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Temporal change in dissertation macrostructures

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1. Introduction

The dissertation is a formative, yet still somewhat opaque, endeavour in the course of a doctoral student's academic trajectory. As Paré (2017) notes, "The doctoral dissertation is the final obstacle for most apprentice scholars" (p. 407). It serves as the definitive test to determine a student's capability to conceptualize, design, and conduct research, analyze data, and engage deeply and meaningfully in academic discourse practices. The dissertation process typically involves a variety of stages, from the proposal to the comprehensive or qualifying exams, and gatekeepers in the form of supervisors, committee members, and examiners to mentor and evaluate students' work. Although a great deal has been written about the dissertation across different topics and platforms, very few studies have analyzed the global organization features, or macrostructures, of these dissertations over a substantial period of time and involving a robust selection of representative texts.

The forthcoming discussion therefore reports on findings from a large-scale study involving 1,254 doctoral dissertations from a single Canadian research university. The corpus of texts was comprised of both EdD and PhD dissertations spanning a 52-year period from 1966 to 2018. We analyzed both the macrostructure of these dissertations, tracking changes over time, as

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well as the shifting (co)authorship practices that also emerged. The results demonstrate compelling evidence of change in both macrostructure and authorship practices within the parameters of this single university. While our prior research has addressed the relationship between co-authorship practices and some dissertation macrostructures (Anderson, Saunders, & Alexander, 2021), no studies to date have inquired into when co-authorship practices began to emerge in dissertation writing. In this paper, we add to these lines of inquiry by focusing on temporal change in dissertation writing practices, when dissertations began to be co-authored, and with what macrostructures co-authorship is most prevalent.

2. Literature review

2.1. Thesis and dissertation writing

Theses and dissertations have been written about extensively, with two central areas attracting considerable attention. The first involves the thesis and dissertation "self-help" genre targeted primarily towards graduate student writers, but also occasionally for supervisors in their roles to be effective mentors and guides for students. These resources come in many shapes and sizes, and span disciplinary allegiances, but most often take the form of book-length monographs or chapters in edited volumes. Common "gotcha" elements in titles that fall within this self-help category include "step-by-step" instructions to complete the "winning" dissertation (Glatthorn & Joyner, 2005); how to write a "successful" (Mauch & Park, 2003) and "exceptional" (Graustein, 2014) dissertation; how to write a dissertation in "15 min a day" (Bolker, 1998) or "two semesters or less" (Ogden, 2007); how to write it "faster" (James & Slater, 2013) and "better" (Evans, Gruba, & Zobel, 2011); how to "survive" (Sternberg, 2014) the "dissertation journey" (Roberts, 2010); "getting it right the first time" (Calabrese, 2006); how to be a "dissertation warrior" (White, 2017); and, importantly, how to write a dissertation "for dummies" (Winstanley, 2010). Hyperbole aside, the popularity of these self-help writing guides signals an appetite in the academic market place for these types of resources, particularly since doctoral programs and enrolments have continued to expand rapidly (Cyranoski, Gilbert, Ledford, Nayar, & Yahia, 2011), including in Canada (Statistics Canada, 2020). Albeit popular, the dissertation self-help genre has also been criticized as a "rigid model of the dissertation that follows a set format and style" (Kamler & Thomson, 2008, p. 507) and, therefore, can be self-fulfilling in that they model a type of dissertation the authors themselves had likely written, and graduate students subsequently model their own future dissertation texts after the same models. What these resources can fail to adequately discuss are varieties of the dissertation macrostructure that are possible and what types and to what degree these macrostructures are being produced in graduate programs.

A subset of the thesis and dissertation self-help genre can also be found in resources hosted by universities themselves; an extensive list impossible to cover in the confines of this paper, but which can be found on most, if not all, university websites that host doctoral programs. Starke-Meyerring, Paré, Sun, and El-Bezre (2014) analyzed some of these in their investigation of the faculty of graduate studies' websites of 11 research-focused universities in Canada, concentrating on "all policies, guidelines, descriptions, guides, tip sheets, and other documents" (p. A-16) that pertained to thesis and dissertation writing. The authors concluded that "None of the advice provided was research based" and the "institutional discourse about thesis writing led to institutional interventions that were likewise atheoretical and arhetorical, uninformed by research, and located outside the disciplinary knowledge-making practices that shape and are shaped by research writing" (p. A-24). These observations hold true for the university involved in this study. The thesis and dissertation information, hosted on a series of faculty of graduate studies[1] webpages, included concrete guidance related to formatting and what sections were both required and possible (e.g., title page, table of contents, acknowledgments, etc.). There were likewise firm guidelines regarding the use of previously published work in the thesis or dissertation, and how to properly inform readers about what sections (or entire chapters) fit in this category. There was a brief statement on co-authorship, which notes "collaborative publications" are permitted, but no specific rules regarding how much or what percentage must be the student's own contribution was included. There was no precise information regarding possible or acceptable dissertation genres. Meaning, such decisions are largely regulated by students and/or their supervisory teams, and likely guided by disciplinary practices that shape genre decisions in students' (and supervisors') academic communities.

The second central area of focus in the literature includes empirical studies reporting on aspects of thesis and dissertation writing published most typically in journal articles and, less often, chapters in edited volumes. These investigations are usually grounded in EAP/ESP perspectives and draw on genre approaches to analyze the features of individual sections of the text or specific rhetorical or language features across the entire dissertation. Appendix 1 outlines some notable contributions in this area, organized from oldest to newest in terms of publication date.

