Designing a Framework for an Online Collaborative Grant Writing Course in

International Development: A Review of the Literature and Grant Writing Resources

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The Project Paper was approved on August 12, 2022 by the following review committee:

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The above review committee determined that the Project Paper is acceptable in form and content and that a satisfactory knowledge of the field was covered by the work submitted. A copy of the Certificate of Approval is available from the School of Graduate and Postdoctoral Studies.

Abstract

The purpose of this study was to review the literature and to develop a comprehensive framework for designing an online collaborative grant writing course for professionals in international development. A systematic approach was used to search for peer-reviewed journal articles between 2012 and 2022, and 30 articles met the full inclusion criteria and were selected for review. The articles were reviewed and synthesized. Next, a framework for developing an online collaborative course was proposed. Major themes identified were community in online writing and learning, learning theories in online collaborative writing, culture in online collaborative writing, instructional design in online collaborative writing, and integrating digital tools. The findings of this study suggest a four-dimensional approach to developing an online collaborative grant writing course that includes cognitive, instructional design, and social and technological considerations.

Keywords: collaborative writing; collaborative learning; grant writing; instructional design; online learning.

Author's Declaration

I hereby declare that this project consists of original work of which I have authored. This is a true copy of the work, including any required final revisions, as accepted by my committee.

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Beverley D. Rodrigues

Dedication

I dedicate this research project to my mother, Mrs. Hyacinth Rutherford, mother of ten children, who taught me that all things are possible when you have faith.

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I am blessed to have the opportunity to experience learning in the digital age. I want to thank the Ontario Tech University community for welcoming me into an environment where learning is rich, inspiring, and relevant.

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Contents

Tables

Figures

Abbreviations and Symbols

ADDIE   Analysis, Design, Development, Implementation and Evaluation

CO   Cognitive Orientation

CSO   Civil Society Organization

OCL   Online Collaborative Learning

OCW   Online Collaborative Writing

PRISMA   Preferred Reporting Items for Systematic Reviews and Meta – Analysis

SEPA   Social Entrepreneurship for Poverty Alleviation

SMLA   Social Media Learning Activity

SSHRC   Social Sciences and Humanities Research Council

ZPD   Zone of Proximal Development

Designing a Framework for an Online Collaborative Grant Writing Course in

International Development: A Review of the Literature and Grant Writing Resources

There is a pressing need for researchers and professionals working in international development to acquire good grant writing skills to propel planned projects (Despard et al., 2018; McAlpine, 2020). In an ever-evolving competitive funding environment, grant seekers need to learn to negotiate grant proposals, research, and funding systems to remain competitive and obtain grants (Cunningham. 2020; McAlpine, 2020). In addition, grant seekers ought to maintain their motivational levels despite a competitive grant environment for grant funding (McAlpine, 2020).

The depths of the competitive nature of securing funding for professionals is described as a daunting process (McGinn et al., 2019; Walsh, 2013). In Canada, researchers in academic institutions expressed the personal toll of grant writing experienced by social scientists seeking funding for research from the Social Sciences and Humanities Research Council, SSHRC (McGinn et al. 2019). They also outline the complexity, detail-oriented, and time-consuming events experienced. Further, researchers' efforts to obtain funding that can provide opportunities for training student researchers encountered roadblocks in a complicated funding environment (McGinn et al., 2019).

The chances of completing a competitive grant application are further compounded by the lack of formal opportunities for grant writing training for student researchers (McGinn et al., 2019; Walsh, 2013). In the United States, for example, while grant writing and securing external funding is viewed as a professional success in many tertiary institutions, few offer training in grant writing (Walsh, 2013). The question posed, therefore, is how to approach grant writing to address the training needs of grant-seeking professionals?

What is Grant Writing

Grant proposal writing is described as a collaborative process in which teams with common goals, motivation and values come together to prepare a technical document that responds to a funder's questions (Dopke & Crawley, 2013; Nelson & Ruffalo, 2017). Grant writing is a complex art of communicating a problem to a potential funder and expertly proposing solutions to the identified problem (Dopke & Crawley, 2013; Nelson & Ruffalo, 2017). The process of grant writing is a complex undertaking with each step of grant writing critical to the collective impact of the final (Walsh, 2013).

The craft of grant proposal writing has unique characteristics such as decisions on project design, project activities, evaluation methods and how to approach social and economic issues, all of which require negotiation, discussions, and consensus (Dopke & Crawley, 2013; Nelson & Ruffalo, 2017). Adopting a collaborative approach to grant proposal writing can increase grant writers' efficacy, with careful planning and strategies that will encourage collaboration (Dopke & Crawley, 2013). In a similar way, grant proposal writing in an online environment requires the use of appropriate instructional and facilitating strategies such as grouping, setting clear expectations, and assessing participants' views on engagements that can result in active engagement in an online environment (Niess & Gillow-Wiles, 2013).

International development – Terminology and Definitions

International development is the conscious effort of all nations to build a better world by eliminating poverty, discrimination, and injustice (Salvation Army, 2022). A common framework for understanding international development is the 2030 sustainable development plan adopted in September 2015 by world leaders including Canada. The 2030 sustainable development agenda is a global call for peace, prosperity and partnership amongst all nations to

reduce poverty and inequality. Further, the 2030 sustainable development agenda outlines 17 development goals and integrates social, economic, and environmental dimensions of sustainable development and peace, governance, and justice elements (Government of Canada, 2022).

In academia, international development is considered multidisciplinary and cuts across several disciplines including Geography, Political Science, Anthropology, Environmental Science, Agriculture, Economics, Education and Health. The field of international development includes the analysis of how countries participating in development address the 2030 sustainable development agenda (Open University, 2022).

Global North and Global South

In international development, the terminology North – South was introduced in the 1990s from a historical pattern of names that categorized countries based on wealth, privilege, geographical location, and economic status (Dados & Connell, 2012). The term Global South refers to regions in Latin America, Asia, Africa and Oceania and the term Global North refers to countries that are considered to have high economic status and high levels of development. Countries in the Global North are typically those located in North America and Europe (Dados & Connell, 2012). These categorizations have brought about much controversy amongst academics but those controversies are beyond the scope of this project.

Civil Society Organizations (CSOs). These include a wide range of non-governmental, non profit and community groups which perform and provide a variety of activities and services including research, making recommendations to government policy, activism on human rights and matters of economic and social development (United Nations, n.d.).

Donors. In international development, donors include governments, international donor agencies, the private sector, foundations, and individual philanthropists. They provide funding to

governments, third-party funders and CSOs with mandates that target economic development and the welfare of citizens in the Global South. Donors operate within similar grant-making frameworks that require organizations seeking funding to share their philanthropic values and demonstrate their capabilities to undertake proposed projects (Cathexis, 2019; *Inter-Council Network*, n.d.; UN Women Fund for Gender Equality, 2015).

Grant Writing in International Development

According to the Organization for Economic Cooperation and Development (OECD), civil society organizations (CSOs) are vital to reducing poverty and play an essential role in protecting the democratic rights of people globally (Civil society engagement in development cooperation, n.d.). Many CSOs rely on donor funding to carry out their operations, and their role in society is a compelling reason for donors to support and leverage their capabilities, impact, and knowledge (Civil society engagement in development cooperation, n.d.).

Grant proposal writing is a means to an end to supporting civil society organizations to acquire resources to maintain their role as development actors. Funders are endorsing collaborative approaches to grant-making and seeking ways to improve the capacities of professionals in international development (Cathexis, 2019). These include building the research capacities of emerging leaders in organizations located in the Global North and the Global South by assigning them to perform leadership roles in funded research activities (Cathexis, 2019). Such leaders include postgraduate students and early career researchers (Cathexis, 2019). From a grantee perspective, CSOs seek ways to build their capacity and are also pivoting to adopting digital strategies such as training and education (Cathexis, 2019; *Inter-Council Network*, n.d.; UN Women Fund for Gender Equality, 2015).

CSOs in the Global North and the Global South have prioritized the need for enhancing their grant writing capacities, either by leveraging the skills of experienced grant writers or through training (Despard et al., 2018; *Inter-Council Network*, n.d.). A study to assess the impact of the COVID 19 Pandemic on Small and Medium-Sized civil society organizations in Canada revealed that working in partnerships and mobilizing financial resources as a key priority of the 128 organizations surveyed (*Inter-Council Network*, n.d.). Another study that investigated capacity building needs of 282 civil society organizations in Ghana, Kenya and Nigeria, revealed approximately half of the surveyed organizations identified fundraising and grant writing needs as key priorities (Despard et al., 2018).

While educating grant-seeking professionals on funders' requirements is crucial to improving researchers' grant writing skills, training ought to address the complexity of funders' requirements (Cunningham, 2020; Mc Ginn et al.,2019; Walsh, 2013). Evaluation reports suggest that access to funding for international development is highly competitive and complex (Cathexis, 2019; *Inter-Council Network*, n.d.; UN Women Fund for Gender Equality, 2015). Therefore, a good understanding of the funders' philosophies, and the applicant's capacity to meet the funders' eligibility criteria, are factors that determine a successful grant application (Cunningham, 2020; Dopke & Crawley, 2013).

