, strikingly, Manton & English (2006) provides evidence that the majority of co-authorship articles in business journals are between expertise from the business discipline. A phenomenon they explained it by the significant growth in this discipline, to the extent that it is becoming increasingly difficult for a researcher to have the requisite comprehensive knowledge within the business discipline.

In spite of the aforementioned well-established beneficial impact of co-authorship publications, research highlights associated problems related to unethical and inappropriate practices in the authorship of academic papers in business journals (Manton & English, 2006). These inappropriate practices will be the primary focus of the present assignment. In what follows, we will explain some of these practices, specifically the ones related to co-authoring crediting, discuss their implications, and conclude with suggestions for potential strategies for improvement.

" Publish or perish.'' (also known as up or out), a discourse that pervades the business discipline specifically and academia more generally (Bozeman & Youtie, 2016; De Rond & Miller, 2005). Tenure, promotion, or merit pay increase are becoming increasingly based on publication productivity (De Rond & Miller, 2005). Research suggests that this structure of tenure and promotion systems has put significant pressure on academics to publish (Zivney & Bertin, 1992). This pressure, in turn, has led to some inappropriate co-authorship practices (Manton & English, 2006). Concerns around the co-authorship crediting are among the most raised by scholars and policymakers (Bozeman & Youtie, 2016).

Of particular interest is the unintended role that the accrediting bodies play in reinforcing inappropriate practices in the business domain (Manton & English, 2006). The accrediting bodies, for example, The Association to Advance Collegiate Schools of Business (AACSB) put emphasis on research endeavours and publication, particularly on small and medium-size colleges and universities of business that seek accreditation (De Rond & Miller, 2005).

Research suggests that these inappropriate behaviours related to co-authorship crediting are either related to including authors who do not deserve the authorship award or excluding the ones who do deserve (Bozeman & Youtie, 2016). “Guest author” and “honorary author” are examples of inappropriate practices that fall into the former category, while “ghost author” falls into the later. “Guest” and “honorary” authors are the ones who did little or no contribution to the research article that warrants authorship. With regards to the “guest author”, research suggests that power dynamics are playing a key role in this inappropriate practice (Phillippi et al., 2018). For instance, those who are higher up in the hierarchy can abuse their power and exercise pressure on their colleagues to be included as co-authors. Student exploitation is another example of power dynamics (Bozeman & Youtie, 2016). Moreover, research indicates that the structure of tenure and promotion systems mentioned above has also resulted in the so-called “guest authorship”. Authors might sometimes gift authorship award if some of their friends are at risk of losing their jobs, in an attempt to boost their career prospect. While “honorary authors” are usually included out of respect or for the sake of having a prestigious name among authors, which may increase their chance of having their work published (Bozeman & Youtie, 2016). Conversely, the so-called “ghost authors” have contributed substantially to the research product, however, they have not been awarded authorship.

The implications of the aforementioned inappropriate authorship practices are numerous. For instance, they threaten the credibility of the business journals as well as the universities and colleges of business (Manton & English, 2006). Moreover, tenure, promotion, or pay increase will be granted to undeserving scholars, distorting tenure and promotion systems and creating feelings of unfairness within academic institutions (Cutas & Shaw, 2015). Furthermore, they mislead the accrediting bodies by overstating faculties contribution to scientific productivity (Manton & English, 2006).

To this extent, it seems that there are invalid and inappropriate reasons for attribution of co-authorship in the business domain, other than a substantial contribution, that introduce inappropriate practices to it. Research shows that the absence of clear authorship guidelines is one of the important reasons behind the inappropriate behaviour discussed above, namely, guest, gift, honorary and ghost authorship (Frassl et al., 2018). As opposed to medical journals, where there is a clear universal guideline to define the contribution that deserves co-authorship award, such universal guidelines are absent in business journals (Manton & English, 2006). As long as it is left to the authors to identify whom to exclude or to include, together with the present tenure and promotion systems, such inappropriate co-authorship will remain a threat to the integrity of research in business domain specifically and the scientific field more generally (Cutas & Shaw, 2015). Manton & English (2006) suggest that the leading business journals in conjunction with universities and colleges of business should aim to develop guidelines for authorship. This appears to be a fruitful path to limit the inappropriate authorship practices mentioned above (Cutas & Shaw, 2015). Nonetheless, it is doubtful that authorship guidelines solely could successfully eliminate these practices, given that research shows that authorship guidelines were not sufficiently powerful at eliminating inappropriate authorship practices in medical journals (Wislar et al., 2011).