A few resources have taken the middle ground between the self-help guidebook genre while still being empirically informed and anchored in genre and rhetoric studies. Two monographs are of note. Paltridge and Starfield's (2007/2019[2]) *Thesis and Dissertation Writing in a Second Language: A Handbook for Students and their Supervisors* presents a guide for authors and supervisors, addressing issues from authorial (graduate student) identity and the typical rhetorical and lexical features, to publishing from the thesis/dissertation, with examples and extracts from sample texts. Although the focus is for "non-native" speaker students (and their supervisors), this book contains research-informed insights for all relevant stakeholders (L1 and

[1] The *faculty of graduate studies* refers to a university division that addresses issues related to graduate students and postdoctoral researchers.
[2] 1st and 2nd editions.

L2 alike) involved in thesis and dissertation writing. Bitchener's (2009) monograph, *Writing an Applied Linguistics Thesis or Dissertation: A Guide to Presenting Empirical Research,* is targeted mainly at "first time" authors of a thesis, but also offers insights for more experienced graduate writers and supervisors. The book is organized around a traditional-simple Introduction-Methods-Results-Discussion (IMRD) thesis structure and, like Paltridge and Starfield, is grounded in genre theory and the various moves, steps, and linguistic features that are prevalent and typically expected in the dissertation or thesis genre addressed in the book.

A much smaller subset of this second line of inquiry, drawing on EAP/ESP perspectives, has investigated the global organizational features – or macrostructures – of thesis and dissertation texts. Paltridge (2002), drawing on prior work by Dong (1998), Dudley-Evans (1999), and Thompson (1999), synthesized four major dissertation macrostructures, summarized below in Figure 1 (see also Paltridge, Starfield, Ravelli, & Tuckwell, 2012; Starfield & Ravelli, 2006). Two other recent studies have investigated thesis/dissertation macrostructures on relatively large scales. The first (Anderson, Alexander, & Saunders, 2020; Anderson et al., 2021) analyzed 1,373 dissertation macrostructures in the faculties of education of five large Canadian research universities spanning a ten year period. Within this corpus, 984 (72%) fell within the traditional-simple category, 184 (13%) in the manuscript-style, 131 (10%) were topic-based, and the remaining 74 fit within a hybrid category or were traditional-complex. Paltridge and Starfield (2020) recently analyzed some of the very first available doctorates in four English-medium universities and compared these early dissertations with more recent dissertations at the same universities. They found science-based dissertations demonstrated greater change in dissertation structure over a large period of time (some from the late 19th century), while humanities-based dissertations remained stable. Some early science dissertations, the authors note, were "less recognizable" when compared to their recent counterparts, both in macrostructure and overall length. Disproportionately, the early science dissertations were topic-based, and several were reported to be considerably shorter than recent dissertations, in the 20–30 page range. Humanities dissertations, on the other hand, were consistently topic-based, both past and present, for all dissertations analyzed in this study. Importantly, none of the early dissertations (science or humanities) followed an IMRD structure.

2.2. Co-authorship in theses/dissertations

There is little coverage in the academic literature related to the phenomenon of co-authorship in dissertation writing, particularly empirical studies that describe institutional policies and individual practices. Yet, as shown below, multi-authored dissertation texts not only exist but are increasing in frequency, at least within the setting of this current study. Addressing some of the benefits and challenges of using a manuscript-style dissertation, Thomas, West, and Rich (2016) note the institutional variability in co-authorship practices with particular focus on how this can impact students' decisions to use a specific macrostructure:

> Three out of five institutions [in their study] allowed articles in multiple article format dissertations to include co-authors, as long as the PhD candidate is the first author in all the studies. No institutions indicated that they do not allow faculty co-authorship on articles. However, only one institution said that they would allow student co-authors as part of a student's dissertation. (p. 93)

The latter point – that students are not allowed to be co-authors on another student's dissertation – demonstrates how institutional policy, or lack thereof, can shape dissertation practices, specifically with respect to authorship decisions. (This is addressed further in the final section of this paper.) It also dictates a perhaps odd precedent in shaping how academic writing practices reporting on empirical studies actually unfold post-doctorate. That is, authors can usually collaborate freely and co-author with whomever they choose. It also highlights some of the potential challenges with co-authorship in the dissertation text more generally: should the dissertation primarily be a demonstration of student's individual capabilities or should it more closely resemble actual collaborative practices in academic research?

Chang (2010) documents the history in dissertation practices and authorship in the 18th century, and two early models that relied on different types of collaboration between student and supervisor. According to Chang, the "traditional" model in German universities involved the supervisor writing the actual dissertation text with the candidate performing the oral examination. The final product, both text and knowledge production, was then jointly shared. The second, more aligned with contemporary approaches, expected the candidate to write and defend the dissertation, while the supervisor provided lab space and training. Co-authorship of the dissertation therefore has historical precedent, despite being rarely discussed in the literature and, as described below, currently relegated to certain macrostructures. Out of the 1,254 dissertations analyzed in this present study, 113 contained sections, chapters, or the majority of the dissertation that were co-authored (see Figure 4).