The grant writer should understand what the funders are looking for (Cunningham, 2020; Dopke & Crawley, 2013). Failure to communicate understanding of what funders are looking for can result in a rejected grant proposal application. But do researchers and professionals know what funders are looking for? Cunningham (2020) discussed the development of grant writing skills in higher education institutions in the United States and claimed that untrained grant writers engage in "trial and error" and are not always aware of the funders' expectations. Some

examples for rejected include, not meeting the criteria set out by the funder, not following

application guidelines, and not responding in full to questions asked by the funder.

The Funding Landscape and Grant Writing Learning Resources

To better understand the information provided by funders for international development, I

conducted an environment scan of educational resources on the websites of 24 funders. Of the 24

websites scanned, 11 (45%) were government agencies at the federal and provincial levels; nine

funders (37%) were Canadian federal or provincial agencies, and 2 (8%) were United States

federal and multi-country funded agencies.

The eligibility criteria for applicants varied, including Canadian communities, non-profit

organizations based locally or internationally, research professionals, public and private

enterprises, and higher educational institutions. The focus area for funding also varied including

STEM research, trade promotion, science and engineering, global health, education and

democratic governance. The geographic focus for eligible projects was global including Canada,

the United States and Mexico.

The forms of educational resources provided by funders included text, video, and audio.

All 24 websites provided guidance to potential grantees in text. In comparison, only 12 funders

(50%) provided funding guidance with the use of videos and 6 (25%) of funders reviewed used a

combination of text and audio or text only in their funding guidelines, see Appendix A. Despite

the predominance of educational resources in the text, I observed that the instructions in this

format were lengthy and onerous. Further, a review of the Government of "Canada's webpage

"Funding Guidance" (Government of Canada, n.d.) revealed funding guidance in the text along

with 17 hyperlinks to pages that are wordy and contain numerous hyperlinks. This example

confirms the complexity of the funding landscape as purported by researchers who have studied

various aspects of the grant writing process (Cunningham, 2020; Mc Ginn et al., 2019; Walsh, 2013).

Some Background Studies

I located four studies that focused on grant writing and writing in online collaborative environments (Dopke & Crawley, 2013; Espino, 2018; Kumi-Yeboah, 2018; Zydney et al. 2012). Each of these is discussed below.

The first study assessed the influence of online protocols in asynchronous learning environments. Zydney et al. (2012) used the findings of previous research, which state that the use of protocols in face-to-face environments fostered a conducive learning environment to explore the effects of protocols when applied in asynchronous learning environments. In this quasi-experimental study, Zydney et al. (2012) firstly developed clear guidelines for students, then tested the effectiveness of the protocols on two groups by assigning the rules only to one group. The study participants were graduate science and technology students who took classes entirely online. Fourteen students participated in the first group to which protocols were given, and 12 students participated in the second group. Zydney et al. (2012) used the Community of Inquiry (COI) coding model developed by Garrison, Anderson and Archer (2000), to assess participants' perceptions as it relates to their cognitive, social and teaching presence during the learning experience.

Results of the study showed that the class with protocol exuded more shared group work and cognition. Structure in group activities kept discussions livelier and more. Students provided more cohesive and coordinated responses in the group with protocols when compared with the group with no guidance. There was no notable distinction in social presence between the two classes (Zydney et al., 2012).

In the second study, Dopke and Crawley (2013) examined the strategies for effective collaborative grant writing. This qualitative study emphasized understanding group tasks in a grant writing environment based on Fisher's (1970) theory of small group decision making. The study participants were seven grant writing professionals with at least three years of grant writing experience and who previously participated in collaborative grant writing (Dopke & Crawley, 2013).

The results revealed that best practices to promote learning and reaching common goals include establishing group expectations and communication strategies, prior planning for group participation, tracking achievement, providing continuous feedback on group progress, creating opportunities for participant and facilitator cultural awareness building and setting debriefing strategies (Dopke & Crawley, 2013). Although this inquiry took place in a face-to-face environment, the results of the study concur with the viewpoints of Zydney, et al. (2012) who claim that establishing group protocols result in increased group motivation and contributes to positives outcomes in a learning environment.

Espino (2018) conducted the third study which examined the best practices used by facilitators of online global collaborations in education. The research questions posed in this study specifically addressed the challenges teachers and facilitators encounter when facilitating online collaborations in education. Espino used a qualitative research method by applying a phenomenological approach to collect data that assessed the experiences of 14 (n = 14) participants affiliated with the International Society for Technology in Education (ISTE) and were award receipts and conference facilitators from 2014 to 2017. In the study, Espino affirmed, that the outcomes of collaborative learning are group-oriented products which differ from cooperative learning in which tasks are divided among individuals in a group. Further, the

inclusion of computers and other technological devices such as Web 2.0 platforms including wikis, blogs and video conferencing in the learning environment supports the online collaborative learning process.

According to Espino (2018), the results of the study revealed significant challenges when facilitating global collaboration in education. Eleven (79%) of the participants in this study cited unequal expectations and levels of commitment as a major challenge; 10 participants (71%) reported that the geographical locations of participants and different time zones also challenged the planned collaborative initiatives. Eight participants (57%) reported varying work and school commitments and technological problems negatively impacted workflow. On the other hand, all 14 of the participants who submitted responses felt that attention to technological considerations is the primary strategy to foster effective collaboration. Despite the challenges highlighted, there is need for global collaborative initiatives in education (Espino, 2018).

In the fourth study, Kumi-Yeboah (2018) investigated the instructional strategies that promote cross-cultural collaboration online. Study participants were 40 online instructors from a US-based post-secondary institution of varying nationalities and cultural backgrounds and taught in several disciplines, including Education, Social Sciences, Science and Health. The study adopted a grounded theory design which allowed for a focus on the values and perceptions of participants in the research process and provided the opportunity for future research.

The results of the study revealed two major themes, first, instructional strategies that promote positive cross-cultural collaboration online and second, the challenges encountered by instructors (Kuma-Yeboah, 2018). Under the first theme, Kuma-Yeboah (2018) found that group work, using global examples and applying international content to the curriculum helped support online cross-cultural collaboration. Under the second theme, the study revealed that cultural

awareness created through self-introductions helped to increase student motivation and cohesion when undertaking group activities. However, the study also revealed that facilitating online collaboration is not void of challenges arising from the online nature of the learning environment, as study participants reported hesitance on the part of the instructors to form groups (Kuma-Yeboah, 2018). Summarizing the study's results, Kuma-Yeboah (2018) concluded that limited professional training in cultural awareness impedes the ability of instructors to plan and facilitate tasks such as group work. Kuma-Yeboah (2018) recommended that key instructional strategies should be activities that motivate students and readiness on the part of instructors to answer questions posed by students during group work activities.

The review of the existing studies disclosed tangible insights into collaborative writing approaches. However, they have not assessed grant writing in an online collaborative environment amongst a diverse group of international development professionals. The studies have not also proposed a framework for online collaborative grant writing in international development. Therefore, the proposed inquiry will extend on the findings of the above studies and address this research gap.

Research Goals and Questions

Purpose. The purpose of the study was to review the literature and to develop a comprehensive framework for designing an online collaborative grant writing course for professionals in international development.

The proposed outcome of the study. Key components of a framework for developing an online collaborative grant writing course in international development.

Research Questions. The three research questions are:

1. What instructional design strategies should be considered when designing an online collaborative grant writing course in international development?

2. How best to integrate grant writing resources when designing a framework for an online collaborative grant writing course in international development?

3. What are the challenges and opportunities when designing an online collaborative writing course for a global audience?

Theoretical Framework

Constructivist theories guide this study since the intended outcome is to design a framework for grant writing in an online collaborative environment. According to Canipe (2016), there are two threads to constructivism. The first is cognitive constructivism, purported by the theorist Jean Piaget (1986 -1980), who viewed learning as an active process, and the individual makes sense and meaning to what is known and what is being taught (Canipe, 2016). The second concept of constructivism was purported by Lev Vygotsky (1896–1934), who emphasized the social and cultural aspects of learning (Canipe, 2016). In Vygotsky's social constructivist theory, the theorist encourages technology in the classroom and places the teacher as pivotal to providing learning opportunities for students (Canipe, 2016). Based on the two theories stated, an examination of the learning context, the technological affordances, culture, and the transnational nature of professionals in international development are vital aspects of this study. In addition, the multidisciplinary nature of international development ought to be considered in designing an online collaborative grant writing course for learners.

Method

Procedure

A systematic approach to the review of the literature was applied to identify peer-reviewed studies that emphasized the key concepts of collaborative writing, grant writing and instructional design. The protocol set out in the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Statement (PRISMA) was used as a guide.