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3.5 Appropriate acknowledgement and ethical considerations in co-authoring (Lindsay Harrison)

Co-authorship is an increasingly common practice to capture researchers' collaborative efforts (Smith, 2017). It describes the seemingly simple process in which authors are accredited in published works (Bozeman & Youtie, 2016). Yet, certain academics assert that current co-authorship practices are a poor indicator of collaboration (Wagner et al., 2010) and have raised ethical concerns about the assignment of credit in research-publications (Bozeman & Youtie, 2016). Consequently, contributorship statements, in which authors define their individual contributions to papers, are becoming more popular (Rennie, 2001). However, these statements typically refer to the documentation of researcher contributions, without outlining research-participants' inputs. Given that research collaboration involves the collective experience and knowledge of human-beings (Bozeman & Boardman, 2014), it is ethically important that all contributors are recognised regardless of their role. Due to a lack of specific research in this area, it is unclear what current practices are regarding the representation of research-participants' contributions in the business domain. To address this gap, this paper reports on an exploratory review investigating how research-participants contributions are represented within qualitative research in the business domain.

The case for collaborative research

Across academic fields and public policy there is an increasing drive towards collaborative research (Bozeman & Boardman, 2014; Van Rijnsoever & Hessels 2011). Collaborative research has been defined as the 'social processes whereby human beings pool their experience, knowledge and social skills with the objective of producing new knowledge' (Bozeman & Boardman, 2014, p. 12). Scholars have documented numerous reasons for the trend towards collaboration in academia. These include that it leads to more high-impact research (Wuchty et al., 2007), achieves more citations (Gaughan & Ponomariov 2008), and allows for the integration of specialist knowledge (Haustein & Siebenlist, 2011).

Co-authoring

While co-authorship provides a seemingly simple process to capture authors' collaborative efforts, deciding on co-authorship is anything but straightforward (Bozeman & Youtie, 2016). Based on current definitions of collaborative research, Bozeman and Youtie (2016) assert that any person involved in research could be included as a co-author. However, they suggest that this is not typically the case.

They additionally caution that researchers can fall foul to dishonest authorship claims, due to strategic authorship practices such as author-trading or power-plays by academics with hierarchical authority.

Contributorship

In an effort to increase transparency about the contributions of individual authors, some scholars have proposed the inclusion of a contributorship statement (Rennie, 2001). This provides a detailed overview of each author's particular contributions to the paper. Contributorship policies are on the rise in certain fields, such as the health sciences (Washburn, 2008) but are not yet widespread (Resnick, 2009). While scholars have proposed that contributorship policies can increase fairness and transparency about co-authorship (Rennie, 2001), I contend that to give an authentic representation of collaborative research, contributorship policies must expand their gaze beyond academic authors to include research-participants.

The missing contributors?

Qualitative research often involves that research-participants engage in in-depth and time-consuming interviews or focus-groups to share their experiences or opinions with the research team about a particular topic of interest (Crocker et al., 2017). To recognise research-participants' contribution of knowledge, time and experiences, research-participants have been included as co-authors within the healthcare literature (Bolderston & Robins, 2018.). Given the lack of consensus on what contribution types are sufficient to warrant co-authorship status (Bozeman & Youtie 2016), the inclusion of research-participants as co-authors is likely to cause debate. However, I argue that this is a debate worth having. The absence of such debate risks marginalising certain social groups and discounting their efforts based on their role within the research rather than the worth of their contributions. To have this debate, it is necessary to establish the current state of affairs. To date, it is unclear from the business literature whether or how research-participants' contributions are represented in scholarly journals. Consequently, this paper asks how research-participants' contributions are represented within qualitative papers within the business domain?

Methodology

I performed an exploratory review to evaluate how research-participants' contributions are represented within qualitative papers within the business domain. This involved iterative searches within a leading business database using key terms from the research question (Appendix: table 1). To ensure that papers were relevant and of high-quality, inclusion criteria were developed and applied during the searches (Appendix: table 2).