3. Methods

The dissertations analyzed in this study come from a major Canadian research university that consistently ranks high in international rankings and has had a diverse selection of doctoral education programs for decades. This university was chosen based on the availability of full text theses and dissertations on the university's online public repository, which were organized according to faculty, department, and school/unit, contained a detailed search mechanism that allowed the authors of this paper to sort according to author, subject, year, degree, and program, and had digitized previous paper-based dissertations back to the 1960s. Full-text dissertations were downloaded and analyzed. PhD and EdD dissertations in the university's Faculty of Education were concentrated on to limit data collection and analysis to an achievable yet still robust level,

and with the intent to focus on education-based doctoral dissertation practices. Although PhD dissertations were the initial focus of this study, this was modified during data collection for one major reason. At this university, the PhD as a terminal degree in the field of education was introduced *en masse* in the 1980s and 1990s (depending on the individual department). Prior to this, the EdD was the standard education doctorate, and the EdD dissertation was the standard doctoral text. Because of this, and our desire to delve back as far as possible to seek possible trends in authorship and macrostructural change, EdD dissertations were added to the data set up to the point when PhD dissertations became increasingly prevalent.

There were no discernible differences that the authors could perceive between the EdD and PhD dissertations analyzed in this study, other than the title of the degree. In other words, the EdD dissertations included in this analysis appeared as rigorous as the PhD dissertations. The earliest PhD dissertation was from 1987, and only 11 PhD dissertations were completed prior to 1993. All available EdD dissertations completed between 1966 and 1993 were collected and analyzed. It was at that time (1993) that the PhD became the doctoral dissertation text that reflected the reporting of empirical research studies in the faculty and the EdD became more practice focused. Following this surge of PhD dissertations at the university, EdD dissertations were then excluded from our analysis.

The earliest doctoral (EdD) dissertation available was in 1966 and the latest complete year of dissertations at the onset of this study was 2018, comprising a 52-year span of dissertation texts. 277 EdD and 977 PhD dissertations (1,254 total) were collected and analyzed by the authors of this paper for both macrostructure and authorship status (as single or co-authored); a corpus that formed the total available dissertations on the university's repository for all departments, both former and current, in the Faculty of Education. The authors drew on genre and content analysis to achieve the goals of this study. Content analysis, a systematic approach to document trends in textual information (Nelson & Coorough, 1994; Vaismoradi, Turunen, & Bondas, 2013), guided the analysis of authorship patterns in the dissertation texts. Genre analysis aided in our categorizing of the macrostructures of the dissertations. A genre approach provides the analytical tools to document the linguistic and rhetorical features and discourse structures of oral and written texts (Paltridge, 2013), and has been used to guide analysis of dissertation macrostructures (e.g., Anderson et al., 2020; Anderson et al., 2021; Paltridge, 2002; Paltridge & Starfield, 2020; Paltridge, Starfield, Ravelli, & Tuckwell, 2012). The two authors independently analyzed the dissertations to determine authorship and the macrostructure according to the following six categories, four based on prior research (Dong, 1998; Dudley-Evans, 1999; Paltridge, 2002; Paltridge & Starfield, 2019; Thompson, 1999) and the two hybrid categories from the first author's recent study (Anderson et al., 2020); see Figure 1 for a brief summary of these six dissertation types. Determining authorship status was straightforward as these were listed in the early parts of the dissertations. Determining macrostructure involved the two authors analyzing each full-text dissertation separately and then compiling their results in a master folder for comparison. Inter-rater reliability was then calculated as a percentage of agreement at 94.8%.

As shown in Figure 1, the four central dissertation macrostructures identified in previous research are traditional-simple, traditional-complex, manuscript-style, and topic-based. All share certain characteristics but also contain unique elements at the global level. As vessels for presenting students' research, they contain information regarding the study (or studies) that are being reported on, the research design, data analysis, results, and discussion of these results. How this information is organized and presented, however, can vary considerably across the different macrostructures. Traditional-simple dissertations are centrally organized around an IMRD format, with self-contained introduction/literature review, methods, results, and discussion chapters. These dissertations can be just four chapters but often, especially for qualitative research, contain more than one chapter discussing the results of the study (Anderson et al., 2020). A traditional-complex structure follows a similar IMRD pattern, but reports on more than one study. Manuscript-style dissertations typically contain various stand-alone manuscript-chapters bookended by separate introductory and concluding chapters. These interior manuscripts often include self-contained introductions, literature reviews, methods, results, and discussion sections themselves, and the dissertation can contain between one and four (or more) published or publishable manuscripts. Topic-based dissertations

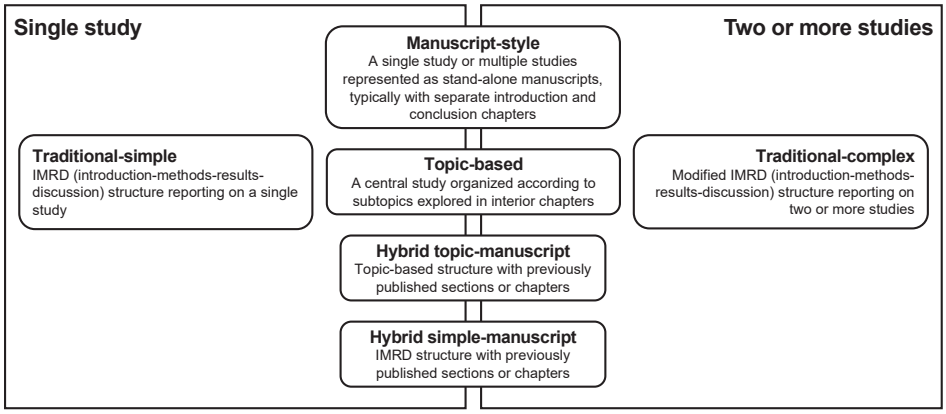

Figure 1. Dissertation macrostructures.

often vary in format, but the general structure remains consistent in that chapters are organized by topics instead of by individual study, manuscripts, or IMRD chapters (as with the previous three dissertation types). The two hybrid-versions identified by Anderson et al.'s (2020) recent research share, at the macrostructural level, organizational patterns of two of the four central dissertation types, traditional-simple and topic-based. They differ, however, in that they contain sections or entire chapters that were previously published (and possibly co-authored) prior to the completion of the dissertation. This move towards including previously published work as well as co-authorship within the dissertation served as one of the catalysts for the present study, as discussed below.