Study Selection (Inclusion and Exclusion Criteria)

The researcher identified the inclusion and exclusion criteria based on the study purpose and the research questions of the current study.

Inclusion criteria. Only published articles related to the study purpose and research questions in peer-reviewed academic journals were included in the review. Articles were included in the search if they focused on instructional design, online collaborative writing, digital tools, articles with empirical evidence and based on post-secondary environments. Next, the timeframe of the published articles to ensure information was current, articles published between 2012 and 2022 were deemed appropriate.

Exclusion criteria. Conferences papers, book chapters, book reviews, reports in magazines and articles with no focus on online teaching and learning were excluded from the study to retain a high quality of peer-reviewed and published articles. Since the current study was not centred on teaching English, articles that discussed collaborative writing for English as a second language were excluded.

Search Strategy

The search was conducted using the Ontario Tech University Library in the following five databases: Education Source via EBSCO, ERIC via EBSCO, PsycARTICLES via APA, ProQuest Sociology via ProQuest and Academic Search Premier via EBSCO. To select a wide-ranging and relevant selection of articles, the researcher determined the keywords to be used in the search: instructional design; instructional systems design; writing; collaborative writing; grant writing; digital; online; technology; post-secondary and web based. With the help of a librarian, Boolean operators were added to these keywords and applied using the following search strings in each of the five databases stated.

- ("instructional design" OR "instructional systems design") AND writing AND (collaborative OR group OR team) AND ("higher education" OR "post-secondary" OR university OR college)

- "Collaborative writing" AND ("higher education" OR "post-secondary" OR university OR college) AND (digital OR online OR "web-based" OR technology)

- "Grant writing" AND ("higher education" OR "post-secondary" OR university OR college) AND (digital OR online OR "web-based" OR technology)

The first search resulted in 1,378 articles using the search strings stated above. Next, the titles and abstracts of the 1,378 articles were scanned, resulting in the selection of 204 articles. The researcher then uploaded the 204 articles to EndNote, removed duplicates using Endnote's automated function and administered a second screening resulting in 115 articles selected. Next, the researcher read the full text of the 115 articles and applied the inclusion and exclusion criteria to the selection process. The reasons for some articles not being selected focused on English

Language Learning, English as a Second Language collaborative writing, absence of empirical evidence in studies and no focus on online learning.

A total of 30 articles were determined to have met the full inclusion criteria and were selected for the review. The 30 selected articles for the study were uploaded onto an Excel Spreadsheet and I categorized them based on subject areas, themes, and sub-themes. A summary of the data collection results is presented in Figure 1.

Figure 1:

Data Collection Results
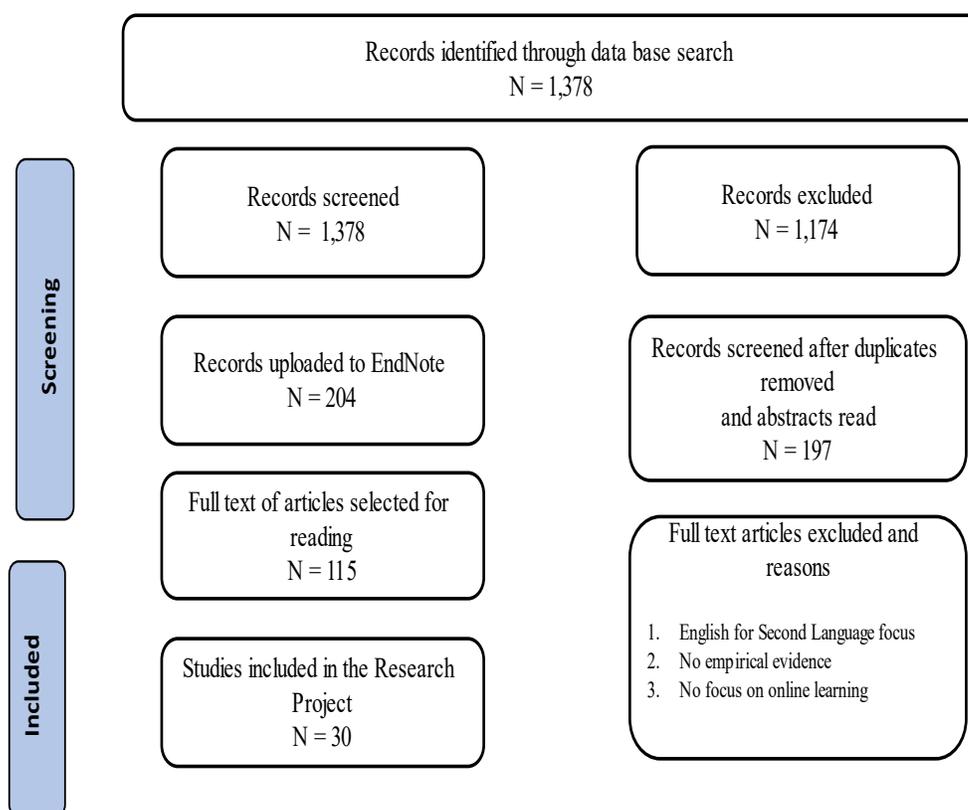
Note: This diagram was developed by the author to show the procedure used for data selection for this study.

Description of Studies

With regards to the methodological approach used in the selected studies, 15 studies (50%) used a mixed-method data collection approach (collecting both quantitative and qualitative data); 12 studies (40%) used qualitative or descriptive data and three studies (10%) quantitative data collection methods. The sample sizes in the studies ranged from 7 to 266 participants.

While the studies focused on online collaborative writing (n = 5, 17%); instructional design (n = 6, 20%); grant writing (n = 6, 20%); online teaching strategies (n = 6, 20%); student experiences and perceptions (n = 6, 20%); and intercultural education (n = 2, 7%), they were all administered in online and post-secondary environments with the analysis occurring in various subject areas. Ten studies (30%) were undertaken in multidisciplinary teaching and learning environments. (Science, Technical Communications and Translation; History and Tourism; STEM, Humanities and Business; Science, Technology, Engineering and Grant Writing; Science and Social Sciences; Educational Technology, History and Social Sciences). Eleven studies (37%) were conducted in the subject areas of Teacher Education and Psychology; 5 (17%) studies were conducted in the subject areas of Instructional Design and Course Design, and 2 (7%) in Nursing Education 1 studied each in the Research Methodology subject area and Business respectively.

The geographic location of the studies also varied with several countries represented in the selected articles. These countries included USA (n = 16), UK (n = 3), Greece (n = 1), Israel (n = 1), Norway (n = 2), Taiwan (n =1), Indonesia (n =1), New Zealand (n = 1), Australia (n =1), Multiple countries: China, UK, Germany, Switzerland, and Myanmar (n = 1).

Data Analysis

      To complete a detailed analysis of this study, all the 30 studies in this report were read and classified using an excel spreadsheet. The themes and subthemes were decided upon in two iterations. In the first iteration, the studies were classified into the following main themes; collaborative writing, intercultural education, grant writing, online teaching strategies, student experiences and perception, and instructional design. Further analysis of the critical elements and subthemes emerging to refine this classification resulted in the main themes: community in online learning, learning theories and online collaborative writing, culture in online collaborative learning and writing instructional design in online collaborative learning and writing. Figure 2 below shows the four most prevalent dimensions discussed in this study.

Figure 2: *Literature Review Analysis by Major Themes*

A flowchart titled "Literature Review" branching into major themes:

- **Literature Review** connects to:
  - **Community in Online Collaborative Learning**
    - **Online Collaborative Writing**
    - **Learning Theories and Online Collaborative Writing**
      - Constructivism
      - Social Constructivism
      - Cognitivism
      - Experiential Learning Theory
  - **Culture in Collaborative Learning and Writing**
  - **Instructional Design in Online Collaborative Learning and Writing**
    - **Instructional Design Models**
      - Social Constructivism
      - Social Constructivism
      - Social Constructivism
      - Social Constructivism
  - **Digital Tools in Online Collaborative Learning and Writing**
    - Google Docs
    - Wikis
    - Videos

Literature Review

This literature review provides the context of online collaborative writing and its application to the design of an online collaborative grant writing course in international development resulting from this study. The first section of this review focuses on community in online collaborative learning environments, learning theories and collaborative writing, culture in online collaborative learning and writing, instructional design in online collaborative learning and writing and digital tools in online collaborative learning and writing. The second section of this study proposes a new framework for designing an online collaborative grant writing course in international development.

Community in Online Collaborative Learning Environments

Online Collaborative Writing and Learning

In this section, I examine five studies that highlighted the processes of collaborative writing and learning in an online environment. The studies also focused on the perceptions of the study participants in relation to the online collaborative writing process from a group and individual perspective.

In the first study, Pittenger and Olson-Kellogg (2012) examined how collaborative writing in a wiki environment facilitates learning. To support the inquiry, the researchers used a redesigned pharmacotherapy course by integrating a wiki and Google Docs into the course, allowing students to work collaboratively online. In addition, the investigators used collaborative writing as a teaching strategy in the redesigned curriculum. The course assessment focused on the students' ability to communicate and respond to questions posed using hypertexts and texts on the wikis.