Results

This review paper reports on the representation of research-participants contributions in qualitative scholarly papers in the business domain. Based on iterative searches utilising key-phrases from the research question, 10 academic papers were identified. These papers were evaluated utilising a unique thematic matrix that I developed to determine how research-participants contributions were both represented and acknowledged. Detailed findings regarding the analysis of each paper are presented in table 3 (Appendix) and a summary of findings are presented in table 4 (Appendix). This paper's main finding was that research-participants' contributions were not routinely acknowledged in qualitative business papers. Participants were not included as co-authors in any of the papers reviewed, nor were they included in the acknowledgements section of papers in the majority of instances. Participants voices were represented in the results section of papers through the use of data-extracts. However, member-checking was infrequently used to validate participants contributions and supplementary data was not made available in all instances.

Limitations

Due to time constraints, the scope of this review paper was narrow. For example, I searched one database, limited my search to the past five years and specified that research-participants must be employees.

Discussion and Conclusion

In light of the collaborative imperative in contemporary research (Bozeman & Youtie, 2016) and a lack of knowledge about the representation of research-participants' contributions within academic business papers, this paper investigated how research-participants are represented in qualitative research papers within the business field. This paper's findings suggest that research-participants' contributions are not routinely recognised in business papers. Rather academic researchers typically present their own interpretations of research-participants contributions. Furthermore, validation practices such as member-checking and joint interpretation were not common practice. This means that academics are at risk of presenting participants views as their own, without acknowledging the input and insights that they have received from their research-participants. At worst this risks that research-participants ideas, opinions and experiences will be plagiarised. A lack of validation measures with research-participants also means that academics may mis-represent or dis-include their contributions, thereby distorting their accounts. To honour participants voices and ensure that research does not perpetuate the power-structures it frequently highlights (for example, in feminist theory) (Mercer-Mapstone & Mercer, 2018), I contend that academics must discuss and negotiate with research-participants at the outset what their role and contribution is and how it will be represented in academic disseminations. This will give participants more choice about how their voice is used and give them their due credit.

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Appendix

Table 1: Key-term searches across one business domain database

Key-terms	Databases searched
'Research-participants and/or participants'	Business Source complete
'Qualitative research and/or qualitative'	
'Business'	
'Experiences'	
'Employees'	

Table 2: Inclusion criteria

Methodology	Timeframe	Language	Type of writing	Text
Qualitative methodology	2015 – 2020	Papers written in English	Peer reviewed articles	Full-text available

Table 3:

Paper	Approach	Methods	Participant co-author	Participant in acknowledgments	Member checking/ involvement in analysis	Participant voice in Results	Supplementary material
Correia, Santos & Passmo (2016)	IPA	Three semi-structured interviews with each of the study's 10 participants	No	No	No	Data-extracts of participants contributions	No
Gauche, de Beer & Brink (2017)	phenomenological approach	Semi-structured interviews with (n = 26)	No	No	Member-checking re. researcher notes completed	Researcher developed themes without data-quotations to support	No
Gewurtz, Premji, & Holness (2018	Interpretive approach	Semi-structured interviews (n = 11)	No	Yes	No	Data-extracts included	No
Ghazali(2017)	Qualitative approach	Group interviews, individual	No	No	No	Data-extracts included	No

		interviews and questionnaires n = 18					
Harrod et al. (2017)	Qualitative approach. Inductive thematic analysis	Semi-structured interviews n = 10	No	Yes	No	Data-extracts included	No
Jackson& Bourne (2020)	Mixed methods approach	Questionnaires and semi-structured interviews, n = 12	No	No	No	Data extracts included	No
McConville, Arnold & Smith (2016)	Phenomenological approach	Semi-structured interviews, n = 37	No	No	No	Data extracts included	No
Radcliffe & Cassell (2015)	Qualitative approach	Qualitative diaries and in-depth interviews, n = 48	No	No	No	Data extracts included	No
Schonfeld & Mazzola (2015)	Qualitative research	Semi-structured interviews, n = 54	No	No	No	Not included	No
Stergiou-Kita et al. (2017)	Inductive descriptive qualitative approach	in-depth interviews, n = 10	No	Yes	No	Data-extracts included	No

Table 4: Summary of participants acknowledgement and/or inclusion

Participants included as co-authors	Member checking or involvement in analysis	Participant voice in results	Participants referenced in acknowledgements	Link to supplementary material
0/10	2/10	8/10	3/ 10	0/10

Chapter 4. Overcoming challenges and practical guidance

By Clodagh O'Reilly, Talal Sorour, Elun Hack, Shubham Sharma

This final chapter provides good practical advice for students to overcome some of the recognised challenges of co-authoring. Co-authoring has clear benefits for graduate students and early career academics. It should be a rewarding and fun process but it needs planning. Defining roles and responsibilities upfront is critical. The chapter concludes by re-enforcing the importance of good planning and forward agreement on the process drawing on the old adage that 'prevention is better than cure'.