4. Results

The first central finding that emerged from this study reaffirms our earlier results (Anderson et al., 2020) showing that the traditional-simple format was the most common form of education-based doctoral dissertation over an extended period in this Canadian setting. In the current data set, 72% of the 1,254 dissertations fit into this traditional-simple category – meaning they were organized according to variations around the basic IMRD structure, with each section comprising a stand-alone dissertation chapter (or chapters, in some cases). 14% were topic-based, organized around topics instead of an IMRD structure, and 8.5% were manuscript-style, a dissertation comprised of stand-alone manuscripts, which are typically either published or publishable journal articles. The next two (hybrid) categories, simple-manuscript and topic-manuscript, comprised 3% and 2% respectively of total amounts, and traditional-complex was least represented with under 1% (see Figure 2).

Anderson et al.'s (2020) previous study, which analyzed the education-based dissertation macrostructures over a 10-year period from five major Canadian research universities, found that (surprisingly, in terms of its similarity) 72% of the 1,373 dissertations analyzed in that study were traditional simple, 13% were manuscript-style, and 10% were topic-based. Again, the remaining hybrid categories and traditional-complex were the least represented in this corpus. The results from this previous study were illuminating but also left many unanswered questions. It was illuminating to now have a large set of data to document dissertation trends in education-based doctorates. What remained unanswered, however – and unable to be answered based on the limitations of the previous corpus (covering only a 10-year span) – was if the occurrence of certain dissertation macrostructures had changed over the course of time, if authorship practices were linked to certain dissertation styles, and if these authorship practices were also changing over time.

Figures 3 and 4 present the core of these findings from our current study, illustrating which types of (and how many) doctoral dissertations were produced each year between 1966 and 2018 (Figure 3), and how many were single vs. co-authored (Figure 4). An average of 24 doctoral dissertations per year were produced at this university in the Faculty of Education, with a notable uptick from the late 1990s onward – a finding which relates to the growth in doctoral studies more generally in Canada (Statistics Canada, 2020). The traditional-simple macrostructure was most common by a considerable margin until the mid to late 1990s. Topic-based dissertations also showed some prominence from early on. The very first education-based doctoral dissertation available at this university was in the topic-based format in 1966. In the 1990s, the topic-based format then became more common, as did (to a smaller degree) the manuscript-style dissertation, the first which appeared in 1999. By the mid-2000s, manuscript-style dissertations then replaced topic-based dissertations as the second most common format, and a broader range of dissertation types emerged in popularity from that point forward. By 2018, the traditional-simple macrostructure as a proportion of total dissertations written at this university fell in popularity by a considerable amount, and "alternative" dissertation structures came to comprise almost half of all education PhD dissertations produced. From the mid 2010s onward, the manuscript-style dissertation became more common, and hybrid versions that included published sections or entire chapters (yet which still followed a traditional-simple or topic-based basic structure) also became

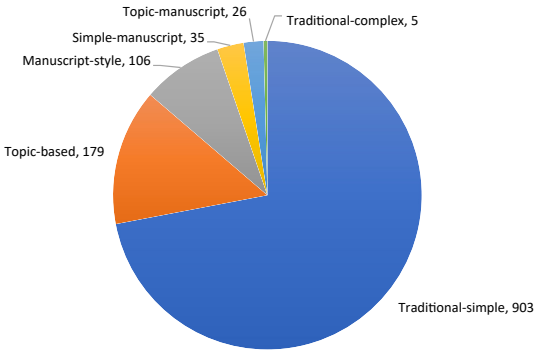

Figure 2. Dissertation macrostructures, 1966–2018

increasingly widespread. We suggest this provides compelling evidence of dissertation change over time and movements away from traditional or standard approaches to dissertation writing, specifically the traditional-simple IMRD macrostructure, within this corpus. In the following paragraphs, we also note another interesting development: the growing occurrence of co-authorship in the dissertation text.

As further described in Figure 5, co-authorship in the dissertation was found within the following macrostructures: manuscript-style, simple-manuscript, and topic-manuscript, with the majority (73%) falling within the manuscript-style category. Of the 113 dissertations that listed co-authors, 92 included the student's primary supervisor as one of those co-authors, and five listed a committee member (but not the supervisor). Sixteen of the dissertations with co-authored sections did not include the supervisor or committee members in the co-authorship statements. No co-authorship