The study participants were 50 doctoral pharmacotherapy students enrolled in a three-year program at a midwestern university in the United States. During the study participants were divided into small groups of five and assigned group tasks.

Both qualitative and quantitative methods were used for data analysis. Qualitative analysis entailed an evaluation of students' reflections and responses from focused group discussions. Whereas, in the quantitative analysis, the researchers compared students' scores on assignments in the redesigned course with overall scores before the course redesign.

The study's results indicated that while most participants (87%) expressed positive views about the collaborative writing process, they also expressed concerns about the writing process. These concerns included an unequal contribution by group members and a lack of cooperation amongst group members when completing assignments. Despite these concerns, study participants (70%) were confident that the redesigned course provided a meaningful learning experience (Pittenger & Olson-Kellogg, 2012).

According to Pittenger & Olson-Kellogg (2012) the collaborative nature of the assignments helped students to develop professional identities, which would have been difficult to achieve when working individually. The researchers therefore concluded that leveraging technology in the redesigned course provided a supportive environment for students to learn from each other.

Mehlembacher et al. (2018) also studied the experiences of students to assess the effectiveness of the collaborative writing process when using cloud-based technologies. In the study, the researchers assessed two online courses that used cloud-based technology in the classroom and utilized qualitative methods to collect data. The study participants were

undergraduate students and were asked to work in small groups to produce a white paper on globalization in the sciences and to comment on their experiences during the writing process.

According to Mehlembacher et al. (2018), while the collaborative writing process resulted in documents produced by the assigned teams, the researchers found that the students reported multiple challenges that arose during the writing process. These challenges were summarized as leadership challenges under two themes, collaborating with the instructor and collaborating with peers. Regarding collaborating with the instructor, the study found that power dynamics between the instructor and students resulted in uneasiness on the part of the student. Further, students reported a lack of leadership and unclarity in assigned tasks amongst peers which led to students completing work in individual parts, before combining them as a whole document (Mehlembacher et al., 2018).

As a result of these challenges in the collaborative writing process, Mehlembacher et al. (2018) recommended that the technical functionality of the tools used must first be considered before implementing cloud-based technologies for collaborative writing. In addition, they concluded that the instructor should be open to viewing learners as technology users and the writing process's outcomes as an informed critique. The authors of this study also stressed the importance of helping students who may not be familiar with technology used prior to assigning writing tasks.

In the third study, Margaliot and Gorev (2020) highlighted the benefits and challenges of online collaborative learning (OCL). The study assessed tested the willingness of in-service teachers to use OCL as a teaching strategy after first experiencing a collaborative writing process. To conduct the study, a mixed-method approach utilizing survey data and open-ended questionnaires was applied and data regarding the experiences and perceptions of 266 in-service

teachers in the collaborative writing process were gathered. While participants' beliefs about individual and group roles resulted in a moderate level of perceptions, participants expressed difficulties in group functioning activities as they worked towards producing a collaborative product (Margaliot & Gorev, 2020). In addition, participants did not express strong opinions on setting collaborative writing as a goal in the future. Quantitative results showed that regarding one's belief about the suitability of OCL, students were moderate (a score of 70 on a scale of 1 to 100); views about the collaborative learning experience were also average (a score of 68 on a scale of 1 to 100). Study results regarding beliefs about ideal functioning were relatively low (57 on a scale of 1 to 100), as well as beliefs about setting OCL as a goal which resulted in low levels of perceptions (44 on a scale of 1 to 100) (Margaliot & Gorev, 2020).

In the fourth study, Limbu and Markauskaite (2015), explored students' perceptions of the online collaborative writing (OCW) process with specific emphasis on their views on what constitutes an effective online collaborative environment and how they linked online collaborative writing to online collaborative learning. Limbu and Markauskaite (2015) applied qualitative methods using a phenomenological approach. The study participants were 15 senior-level post-secondary students at a large Australian university with prior experience in online collaborative writing. All study participants had prior experience with collaborative writing using tools such as Google Docs, blogs and wikis.

The Online Collaborative Writing (OCW) process was assessed in four themes: division of work, combining expertise to produce a final document, synthesizing ideas, and developing new skills. In addition, students' views regarding the OCW environment were examined in three themes: how the learning space was prepared prior to collaborative writing, the conditions

provided to support collaborative writing activities and the technological affordances of the writing space (Limbu & Markauskaite, 2015).

The results of the study indicated that all students perceived online collaborative writing as a positive experience (Limbu & Markauskaite, 2015). However, all of the research participants felt that the OCW process requires better coordination. Students were optimistic about the role of OCW as essential to their learning and the development of new skills and were confident about gains from the OCW process. The collaborative writing experience therefore, led to deeper understanding, thinking and appreciation of the course material (Limbu and Markauskaite, 2015).

An important finding is that students viewed the online collaborative writing process more as a task-driven experience rather than a learning experience (Limbu and Markauskaite, 2015). With regards to the writing environment, students perceived an effective environment as one that was well organized with precise tasks set and adequate support from the teacher or one setting the tasks. In addition, approximately three-quarters of the students who participated in the study expressed expectations of guidance from the teacher where instructions are scaffolded.

In the fifth study, Hadjerrouit (2013) assessed the effectiveness of collaborative writing in a wiki-based environment. Hadjerrouit (2013) proposed three research questions that sought to investigate the key elements of the wiki and its relationship to teacher education and collaborative writing activities and the pedagogic implications based on students' perceptions. The study participants were 16 student teachers attending a Norwegian post-secondary institution. The student teachers majored in multiple subject areas and had some technical background but did not experience collaborative writing in a wiki environment. To further understand the inquiry, Hadjerrouit (2013) firstly created a framework depicting the relationship

of wikis to teacher education, followed by a qualitative case study to assess students' conception of collaborative writing in a wiki-based environment from three perspectives: technology, content, and group work. A graphical representation of Hadjerrouit's (2013) framework is presented in Figure 3 below. Overall students were not satisfied with the wiki tool as a reliable medium for collaborative writing, citing the elements of the tool's functionality as challenging to navigate. While most of the students felt that the wiki's content was understandable, most disagreed with its functionality. Students were generally satisfied with group work but felt pessimistic about discussions during the collaborative writing process.

Figure 3:

Key elements of wikis and their relationships in teacher education
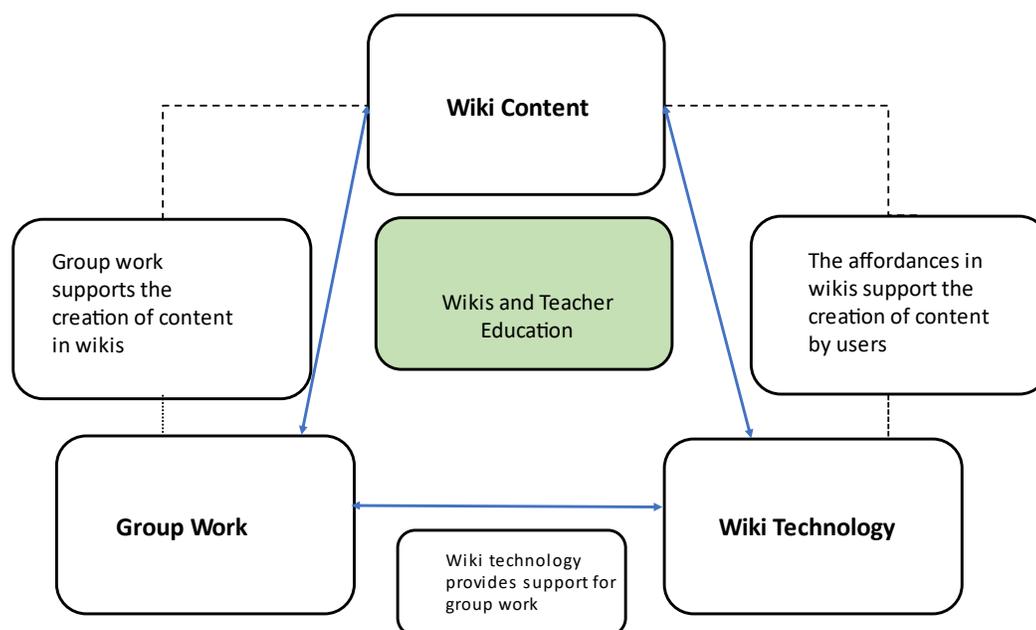
Note: Image adapted from Hadjerrouit (2013), "A framework for assessing the pedagogical effectiveness of wiki-based collaborative writing: Results and implications," *Interdisciplinary Journal of E-Learning and Learning Objects*, *9*, 29-49

Learning Theories and Online Collaborative Writing

In this section, I review how the studies in the review of literature positioned the learning theories that relate to online collaborative writing. The theories selected are constructivism, social constructivism, cognitivism, and the experiential learning theory.