4.1 Overcoming the challenges in co-authoring (Clodagh O'Reilly)

Research shows that outcomes of co-authored research projects lead to more successful outcomes and ultimately patents than solo projects (Hart, 2000). Research has also found that co-authored research resulted in more citations (Gaughan & Ponomariov, 2008; Lee & Bozeman, 2005) and a higher rate of acceptance to higher ranked journals (Hollis, 2001). However, this is only part of the reason for the increase in co-authored projects. New emerging technologies and specializations (Werbińska, 2016) mean that solo authoring in some fields is almost impossible due to the required expertise. Many authors embark on co-authorship projects for the opportunity of collaborating with a 'Critical Friend' who will help challenge and critique their work and ultimately raise the standard.

The positive benefits of co-authoring do not mean however that it is not without its challenges and complexities. Different working styles, authorship problems and disagreements can lead to difficult projects. There are several strategies that can be applied to ensure a pathway to success. Clear communication and structures from the outset are vital (Cheruvelil et al., 2014).

The most frequent challenges in co-authoring can be avoided with paying attention to key areas such as - allocating authorship and resolving disputes. These challenges can be overcome with careful planning and continuing engagement.

Authorship

Authorship & order of authors is one of the most complex areas of co-authoring and the area where many conflicts arise. Authorship and the order of how the authors are listed is generally decided collectively, often utilising the framework provided by the research institution (Teixeira da Silva & Dobránszki, 2016).

At the start of any writing project, the consortium of authors should agree the criteria for inclusion as author. This can help resolve potential disputes. Many journals outline a contributorship model that requires a detailed list of contribution of each author. The ICMJE (International Committee of Medical Journal Editors) outlines 4 criterions as a guideline for authorship. The guidelines include, that each author is accountable for ensuring all questions regarding integrity and accuracy of work are explored and resolved; that each author has made a substantial contribution to various aspects of the research; that each author has been involved in the drafting or revision of the article and finally that each author has approved the final version (JOURNAL, 1985). The guidelines go on to recommend that all authors who qualify for authorship should be included and only authors that qualify should be included. These guidelines aim to eliminate the practice of ghost authors, those that have contributed but are not listed and guest authors, those who have not contributed and are listed. When starting a project, each author should be familiar with the guidelines and in agreement of their application and implication.

The order of authors listed can often provide challenges with many different approaches being adopted without consistency. In the past it has even led to some work going unpublished as an agreement cannot be reached. Authors can be listed with lead contributor first, lab director first or indeed authors may be listed alphabetically. It can be difficult to trace an authors' contribution. (Bozeman & Youtie, 2016). Although having clear guidelines from the outset of the boundaries and criteria for authorship can help, it continues to be an area of much discussion. Increasing pressure on academics to publish in higher ranking journals has resulted in a higher instance of guest authorships where a more well-known author is added to the journal to increase the likelihood of publication (Kennedy et al., 2014).

Ensuring the order of authors is agreed from the outset and perhaps reviewed if there is a significant change in research during the project will reduce contentious issues around author order.

Resolving Disputes

Despite having the best strategies and guidelines, disputes still happen when co-authoring. Ensuring there is a resolution policy to manage any disputes in a professional and efficient manner is key.
Working together collaboratively on a research project rather than in a more directive relationship achieves better results (Hart, 2000). To support the process a clear agreed outline on the process of collaboration that is agreed upfront and can also be referred back to in times of disagreement is a key element of successful collaboration (Smith & Lewis, 2018). Collaboration can take various forms, authors may decide to write distinct sections depending on their expertise or write in a more collaborative manner (Yeo & Lewis, 2019). Setting out clear expectations on timelines and allocations of work will reduce the potential of a perceived or even real free rider on the project (Hudson, 1996)The timeline should also include flexibility to allow the unexpected.

A recent 2014 research study conducted in the field of nursing found that many authors were unaware of the rules around authorship (Kennedy et al., 2014). To overcome this, ensuring all authors have read and understand the agreed guidelines around authorship for the project will help resolve for a smoother project. Whilst guidelines and agreed plans will help the process, it is imperative that all authors actively agree and buy in to the agreed process.