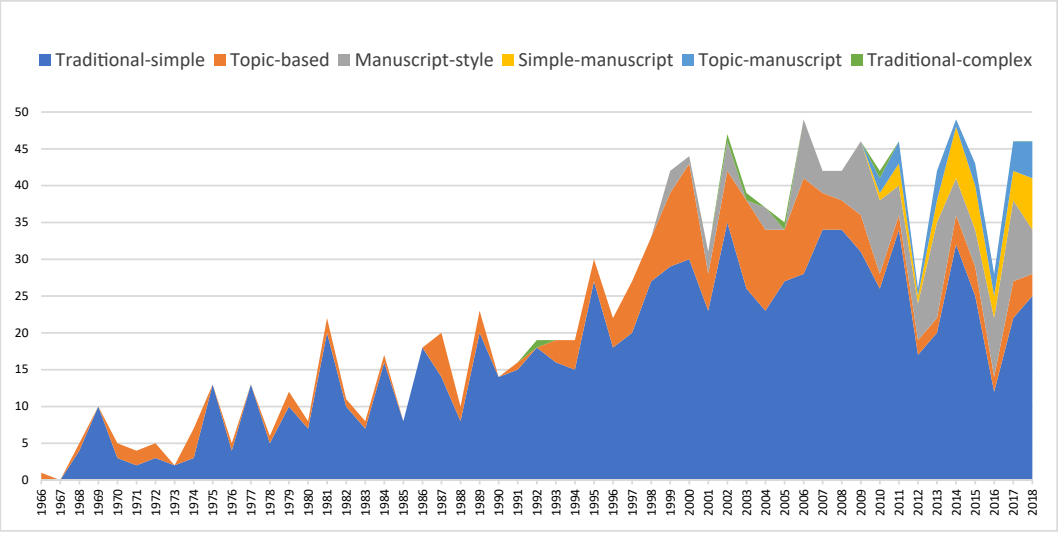

Figure 3. Temporal change in dissertation macrostructures.

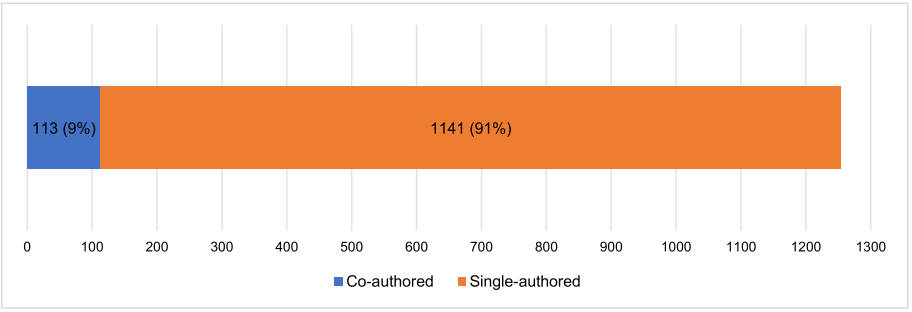

Figure 4. Dissertation authorship practices.

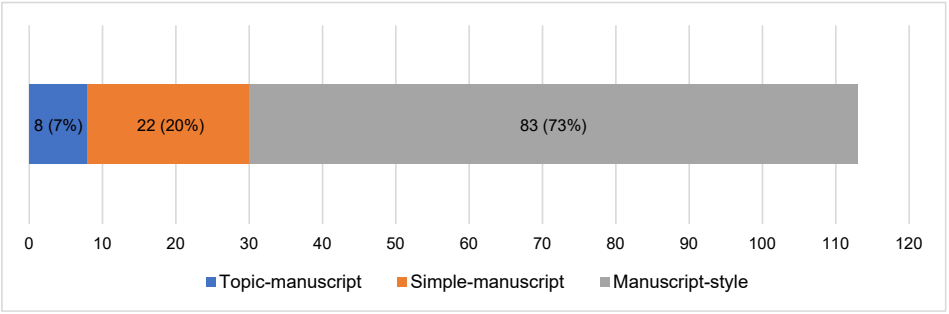

Figure 5. Dissertation co-authorship by macrostructure.

occurred in the two most common formats of dissertations in this study, traditional-simple and topic-based. In other words, co-authorship was only listed when sections or chapters of the dissertation text had been externally published prior to submission of the dissertation (as seen in manuscript-style, simple-manuscript, and topic-manuscript), or if the chapters were explicitly structured as publishable journal articles with the presumed intent of being published (manuscript-style). No co-authorship statements or evidence of co-authorship were listed on any traditional-simple or topic-based dissertations across the corpus. We believe this could indicate a variety of possibilities. First, that there exists a stark divide between those dissertations that list co-authorship and those that do not in terms of how much others (particularly the supervisor) assisted with the design, analysis, and editing/writing of the study. This seems unlikely on a broad scale. Second, disciplinary genre practices markedly influence the listing of co-authorship on dissertation texts that have not yet been published. There is a strong expectation, or even a pervading academic culture, for doctoral writers to demonstrate independence and agency during their academic programs and the various stages of completing their dissertation (Gardner, 2008). Making visible the co- or multi-authored nature of a dissertation text that has not yet been published might therefore be viewed as taboo; a demonstration that the student lacked sufficient independence and/or an indication of the inadequacy or failure of supervision. Listing co-authors on work that has already been published not only addresses university protocols, but allows student authors (and their supervisory teams) to align with the disciplinary practices of co-authorship and collaboration in academic publishing more generally, especially as these intersect with the doctoral dissertation. Although the issue of co-authorship itself can be complex, and who gets added as a co-author on published work can be fraught with complications, the listing – or not – of co-authors on dissertation texts adds a new and intriguing layer to this broader discussion.

Co-authorship in dissertation practices was a relatively recent phenomenon at this university. The first co-authored dissertations appeared in 1999, as detailed in Figure 6, and were uniquely manuscript-style until 2010, the macrostructure that comprised the majority of co-authored dissertation work (as shown in Figure 5). Since then, there has been a steady increase in the number of dissertations that contain co-authored sections. As noted, there were no co-authored traditional-simple or topic-based dissertations in our data set, nor in Anderson et al. (2021) previous study that investigated dissertation practices, including authorship, across five major Canadian universities.