Constructivism. Nine of the studies (30%) directly referenced the principles of constructivism. The studies confirmed that knowledge is constructed, that learning involves creating meaning and systems of meaning, that learning is an active process, and that learning is a social activity (Pittenger & Olson-Kellogg, 2012; Kumi-Yeboah et al., 2020; Zheng, Niiya, & Warschauer, 2015; Chun-Min, 2012; Sawyer et al., 2017; Cowie & Khoo, 2014; Meum, Therese Brastad, Briseid, Grete Lund, & Rabben, 2021; Hadjerrouit, 2013; Hutchinson & Tracey, 2015).

Two studies present findings highlighting the benefits of technological affordances when considering individual and collective knowledge construction and argue that the technical features embedded in some digital tools can promote individual and collective knowledge construction (Meum et al., 2021; Zheng et al.,2015). Digital platforms such as Canvas promote constructivist learning and collective reflection and enhance student outcomes (Meum et al., 2021). The wiki, for example, supports users in constructing knowledge on their own or through collective knowledge construction by using the interlinked page features of the tool (Zheng et al., 2015).

Educational experiences that are whole-tasked, realistic, and collaborative allow for knowledge creation and transfer (Pittenger & Olson-Kellogg, 2012).

Social Constructivism. Vygotsky's approach to constructivism, which is based on the notion that knowledge building is the product of social interactions, was the dominant reference

in works grounded in social constructivism (e.g., Pittenger & Olson-Kellogg, 2012; Kumi-Yeboah et al., 2020; Chun-Min, 2012; Sawyer et al., 2017; Hadjerrouit, 2013; Cowie & Khoo, 2014).

Kumi-Yeboah, et al. (2020) used Vygotsky's social constructivist philosophy as the theoretical framework for their study which explored the use of digital technologies in online learning environments (Kumi-Yeboah, et al., 2020). Further, Kumi-Yeboah, et al. (2020) claim the social dimensions of learning within a social constructivist framework are viewed as a critical part of a collaborative learning process. Learners construct knowledge based on their unique experiences and educational backgrounds, and it is vital that instructors be aware of and plan for such diversity and respect the cultural viewpoints of all learners.

Pittenger and Olson-Kellogg, (2012) agree with Kumi-Yeboah al., (2020) viewpoint that educational experiences that are whole tasked, realistic and collaborative allow for knowledge creation and transfer. Further, they emphasize that positive outcomes from educational experiences that are authentic, and experiential require learning strategies that take on a social constructivist approach.

Like (Kumi-Yeboah et al. (2020), Hadjerrouit (2013) used Vygotsky's socio-cultural theory as the framework for his study to assess the effectiveness of collaborative writing in a wiki-based environment). Hadjerroiut (2013) emphasized Vygotsky's definition of the ZPD which is defined as the space between what a learner can do on their own without guidance and what a learner can achieve with the guidance of an adult or as a result of interaction with peers as the basis for his study on collaborative writing.

Sawyer et al. (2017), evaluated the pedagogic implications of using multimedia in the classroom while applying an active learning approach. The study participants were 165 undergraduate students undertaking psychology classes at a northeastern university in the United States. The study's results showed that overall student learning was positive. In the study, Sawyer et al. (2017), also claimed that learning is socially constructed, and students learn first from an interpersonal level before understanding and internalizing new knowledge at the individual level. According to Sawyer et al. (2017), using an active learning approach such as Cooperative Learning (CL) is consistent with Vygotsky's theory of social constructivism. Further, Sawyer argues that in cooperative learning, students engage in dialogues and group work and can challenge each others' viewpoints.

In another study, Cowie and Khoo (2014) tested how digital tools can expand the knowledge of tertiary students undertaking History and Tourism courses. The research found that using digital tools such as the wiki in the classroom changed how students and teachers approached learning in the classroom by creating opportunities for collaboration and knowledge construction. Despite some challenges students faced in adapting to new technology, they experienced a positive disruption to prior beliefs of working collaboratively and expanded their disciplinary knowledge and understanding through activities like collaborative storytelling.

Cognitivism. Zgheib, and Dabbagh (2020), analyzed the cognitive processes that support learner engagement in Social Media Learning Activities, SMLAs. A qualitative case study approach was used to analyze data which was gathered from interviews with five faculty members who prepared and taught the six courses (n = 6) studied. Each of the six courses was treated as a case and data was gathered from each course syllabi and interviews conducted with

the teaching faculty. The study also utilized secondary information from observing course-related posts of 115 students registered for the course taught by the respective faculty members.

The researchers applied Benjamin Bloom's Taxonomy of the Cognitive Domain as adapted by Anderson and Krathwohl (2001), as a foundation for evaluating cognitive processes in the study (Zgheib & Dabbagh, 2020). Bloom's Taxonomy of the Cognitive Domain addresses six hierarchical skills and abilities required for learning: knowledge, comprehension, application, analysis, synthesis, and evaluation (Krathwohl, 2002).

Zgheib, and Dabbagh's (2020) study suggested that all social media tools could promote more than one type of knowledge or level of cognitive processes depending on the design of the SMLA and how students use the social media technology. Results of the study also show that both higher and lower-level cognitive processes resulted from the students' involvement in using SMLAs. Further, the authors found that using SMLAs promoted more than one type of cognitive processes. Wikis and blogs enabled all levels of cognition; microblogging promoted remembering, understanding, and analyzing, and podcasts supported creativity, remembering, and analyzing.

In another study, Margaliot and Gorev (2020) applied the Cognitive Orientation (CO) theory and used a mixed method approach to investigate teachers' willingness to participate in collaborative learning. The detailed results of this Margaliot and Gorev (2020) study were presented earlier in this paper where I discussed the researchers' findings on the study participants perception about collaborative learning. In summary, the participants expressed low levels of perception regarding the collaborative writing process and its relation to improved cognitive abilities.

Sawyer et al. (2017), also examined the effects of various instructional approaches on learning. They concluded that embedding multimedia into lesson plans is most effective compared with other forms of educational practices, active learning and writing to learn. The researchers also found that such positive results from their study concur with Richard Mayers' Cognitive Theory of Multimedia, which claims that we can learn more efficiently from combing visual images and texts than from text-only based instruction.

Experiential Learning. Experiential learning, or experience-based learning, is a learner-centred approach in which real-life scenarios are applied to the learning environment (Emerson, 2016). Experiential learning is a learning situation where learners participate firstly in an experience, followed by learning as the outcome of the direct experience (Brailas et al., 2017; Emerson, 2016). Students gain knowledge from working in authentic face-to-face or online environments and from the opportunity to reflect on the experience. (Emerson, 2016).

John Dewey, a 20th-century American theorist, is the principal proponent of experiential learning and believed that learning takes place first in a primary experience and secondly in a secondary experience in which people reflect and process what they learned from the experience (Emerson, 2016). Another proponent of experiential learning is David Kolb, an American education reformist who proposed that learning occurs in a four-stage cycle from active involvement in experiences, reflection on the experience, the creation of new ideas, and the application of the newly created ideas to the real world (Brailas et al., 2017; Emerson, 2016; Meum et al., 2021).

In the research undertaken, the application of John Dewey and David Kolb's experiential learning theories was evident in several articles. The studies, however, showed different approaches to learning when applying the experiential learning theories. These approaches

include problem-based learning, case-based learning, inquiry-based learning and service learning (Brailas et al.,2017; Meum et al., 2021; Shuman, 2019; Stevens, 2014).

Brailas et al. (2017) adopted a blended qualitative method to investigate the impact of a project-based undergraduate research course on participants lived experiences. Fifteen students reported on their experiences after reflecting upon the practical writing experience. Results of the study showed that the process of applying research through experimentation mirrored David Kolb's experiential model (Brailas et al., 2017). The study participants exuded positive behaviours after reflecting upon their rich experience of being researchers themselves.

Emphasizing the role of practical experiences of nursing candidates in a wiki-based learning environment Meum et al. (2021) gathered qualitative data from student feelings about the experiential learning experience, their application of the knowledge and their reflection on the learning outcome. Positive behavioural results were also realized in the application of online case-based learning as a vehicle for students to apply real-life scenarios to nursing training.

Service Learning. Giles and Eyler (1994), claim that a service model approach to learning is rooted in John Dewey's experiential learning theory. Service learning is creating a learning environment that meets the academic needs of students and the goals of partnering with a community-based organization (Stevens, 2014). Adopting a service model framework allowed students to experience, create innovative ideas and test them in real-world scenarios (Bigelow & Rodgers, 2019; Stevens, 2014).

In a descriptive study, Stevens (2014) analyzed the experiences of students and community partners during a community grant – writing project. The study participants were 14 undergraduate students attending a liberal college in the United States. Based on Stevens (2014)

learning experience was targeted and provided the students with opportunities to benefit from real-world experiences through writing and research in composition-intensive writing courses. The researcher concluded that the service-learning experience increased students' learning in academic research and reflective practice.