Similar to many other business project endeavours, clear, open and consistent communication will result in not only a better outcome for the project but also a better experience for all involved. A strong project lead facilitating the project and ensuring deadlines are set, agreed, communicated and managed to all stakeholders will ensure the project is a professional manner.

The challenges of collaborative research and writing are well documented, however there is consensus that the benefits largely outweigh the negatives. The world has become a more accessible global community resulting in collaboration between different geographical locations and cultures being made easier. The introduction of guidelines such as those of the ICMJE have resulted in positive steps to resolve some of the more frequent challenges. However, clear and effective communication will go a long way to ensure success.

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4.2 Roles and responsibilities of co-authors (Talal Sorour)

In this paper, I am going to refer to the co-authoring strategies in the business research. As researches required quantitative and qualitative data that can be challenging for a solo author. Facing problems such as lack of time, load of work, unspecialized in some fields, a co-author is usually a solution for managing a research. Hence, there are challenges to differentiate between the main author and the co-author, what are their roles and strategies and obligations in the contribution.

Role of the authors

The role of the authors is to contribute and participate in the journal or the field, and to engage in creating knowledge. As Authors responsibility to draft and revise the work censoriously and be accountable to ensure any demands or questions around the work are committed. Moreover, author responsibility is to make sure that the article or the project is original and written in a high quality with integrity, and ensure all participants are aware of the submission. The First author is responsible of making a significant contribution, drafting the work after revising it and the approval of the version for publishing. Moreover, the author is responsible of being accountable for accuracy of the article; the authors should ensure they fulfil with ethical standards in the peer review process. As the authors should be aware that they are contributing to the field, by drafting the work and following data transcript. First author is the one that hypothesizes and designs, line up the writing and submits. Generally, first author is the contributor of scientific knowledge.

Co-authors

The differences in publication between solo and co-authoring is that in co-authoring Not every author might contribute equally as there can be a quantitative and qualitative authors, for example Supervisors might not substantially contribute to the research but they may require authorship or one of the participants might submit the data and other does the fundamentals writing. Hence, co-authoring sometimes can be challenging or has cons in-comparison of solo authoring. As in the medical field, it is too tough towards co- authoring according to Bozeman and Youtie (2015) much of the concentration in the ethics of co-authorship came from medicine and Biotechnology fields that are developing, as the participant who provides the sample data might not automatically mean is a participant author. The criteria may differ from one paper or project to the other and possibly problems, especially in these areas fields. Many have concentrated on supposed "guest" and "honorary" authors. Many different key terms are to consider such as Collaboration and communication key in a collaboration author. In the other hand, Co-authoring has many pros as a team work can bring more ideas, better knowledge, different perspectives, a chance to learn new things from experts in different domains, participants can get feedback from each other which is part of the learning process, can lead to improved motivation. As a solo authoring can be more challenging due to different styles writing and working needed particularly if based on quantitative methods, need different specialities. There are no doubts, that in some fields solo authoring can be difficult.

Process of co-authoring

The process of co-authoring can be listed in three main points. First, Deciding writing style or writing strategy according to Frassl *et al.* (2018) as the writing strategy must be adapted to the need of the job. A research paper using extensive data may have several co-authors but one main writer (eg, PhD candidate) who has an obligation of conducting the analysis, while remarking or a review in a specific research area that can be written jointly by all co-authors on a parallel basis Discussion. In most cases, the approach that all authors writes to everything is not possible and ineffective. Most frequently, the job is distributed into sub-sections based on the specialties and interests of the co-authors were the co-authors are responsible based on their experience and interest. Hence, No matter what writing strategy is chosen, the importance of getting everyone as Team members involved cannot be exaggerated in defining the narrative, format, and structure of the paper; This will prevent having to rewrite or delete sections later. To get an effective writing process, the participants should try to use an Active Voice in suggestions and marking edits rather than just stating that the section needs revision. For all writing strategies, the leading author must ensure that the completed text is perfectly done. secondly, Deciding a data management plan; according to Frassl *et al.* (2018) the Data Management Plan (DMP) should be implemented in the early stages of the writing process and agreed by all co-authors. the Data Management Plan must outline how the research will be written and the project division of jobs and how the project data will be shared, stored and the details of whom form the team will have the access of the raw data during the post publication. The Data Management Plan (DMP) should not be a detailed document as it will be complicated a couple of summarized paragraphs will be fine. As the Data Management Plan, all participants should confirm of their agreement with the plan and that their funding agencies or institution obligations are completed. Last, deciding deadlines is an important point according to Ariely, D., & Wertenbroch, K. (2002) for the general research project, setting an effective deadlines sustains the Group impetus and enables project completion on-schedule. The participant should consider his time commitment before participating as a co-author in the project.as the co-author obligate to set a deadlines with the awareness of meeting them and informing the members of the group in advance if the deadline is challenging for him. As the co-author is obligated to set a deadline in order of meeting them.