5. Discussion and conclusion

This study aimed to address whether or not dissertation practices have changed over time. We were fortunate to have access to an online public repository that made searching and downloading the dissertation texts manageable, and one that had digitized previous (paper-based) dissertations from the earliest education doctorates onward, which made this study possible. The central findings are two-fold. Within the context of this study and the university investigated, dissertation macrostructures have demonstrated substantial change over this 52-year period. From 1966 until 1992, two macrostructures were used exclusively (topic-based and traditional simple) with traditional-simple dominating in terms of popularity: 88% of all dissertations up to this point were in the traditional-simple format. The first manuscript-style dissertation appeared in 1999 and the first hybrid varieties in 2010. By 2016, the “alternative” dissertation structures (i.e., manuscript-style and the two hybrid categories) combined had caught up to traditional-simple dissertations in popularity; a trend which continued until 2018, the final year of data collection.

Being able to gauge change over a relatively long period of time also allowed us to chart the emergence of co-authorship within the dissertation text, or at least the emergence of making these practices explicit and public in a distinct section of the dissertation. This in itself suggests interesting transformations in dissertation practices and the relationship between

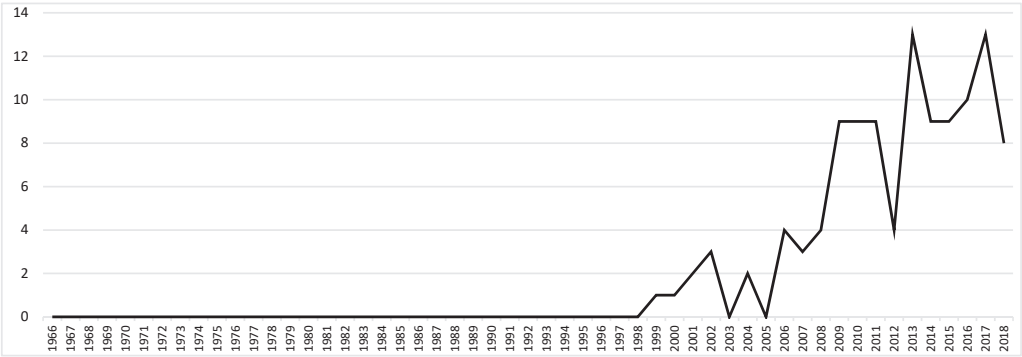

Figure 6. Dissertation co-authorship practices over time.

macrostructure and co-authorship visibility and acceptance. The first recorded instance of co-authorship was documented on a dissertation completed in 1999. In the final six years of data collection, between 2013 and 2018, co-authorship in dissertations averaged 10 annually out of 42 dissertations produced each year. In other words, almost 25% of education dissertations listed co-authors during the most recent six years of data. This rise in co-authorship also mirrors the rise in alternative dissertation structures at this university, suggesting a relationship between genre decisions of the dissertation text and the use of visible collaborative practices within that text. Figure 7 documents this relationship. In this case, we have omitted the original (and most prominent) dissertation macrostructures of traditional-simple and topic-based, and have only included the three "alternative" macrostructures – manuscript-style, simple-manuscript, and topic-manuscript – where co-authorship occurred.

An issue that became increasingly apparent over the course of this study was the impact of institutional forces on the ability to use certain dissertation macrostructures and collaborative authorship practices. According to the university's Faculty of Graduate Studies (Personal Communication, Aug 16/18, 2020), co-authorship statements as a separate section in the dissertation preface became officially required in 2005, but institutional policies were the same prior to this point; meaning, co-authorship was allowed (and encouraged to be listed), but this was not rigidly enforced by the Faculty of Graduate Studies. Similar institutional policies likely impacted the types of dissertation macrostructure students were able to use. Again, however, this is a somewhat convoluted issue. In 2010, official policies were implemented at the university allowing students and supervisors increased flexibility regarding their dissertation decisions, beyond the traditional IMRD or manuscript-style structure (Personal Communication, Aug 16/18, 2020). Key interior elements were then explicitly required for all dissertations at the university, including a title page, abstract, table of contents, and so forth. The main document was also mandated to contain an introduction of some kind, interior research chapters, and a conclusion. Beyond that, decisions about the precise structure of the dissertation were left to the student and the supervising committee.

The impact these institutional policies had on dissertation decisions is difficult to unpack. As seen in Figure 3, dissertation macrostructures were already growing in diversity prior to 2010, but this change in official policy appears to have encouraged additional change in dissertation formats following that point, particularly regarding the intersection of co-authorship practices and certain macrostructures. In this Faculty of Education, diversity already existed before 2010 in the form of the topic-based dissertation. As noted, the very first available dissertation in this faculty was in the topic-based macrostructure, and for decades this remained the second most common dissertation type. The growing prevalence of co-authorship can also be partly explained by post-2005 policies that mandated a dedicated section in the preface, but as shown in Figure 6, instances of co-authorship preceded that point, and co-authorship has been relegated to a specific set of dissertation types: mainly, those containing sections that were already published prior to completion of the dissertation. We believe this indicates the influence of para-institutional disciplinary and genre influences that have shaped co-authorship practices at this university. In other words, co-authorship is practiced and recognized in certain instances but not others, including traditional-simple and topic-based dissertations, and these decisions and influences extend beyond the regular institutional forces and policies at this university.