Bigelow & Rodgers (2019) also analyzed the outcomes of service learning in grant writing. The study describes the Social Entrepreneurship for Poverty Alleviation (SEPA) grant-writing program at Austin College and provided a descriptive account of the grant writing process as experienced by students and community partners. The project ran over a six-year period. Participants in the study were at the undergraduate level and the number of participants varied from 7 and 8 in the first two tears, to 21, 22, 18 and 22 in the consecutive years that followed.

Learning outcomes were analyzed based on data collected using both qualitative and quantitative methods. Students rated their experience in the service-learning program positively, with an average of 4 on a 5-point Likert Scale (Bigelow & Rodgers, 2019). Overall, the number of grant applications submitted each year increased from 12 in the first year to 39 in the sixth year, with the average funds raised by each student also increased.

Both Bigelow & Rodgers (2019) and Stevens (2014) agree that positive learning outcomes which demonstrate increased learning and application of newly conceived ideas by learners to real-world situations are pleasing to students

Culture in Online Collaborative Learning

This section discusses the intersections of culture and collaborative learning in an online environment. Two studies are presented that highlight the issues of professional ethics in cross-

cultural learning environments and the implications of digital technologies on a diverse group of learners.

Professional ethics in cross-cultural learning environments. Little, et al. (2019) outlined the experiences of teachers undertaking online graduate teacher training course in a United Kingdom-based University. The course intended to use the participants' reflections on the realities of working globally, and the changes they experience to inform education. The study also addressed cultural competence, how it is built in an intercultural learning environment and what approaches could be adopted to enhance further teacher training. Participants were four teachers who authored a collaborative essay on their experiences of working globally and their perceptions of inter-cultural training during the course. Teachers were from diverse backgrounds tied to marriage, childhood experiences of living in various countries and contexts (Little et al., 2019).

The results revealed two major findings. The first finding related to ethics approval during the design stage of the study, and the second finding related to the participants' belief of working in an intercultural context. According to Little et al. (2019), conducting research in an intercultural context was difficult to design and conduct ethically. This challenge was met since the study was designed to assess teacher experiences while working in multiple countries, cultures and systems which made receiving ethics approval difficult. Little et al. (2019) stressed the importance of acknowledging the professional and personal integrity of participants during the research process by using appropriate mitigation strategies. In this case, the "discussions and narratives were collated separately from those linked to learning, teaching, and assessment" (p. 44).

Results of the study show that students perceived being globally mobile as an attitudinal disposition more than a geographic phenomenon (Little et al., 2019). Being aware of the change and cultural diversity rather than physically relocating. Intercultural competence is acknowledging that education takes place in all contexts. Further, personalizing the teacher training course based on needs was viewed as a recognition of a learning environment with diverse learners. In contrast, many students felt that assigning work to personal needs can reduce opportunities to gain experience from peers through cross-cultural discussions. Willingness to adapt and teach in a global context was viewed as a sign of intercultural awareness (Little, et al., 2019). The limitation of this study is that the sample size was limited to four participants.

Culture and cross-cultural learning environments. Kumi-Yeboah et al. (2020) In this section, examined how digital technologies promote the educational experiences of culturally diverse learners. In this qualitative study, the researchers posed questions about how participants describe the use of multimedia presentations in online learning and the challenges diverse learners experience in applying digital technologies in online learning. The participants were 46 diverse learners in an online learning environment. All participants were undergraduate college students attending a comprehensive university in the northeastern part of the United States (Kumi-Yeboah al., 2020).

The study's results yielded several themes, including the influence of digital technologies on producing positive educational experiences (Kumi-Yeboah al., 2020). Such media include video lectures, voice threads, blogging, using wikis, and google. Most participants (87%) felt that video presentations and video lectures helped them to understand subject content better, concepts taught and improve their academic achievements. Study participants also felt that blogging aided the completion of assignments and promoted interaction with peers and engagement in reflective

practice. Social network tools also reinforced learning. A notable outcome of the study is that

participants (84%) found that the content offered by instructors lacked multicultural content. The

course material was predominantly European or American and did not relate to participants'

social or educational contexts (Kumi-Yeboah al., 2020).

Instructional Design in Online Collaborative Writing

Four sub themes emerged when analyzing instructional design in online collaborative

learning and writing environments. The flipped classroom approach, using Analysis, Design,

Development, Implementation and Evaluation (ADDIE) as an instructional design model,

scaffolding and integrating the logic model in instructional design. Each is discussed below.

The Flipped Classroom

Sciutto (2021) presented the flipped classroom model as an effective teaching strategy that

informs instructional design when converting a face-to-face course to entirely online. The flipped

classroom design elements proved to be most popular amongst study participants after the

redesign. According to Sciutto (2021), the flipped classroom approach aims at replacing

traditional classroom instruction with activities that are usually completed by learners on their

own, outside of the classroom. Although Sciutto's (2021) plan was to maintain experiential

elements of the course, such as real-world examples and problem solving, maintaining and

improving student engagement was a core focus of the conversion process.

To illustrate the conversion process from face-to-face to online, Sciutto (2021) used an

undergraduate statistics course offered at a university and how assessment data helped to inform

the design elements of the newly developed online courses. Principles of backward design and a

Community of Inquiry approach were also applied in the conversion process. Backward design

principles include identifying the desired results of a learning process, determining the levels of

evidence that demonstrate that the learner is meeting the course objectives and planning content for the learning experience (Wiggins & McTighe, 2006). Understanding by design is utilizing best practices and learning strategies in the course design process that will give students a rich learning experience (Sciutto, 2021). The Community of Inquiry approach endeavours to understand how asynchronous learning can provide students with a rich learning environment (Garrison and Archer, 1999).

The research participants included 35 undergraduate students who undertook the face-to-face course and 37 students who participated in the newly developed online course. Assessments included formative assessments conducted during the course and summative assessments using evaluation questionnaires at the end of each course (Sciutto, 2021). Formative course assessments provide information on student learning and process and present a good way of measuring progress based on established learning objectives. In addition, formative assessment offers opportunities for the teacher to engage in reflection. Student reflection and feedback allow the teacher to get information on how students perceive the learning experience (Sciutto, 2021). Student performance was assessed based on exams, integrative writing assignments, weekly quizzes, reflections highlighted in a course feedback grid, short essay assignments based on videos integrated into the lessons and a courses evaluation which was administered at the end of each course (Sciutto, 2021).

Sciutto (2021) attempted to identify what features in the modified course should stay irrespective of the delivery format. Applying questions such as to what extent the redesign affects student comprehension of topics and are there any new skills developed? How will feedback guide future pedagogy? Results suggested that the increased emphasis on the asynchronous activities in the redesigned course, such as integrating videos and writing

assignments, supports learning and improved learning outcomes. Problem-solving in synchronous sessions also resulted in positive learning outcomes. Students in the online course performed better than students in the face-to-face course.

ADDIE - Analysis, Design, Development, Implementation and Evaluation

ADDIE is a widely used framework for instructional design with five key phases applied when designing instructions (Ezell, 2021). These stages include assessing the learner content, developing instructional goals and teaching approaches, and designing and evaluating the quality of instruction. Each step of the ADDIE model is of equal importance; however, the defined phases may require modification based on the learner's unique needs, context, and intended outcome of the planned learning experience (Ezell, 2021).

In a descriptive case study, Ezell (2021) outlines the events of deploying, revising and embedding information literacy components into an undergraduate writing course offered at a public university in the southeastern United States. The course was previously offered in the face-to-face format and accessed by more than 7000 first-year students. The course development was a collaborative effort by instructors, an instructional designer and a librarian. Course conversion lasted over three years and was intensified due to demands triggered by the COVID 19 pandemic for online components. The goal of the course design was, therefore, to create asynchronous instruction that met the changing needs of students and instructors. The course consisted of approximately 225 sections, 10% of which were offered online before the intervention.

Several key elements of instructional design were observed during the transformation of the course format (Ezell, 2021). The scale of the planned embedded components, the usability of the material proposed, and the capacity of the teaching faculty and librarians to manage both

asynchronous and synchronous components. The evolving course development process revealed that the application of prescribed design models such as ADDIE required modification based on the online teaching context, the nature of the scale of the intended learners and the content applied. In addition, Ezell (2021) found that using authoring tools during the designing and development stages supported the modification of the ADDIE model during the course development. Authoring tools such as Storyline 360, Adobe Captivate and Articulate Rise are technical programs that publish digitally in selected formats.

Overall, the modification of the course was viewed positively by instructors, students and librarians. Based on instructor feedback, the new course design resulted in increased referencing of the course by students in online discussion threads. Librarians also observed that students improved their ability to use library material online. The demands for online instruction due to the COVID 19 pandemic did not significantly influence online course design but created opportunities for revision of instructional strategies. Ezell (2021), therefore, recommends that the modification of online course content be done in several iterative cycles that allow for integrating student feedback and changing scenarios within the learning environment. One limitation of this study was the small sample used for evaluating the design process and no evidence to test the reliability of the data generated.