Author’s management

There are challenges in deciding whom the major or the first author in the article or project. Usually, the first author is the most significant author or the topic owner, who made it or who organised it. Hence, this can be difficult when almost similar workload by the division of work concentration. In order, to prevent such a problem agreement upfront must be taken between the participants, concerning the first author load of work and the writing strategies and the first author responsibility of the paper rejection. As generally, an agreement must be taken up front that whoever is doing the most will be the first author. Someone may have the idea, but if someone else does the work, deserve to be the first author.

Co-author ethics

It is well known that there are many unethical action been made in academics field concerning publishing journals or projects such as Trading co-authors which is common as many authors have career pressure to publish and looking for quantity publishing. Bozeman, B., & Youtie, J. (2015) pointed in there article some ethics issues in co-authoring. First, there are prospective that the data concessions can act as restriction on trade in the case where the main participants are not included as co-authors. Second, the control of authorship on the co-authorship can be a potential position of using to obtain resources, data and knowledge from the co-author who is in the week position. Last, if the first author did not contribute in the project authorship claims are essentially scientific fraud.

Conclusion

Co-authoring is a potential option for contributing a significant journal or project. Hence, co-authoring is a solution for the challenges that faces the solo author as it can be managed significantly up fronting the project participants of their roles in the project. As ever participant work on a section. Finally, co-authoring can be significant by processing the job by deciding the writing strategy and style, deciding a data management plan and setting an effective deadline.

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4.3 Prevention is better than cure (Elun Hack)

According to Bozeman and Corley (2004) early research into collaboration focused primarily on co-authorship, and these authors make the conclusion that co-authorship is to be considered a partial indicator of collaboration. As collaboration and collaborative efforts can vary dependent on the field, discipline and geography making it a far-reaching topic, this conclusion offers a specific focus for this review, and allows a particular focus on co-authorship strategies. Wuchty, Jones and Uzzi (2007) suggest that one of the main sources of motivation for co-authorship is the correlation between collaborative research and the impact the research is perceived to have on the relevant field, with co-authored research believed to have a higher impact. This argument is underpinned by Lee and Bozeman (2005) and re-enforced by Gaughan and Ponomariov (2008), both pieces of research providing evidence that co-authored research received more citations than individual work. Despite all the research promoting collaborations and co-authorships, they are not without their own challenges and difficulties. "*Prevention is better than cure*" is an old adage, suggesting that in many circumstances it is easier to stop something from happening in the first place, than have to repair the damage after it has unfolded. Is it possible to identify several of these challenges, and offer solutions to academics prior to their entering into a co-authoring collaboration, and then not being able to find solutions in the final stages of the research. Therefore, this review seeks to identify key challenges that face co-authorship and collaborative work, as well as seek possible solutions for overcoming these challenges, in order to offer researchers some guidance as to how to avoid these challenges. If these challenges are not prepared for, they could have detrimental effects on the research, researchers relationships with co-authors, and worst case scenario, academic careers.

The first point of discussion is *Authorship*, and according to UK Research integrity office (2009) this should be limited to those contributors and collaborators who are considered to have made a significant intellectual contribution to the research. In addition to the contributions component, authors of the research need to demonstrate a willingness to take public responsibility for the study, as well as stand over the results published, and finally an ability to identify their own contributions to the overall project. Despite the stipulation of only key contributors being named as co-authors, Bozeman and Youtie (2015) suggest that disturbingly some credited as co-authors have in fact made little to no contributions to the work, and have seen their name included due to author trading (list me on yours and I'll list you on mine), hierarchical authority, or they have threatened and pressurised colleagues over whom they have organisational power or superiority. It is therefore important to establish contributorship (authors declaration in detail their contribution to the research prior to publication) (Rennie, 2001), from the onset, in order to increase transparency and fairness (Hayter et al., 2013). Contributorship policies have been adopted in certain fields, but are less common in STEM fields, including economics and business areas of research (Washburn, 2008).