This issue of co-authorship also evokes questions regarding academic integrity vis-à-vis publishing and possible honorary authorships and publication stacking. While supervisors (and committee members) no doubt contribute to students' academic trajectories, including their doctoral research, the notable difference in dissertation co-authorship practices raises

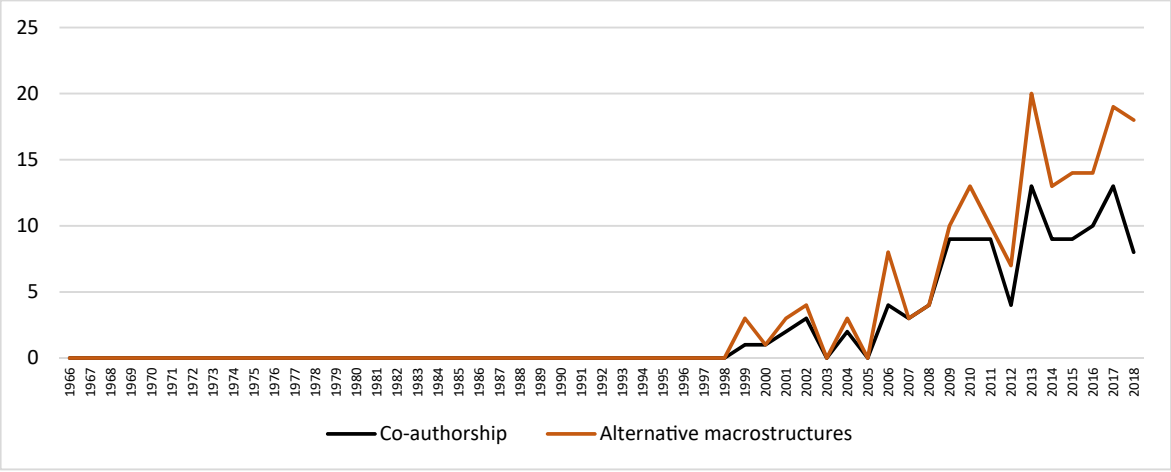

Figure 7. Relationship between dissertation co-authorship and alternative macrostructures.

questions about academic contributions and the problematic nature of the academic "gift economy" (Macfarlane, 2017). Lingering issues from this area of our findings remain unanswered, including the precise role of co-authorship in dissertations and whether this practice illustrates problems surrounding "authorship stacking" (including from lab or committee members who contribute little to nothing of the actual analysis or writing of the dissertation). Co-authorship is also limited only to dissertations that have previously published sections or manuscripts, and does not extend to those dissertations that are not yet published. The authors of this study wonder if there would be push-back (institutionally) if collaborators were listed as co-authors on dissertations that were not published prior to completion. Although this research did not track down publications that may or may not have occurred from students' research following submission of their dissertations, this would also contribute to a more thorough understanding of the relationship between dissertations, authorship, and publication practices.

There are a range of additional topics this study has uncovered for the authors, and we hope others carry on this research agenda to explore areas in need of further exploration. Notably, we wonder what similar studies in other academic disciplines would reveal in terms of macrostructural change over time and whether co-authorship practices differ and to what degree. Paltridge and Starfield (2020) have recently addressed some of these issues, finding quite substantial changes between some of the earliest and more current science-based dissertations analyzed in their study. What remains unexplored, however, is when precisely such change began to be enacted and what this might signal for future change. Specifically with respect to co-authorship, more research is needed about the perceived benefits or drawbacks of having co-authors on students' dissertation work, and what the precise role co-authorship has in provoking genre change in the dissertation. Although beyond the scope of this project, a related area of concern in many universities involves students' use of private editors, and the line that exists between acceptable and unacceptable editing practices, including in the dissertation text. Harwood's (2019) study of nine UK university proof-readers, for example, found considerable discrepancy between the types of intervention they provided to students, with some extending beyond the bounds of ethical editing practices. Perceptions of this ethical line between acceptable editing and *too much* editing may explain movement towards increased collaboration and co-authorship acknowledgements in some of the dissertations in this present study; however, the lack of co-authorship in unpublished dissertations stands in contrast to this change. A scan of the literature also reveals very little research has been conducted in the area of students' uses of translators, either for data within the dissertation or translating the entire dissertation text, and whether these translators should be included as co-authors as well.

There is also evidence suggesting the humanities and arts-based disciplines have been genre pushing the dissertation for some time (Paltridge, Starfield, Ravelli, & Nicholson, 2012; Paré, 2017; Starfield & Ravelli, 2006), but whether similar macrostructural change has been occurring in a broad range of STEM fields is ripe for further investigation; and if change has not occurred as extensively in other disciplines, why? The doctorate itself, in some STEM areas, is markedly different from others in the social sciences and humanities, with the former involving lab based collaborations, including in the doctoral text itself, and the latter being more individually driven, with students often deciding their own topics, designing the study, collecting their own data, doing their own analysis, and authoring the text on their own in its entirety. Education, being multidisciplinary by design, could be an ideal melting point between STEM, the social sciences, and the humanities and this is perhaps reflected in dissertation practices and the dissertation text itself, as evidenced by the results of this study, and the growing diversity in macrostructure types and co-authorship practices. In sum, more study is needed, both in education fields and across other disciplines.