Scaffolding

Five studies alluded to scaffolding in the classroom as an effective strategy to support students to achieve learning goals (Ezell, 2021; Hutchinson & Tracey; 2015, Limbu & Markauskaite; 2015, Parks, 2022; Werang & Leba, 2022). Scaffolding is a collaborative interactive process in which students are asked to do projects beyond what they can do alone (Werang & Leba, 2022).

In a study that assessed how digital tools supported online learning in tertiary education Cowie and Khoo (2014) refer to scaffolding in discussion forums using a web-based Learning Management tool, Moodle. Scaffolding activities were useful for international students who were not familiar with collaborative activities online.

Werang and Leba's (2022) viewpoint is consistent with Cowie and Khoo's (2014) in which the authors cite examples in their literature review in which scaffolding from student peers was identified as the most crucial factor that determined online engagement. In their study, Werang & Leba, (2022) defined engagement as preparedness to participate in class activities, active participation and taking ownership of learning.

Engagement from the perspective of the teacher is taking responsibility to provide student support (Werang & Leba, 2022). Other factors affecting student engagement are the level of initiating good interaction, communication, and collaboration in the learning environment. For the teacher, enriching the student experience by promoting challenging activities and maintaining a supportive classroom (Werang & Leba, 2022).

Hutchinson and Tracey (2015) stressed the importance of scaffolding when supporting students to understand their identities and recognize their professional strengths. This qualitative study investigated how students participate in reflection when responding to prompts posed by the instructor. The setting for the study was an instructional design course held online over four semesters. The study employed 69 master's and doctoral students at a US-based university. To prompt students, the instructor asked them first to describe an experience with sudden inspiration and then to document design ideas and how they were generated.

The results indicated that many student participants (49%) were able to engage in reflection when prompted to describe their sudden inspiration experience. In contrast, participant reflection was less evident when responding to prompts about idea generation (24%). The study, however, concluded that instructors, notwithstanding variations based on the prompts administered, instructors can promote the quality of student responses by providing prompts and feedback during instruction (Hutchinson & Tracey, 2015).

In another study, Parks (2022) enhanced students' critical thinking in a psychology course by proposing a model scaffolding writing project. The project included multiple approaches, collaborative writing, inquiry-based research, and peer review. In his hypothesis, Parks (2022) drew upon proven and successful models of applying inquiry-based approaches in sciences which result in students scoring significantly higher than those who learn through lectures. As such, in the proposed research, students were invited to engage in collaborative writing and conduct inquiry-based research and peer review across a writing process. Writing is a way of problem solving and collaborative writing helps students to organize thoughts, identify research gaps and engage in reasoning within a community of learners (Parks, 2022).

The study participants were 57 first-year students at Duke University in the United States from across varying disciplines. Students were asked to choose any topic at the intersection of law and psychology and allowed to choose a writing partner. Setting the writing process in stages of framing, setting goals, and undertaking activities and assignments supported the scaffolding approach (Parks, 2022). Staging also promoted students' engagement in brainstorming ideas, planning by explaining relevant literature and synthesizing the literature, developing arguments and finally the delivery of production (Parks, 2022).

The results of this study produced tangible evidence that scaffolding increases students' competencies in critical thinking and the composition of ideas collaboratively. Many of the students (90%) agreed or strongly agreed that the collaborative writing process supported their academic endeavours to assess, critique, and compose scholarly material (Parks, 2020). Students also felt that they gained skills such as conducting scholarly research, critical thinking, and expressing ideas and that they received meaningful feedback from peers. The collaborative writing process supported idea generation and helped students to form their viewpoints on the topics studied (Parks, 2022).

Using the Logic Model

Logic models help to organize and clarify the grant writing process. Walsh et al. (2013) conducted a comprehensive analysis of grant writing courses by reviewing course syllabi offered by colleges and universities across the United States. The study assessed the strategies used for textbook selection during the development stages of the courses. Further, the study examined the factors leading to the selection of textbooks and the grant writing course components that instructors should focus on when developing and reviewing new grant writing courses. While the logic model is not presented as an instructional design model in the study, the results indicate that participants of the online survey hold the view that the logic model is an integral part of any grant writing course (Walsh et al., 2013).

Data were collected from two main sources, 125-course syllabi were reviewed by the way of content analysis and 137 instructors were sent an online survey. Seventeen of the137 instructors who received the survey responded (Walsh et al., 2013). The formats of courses varied including online hybrid and face-to-face with references to online information and face-to-face course formats with no online components. The academic disciplines in which the grant

writing courses were delivered also varied including English, Social Sciences, Social Work, Public Administration, Business and Health (Walsh, et al., 2013).

The results revealed that the most common course themes derived from the content analysis were, proposal writing (38%), budgeting (18%), and finding funding sources (21%) (Walsh et al., 2013). Other topics covered in the syllabi were critiquing proposals (9%), collaboration with peers (7%), grant management (4%) and proposal submission (4%). Although budgeting was frequently included in grant writing courses, few syllabi included a logic model which are visual descriptions that outline how planned projects will operate. Further, Walsh et al. (2013) argued that the inclusion of the logic model supports student learning and is a critical element of any grant writing course.

Regarding the development of grant writing courses in the future, the results of the study indicated that instructors would like to see the logic model included in the course syllabi (Walsh et al., 2013). Instructors would also like to see more online components included in grant writing courses. Another critical recommendation by course participants is that instructors focus on applied learning and use examples, perhaps through an online site.

To conclude their study, Walsh et al. (2013) proposed a four-step strategy to manage and collaborate the components of a grant writing course. The stages include first, learning activities that support the identification of funding options, next, execution of budgeting and proposal writing, evaluation and critiquing, followed by activities related to submitting the grant proposal.

Digital tools in online collaborative learning and writing

Digital tools such as wikis, videos, and Google Docs, when integrated into lesson plans, support student engagement, enhances collaboration amongst learners and helps students to

acquire problem-solving skills (Hoogerheide et al., 2019; Zhou et al., 2012; Zheng et al., 2015). However, integrating these tools in lessons requires planning on the part of the instructional designer to maximize learning outcomes. This section presents studies that reviewed the effectiveness of integrating Google Docs, wikis, and videos into lesson plans.

Google Docs

Zhou et al. (2012) evaluated the effectiveness of using Google Docs in a collaborative writing activity. Thirty undergraduate students in a United States-based university undertaking psychology participated in the study. Students were given two assignments and required to write group responses to the questions posed in the assignments. In the first assignment, students were not given directions on what communication formats or tools they could use. Before receiving the second assignment, all students were trained by the instructor on how to use Google Docs and instructed to use this tool to complete the tasks (Zhou et al., 2012).

The evaluation of both assignments included peer reviews about the collaborative experience, students' perceptions of Google Docs and whether the tool was helpful for learning (Zhou et al., 2012). Before undertaking the first assignment, 6 out of the 31 students reported using Google Docs for writing activities in and out of school. Of the 26 Students have positive perceptions about using Google Docs.

Twenty-six of the 31 students who completed questionnaires after the second assignment (85%) rated their experience as positive (Zhou et al., 2012). In addition to Google Docs, students use other technology media to communicate when completing assignments. For instance, of the 31 students who completed the first assignment, 85% used email, 35% used Facebook, 29% used Blackboard Vista, and 13% communicated using text messages. Students considered Google

Docs a helpful tool (64%); it helped make communication amongst peers easier and was helpful as an editing tool (Zhou et al., 2012).

Regarding future use of Google Docs, 43% of the participants expressed willingness to use the tool in the future (Zhou et al., 2012). However, although there was an overwhelmingly positive response to using Google Docs for collaborative learning, the researchers cautioned that educators should be aware of challenges encountered by students when using the tool. For example, one participant reported that the pace of working with peers resulted in a significant challenge. Further, Zhou et al. (2012) alluded to hesitance on the part of some students to work collaboratively. Reluctance may be related to students' level of social skills, access to devices with Google Docs integrations, and hesitance to use Google Docs stemming from prior experience and problems students may have encountered with the tool (Zhou et al., 2012).

Wikis

Zheng et al. (2015) used a design-based approach study to recommend strategies for using wikis in collaborative learning environments. The study, which was grounded in a constructivist learning framework, alludes to the affordances of the wiki as a tool that supports collaborative learning. However, Zheng et al. (2015) argue that the competencies of students in higher education who use wikis are inconsistent. This shortcoming is linked to the possible lack of proper guidance on the part of instructors on how to use wikis. The study, therefore, sought to address strategies to design lessons that will result in effective learning when using wikis.