The second point for consideration is the decision process by which co-authorship is decided. According to Bozeman and Youtie (2015) the importance of this process is due to the assigning of authorship, credit, and co-author order. It is important to note that this process varies from academic field to academic field, and in most cases only provides an inaccurate synopsis of who actually contributed what to the research. Some processes would list the author believed to have made the biggest and most significant contribution first, another approach is listing the authors in alphabetical order, but each of these has their own challenges. While there is very little evidence supporting any co-authorship decision process, it is widely agreed that this is a vital process due to the impact it has on scientific career trajectories and advancement, and scientific advancements as a whole (Katz and Martin, 1997). Youtie and Bozeman (2014) have identified that within co-authoring, decision structure problems occur when the most senior author(s) assume(s) tacit agreement and decides on co-authoring without any discussion. Therefore, with the intention of addressing this problem early on, it is important to have the discussion, irrespective of title or status of co-authors, and ensure that a strategy is implemented that will ultimately guide co-authorship.

The final challenge facing co-authorship is gender issues, and Bozeman et al., (2015) put forward that nearly all of the females interviewed in their study, as well as a “few” men cited gender issues having a negative impact on collaboration. These negative impacts can be attributed to two main issues, and these are workplace dynamics and biological issues, for example sensitivities around childbirth. In order to address this negative stigma, Bozeman and Gaughan (2011) suggest restructuring and implementing new policies to make accommodation for these challenges. An example of this could be the creation of more equitable policy structures that seek to ensure women are able to more effectively balance work and family responsibilities. These authors contend that evidence exists that such policy implementation is reducing family-related barriers to females participation in co-authorship within research fields. Ensuring policy allows for family-related accommodations, for both female and male, is one area researchers entering into collaborative work need to ensure is addressed.

Co-authoring is not unique to any single field of research, and might appear more prominent in some over others, but the literature by in large does suggest that co-authorship is on the rise. Lee and Bozeman (2005) and Gaughan and Ponomariov (2008) to name a few, have pointed at the benefits of co-authorship, and these are as relevant to business research, as they would be to any other field of research. Therefore, the challenges laid out in this text, as well as the solutions offered are points that need to be taken into consideration by any academics wishing to enter into co-authorship, as these solutions will ensure a productive and benefitting relationship for all parties involved.

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4.4 Simple rules for collaborative writing (Shubham Sharma)

Contemporary research demands collaborative efforts by various researchers called as “collaborative imperatives” (Bozeman and Boardman, 2014). Various enterprises such as science, technology, engineering and mathematics (STEM) requisites research teams (Bozeman and Youtie, 2016). The increasing dimensions in science has resulted in the build-up of large teams which in terms of paper results in the numerous authors from diverse cultures, discipline and institutes (Wuchty et al., 2007). Research collaboration has various benefits for example, effectiveness enhancement, diversity, use of more technologies etc. Studies have stated that in comparison with individual investigator, collaborative research often leads to patents and high impact research, which also gathers more citations (Wuchty et al., 2007; Lee and Bozeman, 2005; Gaughan and Ponomariov, 2008). Trends have also shown that the co-authorship and research collaboration have been accredited to the requirements to share resources, including specimens, samples, equipment and technology (Ynalvez and Shrum 2011, Austin et al. 2012). Moreover, researchers point out the increasing interdependency of field and specialized skills where in few researches it is not possible for an individual to possess specialized skills required in an interdisciplinary research (Haustein et al. 2011). Universal collaboration technologies such as emails, video conferencing etc. (Muscio and Pozzali 2013) assists the research collaboration and knowledge transfer all across the globe. However, the collaboration also faces numerous challenges.