Although additional research of education-based dissertation macrostructures and co-authorship practices is needed to make any kind of generalizing claims, we feel this present study suggests that dissertation practices are likely changing and that this change is important for writers, readers, and the academy at large. The findings from this study, and others (e.g., Anderson & Okuda, 2019; Anderson et al., 2020; Anderson et al., 2021; Paltridge & Starfield, 2020), will hopefully serve to better inform genre-based EAP courses regarding the types of theses and dissertations actually being written and how this "fuzzy genre" (Belcher & Hirvela, 2005) is being enacted across time and space. These findings can also inform elements of doctoral pedagogy, especially for doctoral students early in their programs, regarding the historical trajectory of dissertation practices, including the structures that are possible to use and/or the possibility of collaboration and co-authorship within their own dissertations. The central goal of this study was ultimately descriptive: to illuminate the types and changes of dissertation practices that are occurring at a high-ranked global R1 university; however, we also hope this signals the greater potential for dissertation writing moving forward: what is possible to meet the needs of students and their communities, to help students enact agency in their doctoral research, and to represent knowledge in diverse and creative ways.

Appendix 1. Genre-based approaches to theses and dissertations

Date	Author	Source	Focus	Corpus
1986	Dudley-Evans	Genre Analysis: An Investigation of the Introduction and Discussion Sections of MSc Dissertations (Chapter)	Rhetorical structure of introductions and conclusions in masters' theses	7 MSc theses
1999	Bunton	English for Specific Purposes	The use of metatext in PhD dissertations	13 PhD dissertations from the faculties of Science, Engineering, Arts, Education, and Social Sciences
2004	Hyland	English for Specific Purposes	The structure of dissertation acknowledgment sections	20 MA theses and 20 PhD dissertations in Electronic Engineering, Computer Science, Business Studies, Biology, Applied Linguistics, and Public Administration
2005	Bunton	Journal of English for Academic Purposes	Rhetorical structure of conclusion chapters	45 PhD dissertations in the faculties of Arts, Education, Social Sciences, Architecture, Engineering, Science, Medicine, Dental, Business, and the Centre for Urban Planning & Environmental Management
2005	Thompson	Journal of English for Academic Purposes	Citation practices and intertextual reference in PhD dissertations	8 PhD dissertations in Agricultural Botany
2006	Kwan	English for Specific Purposes	Rhetorical structure of literature reviews	20 PhD dissertations in Applied Linguistics
2008	Samraj	Journal of English for Academic Purposes	Rhetorical structure of introductions	24 masters' theses in Philosophy, Biology, and Linguistics
2009	Basturkmen	Journal of English for Academic Purposes	Rhetorical move analysis of results sections comparing masters' theses and journal articles.	10 masters' theses and 10 journal articles in Applied Linguistics
2009	Flowerdew & Forest	Schematic Structure and Lexico-Grammatical Realization in Corpus-Based Genre Analysis (Chapter)	Corpus-based genre analysis of the use of "research" in PhD dissertation literature reviews	20 PhD dissertations in Applied Linguistics
2009	Thompson	Academic Evaluation (book)	Corpus-based analysis of use of nouns in PhD dissertation literature reviews	24 dissertations in Agricultural Botany, Agricultural Economics, Food Science and Technology, and Psychology
2011	Soler-Monreal, Carbonell-Olivares, & Gil-Salom	English for Specific Purposes	Comparison of rhetorical features in English and Spanish PhD dissertation introductions	10 English language and 10 Spanish language PhD dissertations in the fields of Computing
2014	Lee & Casal	System	A comparison of English L1 and Spanish L1 students use of metadiscourse in results and discussion chapters	100 English-language and 100 Spanish-language masters' theses in Engineering
2014	Lim	English for Specific Purposes	Language use in research questions	32 PhD and EdD dissertations in Applied Linguistics
2015	Chan	Journal of English for Academic Purposes	Expressions of authorial stance in acknowledgment sections of dissertation	256 PhD dissertations in Applied Linguistics, Business Studies, Public Administration, Biology, Computer Science, and Electronic Engineering
2015	Lim, Loi, Hashim, & Liu	Journal of English for Academic Purposes	Rhetorical structure of purpose statements	32 doctoral dissertations in Language Education
2016	Soler-Monreal	Ibérica	A move-step analysis of concluding chapters	48 PhD theses in computer science
2018	Bordet	Intercultural Perspectives on Research Writing (Chapter)	Comparison of convincing PhD dissertation abstracts	400 PhD dissertation abstracts: 200 in Anthropology and 200 in Astrophysics
2018	El-Dakhs	Journal of English for Academic Purposes	Comparison of genre features of abstracts in PhD dissertations and journal articles	200 abstracts of PhD dissertations and 200 abstracts of research articles in Applied Linguistics
2018	Kawase	Journal of English for Academic Purposes	Rhetorical structure of introduction sections	20 PhD dissertations in Applied Linguistics
2018	Mehrjooseresht & Ahmad	Asserting Research Status, Values and Relevance in Thesis Abstracts of Science and Engineering (Chapter)	Differences in rhetorical and linguistic features in graduate-level thesis abstracts	455 masters and 411 doctoral theses abstracts in the sciences and engineering
2019	Can & Cangır	Journal of English for Academic Purposes	The use of self-mention markers in doctoral dissertations	100 PhD dissertations in Literary Studies

(*continued*)

Date	Author	Source	Focus	Corpus
2019	Lu & Deng	Journal of English for Academic Purposes	Comparative analysis of lexical bundles in abstracts	13,596 abstracts of English language doctoral dissertations from Tsinghua University (China); 4,755 abstracts of doctoral dissertations from MIT (USA)

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