There are various challenges associated with collaborative writings such as, diverse work style, level of co-author’s engagement, establishment of fair credit through acknowledgements or authorship, and communication. Sometimes problems like lack of leadership, miscommunication, and unsuitable tools or writing styles can lead to grouping, frustration, publication delay, or even the project termination (Frassl et al., 2018). Bozeman and Youtie (2016) had interviewed 60 US academic science or engineering researchers in 14 different disciplines in a set of geographically dispersed universities. They observe that not everybody agrees and understand the nature of research collaboration as there is no universal agreement on what collaborative contributions warrant co-author status (Bozeman and Youtie, 2016). Frassl et al. (2018) had defined “Ten simple rules” for collaborative writing and multi authored papers. 5 rules among them are:

Build your writing team wisely

In the very beginning of the writing process the team responsible for writing is formed. This team should be built on the basis of expertise and co-authors interest. Initial goals and the table of content should be finalized by all the authors in the starting with the duties of an individual associated with the particular section to avoid conflicts. Further it is a role of a research project leader to keep a check on the progress.

Being a Leader

The role of a leader is critical for a paper having multiple authors in order to be written timely and satisfactorily. Generally, the first author and the leader of the writing process ae same but this is not necessary. A leader serves as a point of contact for the writing group that keeps the in-writing process moving forward and leads it till publication. Moreover, a leader should be able to make difficult decisions regarding the structure of the manuscript, its content and the authors contribution. Also, a good leader should know when to delegate tasks and share the workload, e.g., by delegating facilitators assigning responsibilities or for a meeting and subleaders for sections of a manuscript.

Jointly decide on authorship guidelines

In order to avoid conflicts in an authorship of the writing process throughout it is important to define the authorship guidelines in the beginning of the process. These guidelines will increase the transparency and clarity in the authors order. In case or authors contribution at different levels, it could be ordered on the basis of their contribution according to the defined guidelines.

Decide on a writing strategy

It is possible that an individual follows different writing approach than another person. Therefore, to avoid mis match of different writing style in same paper impacting the flow of the study it is important to define a common writing strategy in the start. The writing strategy must be defined considering the team's need and the writing must be split according to authors expertise.

Set clear timelines and adhere to them

For the successful completion of the paper in a timely manner it is important to define the deadlines and maintain them. Before committing to be co-author it is necessary to consider
one's schedule and commitments. Maintaining deadlines and adhering to the timeline develops the positive culture withing a team and encourages other authors to stick to timeline as well.

These rules are simple but necessary to maintain in a writing process with the co-authors of the multidisciplinary area. These rules will help to keep the writing on track without any conflicts. Also, it will make the process smooth and transparent for all the authors.

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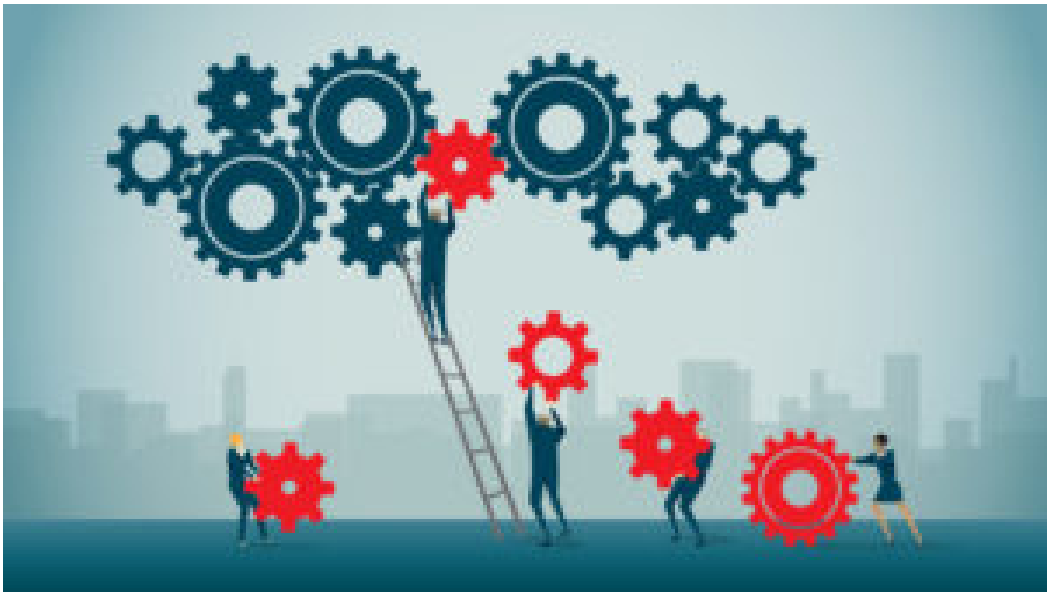

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