Participants of this study were post-secondary students attending a university in China and who were undertaking majors in Educational Technology, History and Physical Sciences (Zheng et al.,2015). The course content was designed by the researcher and an instructor at the university who taught the course. The study occurred over four semesters, and 139 students attended four

iterations of an online collaborative, Web 2.0 and Social Learning, during the research period (Zheng et al.,2015). Qualitative data were collected by way of surveys, participant observation, and semi-structured interviews after each iteration of the course. The findings suggest that 79% of the participants were motivated and excited to participate in the wiki project. All of the students felt the wiki was a supportive tool. Further, collaborative learning was more favoured when compared to individual learning (Zheng et al., 2015).

Challenges encountered were also highlighted; for example, in the first iteration, students were unaware of their role, etiquette, and collaboration among international students was strained (Zheng et al., 2015). The lack of directions from the instructor as experienced in the first-course delivery was corrected in subsequent iterations of the course. When designing a course, the iterative approach to creating a course that allows for adjustments based on student feedback enhances the quality of the students' experience (Zheng et al., 2015).

Videos

Three studies in the literature review claim that integrating videos into lessons enhances student learning (Hoogerheide et al., 2019; Kumi-Yeboah al., 2020; Sciutto, 2021). Videos helped students from diverse backgrounds and cultures understand subject content presented in online learning environments (Kumi-Yeboah al., 2020). Sciutto (2021). alluded to the successful integration of videos when using the flipped classroom approach.

In an experimental study, Hoogerheide et al. (2019) tested the hypothesis that students learning outcomes can be improved by integrating videos into lessons when compared with instructions without videos. The study participants were 63 undergraduate students taking a psychology course at a university in the Netherlands. Participants were randomly assigned to two

classes, one with a teaching condition (n = 30) and the other to the controlled condition (n =31).

The topic for the experiment was troubleshooting an electric circuit.

This study results showed that students improved learning outcomes after watching worked examples on a video (Hoogerheide et al., 2019). In addition to the successful integration of videos in the lesson, the study's findings also demonstrate that example-based learning is a practical instructional approach for students to acquire problem-solving skills.

Framework for Online Collaborative Grant Writing Course in International development

The purpose of this section is to propose a framework for an online collaborative grant writing course in international development. Such a framework should encompass the context of the funding system and instructional strategies that would promote learning. Based on the literature reviewed, key trends emerged, which include students' perceptions about their experience during the collaborative writing process, the suitability of digital tools for effective learning, the complexity of the grant writing system and the cultural characteristics of diverse global participants. These key elements could be applied to a proposed framework for an online collaborative grant writing course in the cognitive, instructional design, social and technological dimensions. I present a graphical representation of the four dimensions in Figure 4 below and discuss my findings as they relate to the proposed framework.

Figure 4:

Proposed Dimensions for an Online Collaborative Grant Writing Course
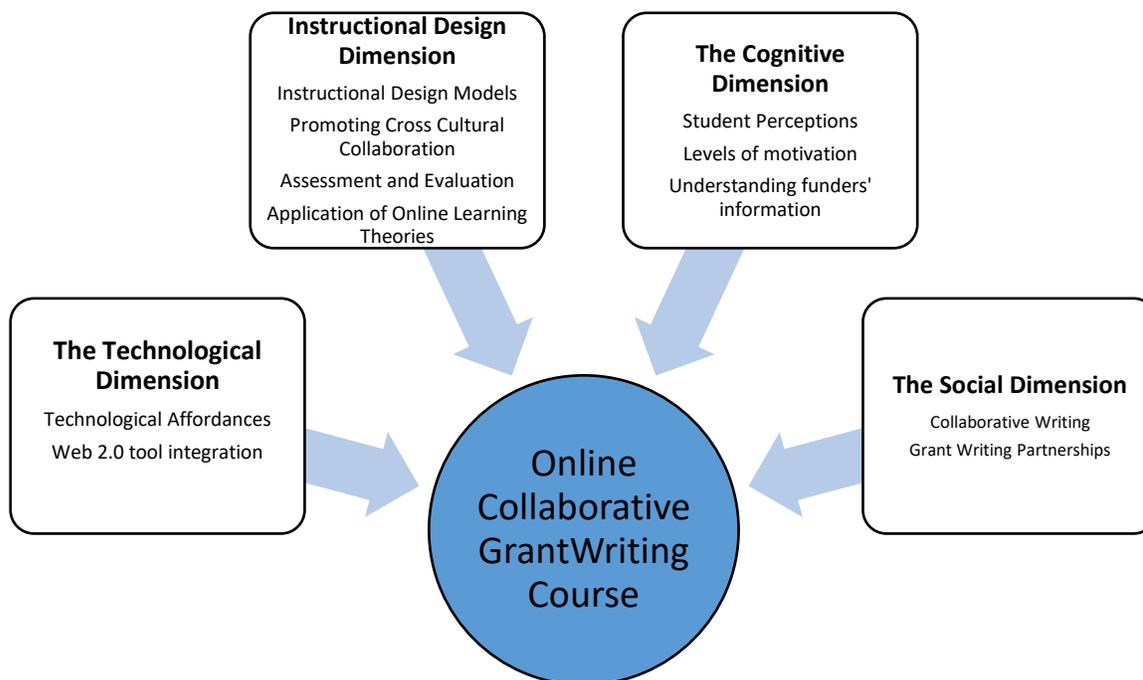
The Cognitive Dimension

Student perceptions about their learning experience, their levels of motivation and activities that promote active mental processing and learner engagement are of significance when designing a learning in an online collaborative environment. The studies reviewed highlighted some of these cognitive elements to be considered when designing learning.

Student Perception. The most evident theme resulting from the references to cognitive processes was students' perceptions of the online learning process (Limbu & Markauskaite,

Little et al.,2019; 2015; Margaliot & Gorev, 2020; Meum et al., 2021; Hoogerheide et al., 2019; Kumi-Yeboah et al., 2020, and Zhou et al. et al., 2012). Pedagogic strategies used in online learning affects how students perceive their learning experiences. As such, when designing learning, it is important to consider the integration of cognitive constructivist strategies that will support learner participation. These include opportunities for small group discussions, encouraging student involvement through blogging and providing timely feedback to participants.

Cognitive Engagement. Learning strategies that enhance cognitive engagement were also highlighted in the studies whereas, Sciutto, 2021 elaborated on the flipped classroom approach as a strategy for increasing student engagement (Sciutto, 2021). Scaffolding resulted in positive outcomes that promoted student engagement (Ezell, 2021; Hutchinson & Tracey, 2015; Limbu & Markauskaite, 2015; Parks, 2022; Werang & Leba, 2022).

Other pertinent cognitive dimensions that emanated from the studies included, problem-solving and case-based exercises that promote interaction and help learners connect with real life scenarios (Parks, 2022; Sciutto, 2021). Writing collaboratively and engaging in brainstorming activities with peers who had prior knowledge in grant writing helped study participants to understand funders information (McAlpine, 2020).

Motivation. The studies reviewed showed relationships between how students perceive instructional strategies and their learning and motivational levels (McAlpine, 2020). According to Hadjerrouit (2013), when working with wikis, student motivation is linked to how much value they put into the content on the wiki. It affects how much they are committed to collaboration and the levels of their cooperation.

Limbu and Markauskaite (2015) observed that participants shifted their values and commitment to online collaborative writing (OCW) from low to high based on the facilitation strategies used by the instructor. Students exuded high motivational levels in prearranged learning environments where instructions were clear on different aspects of the collaborative writing process. In addition, students responded positively to teacher involvement that supported learning activities and to a scaffolded learning environment (Limbu & Markauskaite,2015).

The Instructional Design Dimension

The review of literature presented various educational approaches that informed the instructional design of course modules, full courses, and lesson plans. As such, key elements to consider when addressing instructional design for an online collaborative grant writing course are the choice of instructional design models, promoting cross-cultural collaboration and making decisions on assessment and evaluation methods to be employed.

While the strategies presented in the review resulted mostly in positive outcomes, the results of the study indicate that a customized approach to the design of a course for online collaborative writing can be of value to learners.

The flipped classroom approach as presented by Sciutto (2021) presents elements for adaption for a collaborative online grant writing course. Such elements include the backward design principle by incorporating the intended learning outcomes prior to decision making on the instructional design models or tools to be used (Sciutto, 2021). Such an approach concurs with the conclusions of Little, et al. (2019) and Kumi-Yeboah, (2018) who studied the cultural context of facilitating learning online.

The Social Dimension

The social dimensions identified include addressing the social nature of collaborative writing and incorporating real world opportunities for learners. Such real-world opportunities were presented as community partnerships that allow for experiential learning (Bigelow & Rodgers, 2019; Brailas et al., 2017; Stevens, 2014; Stevens & Walsh, 2013).

Instructional strategies that promote cross-cultural online collaboration are a key consideration when designing online collaborative learning experiences (Kumi-Yeboah, 2018). This position is supported by Little et al., (2019) who noted that careful research on cultural diversity and the ethical dimension of conducting research in transnational communities are of prime importance (Little et al., 2019). Applying instructional strategies to the structure of an online collaborative grant writing course will concur with the findings of the studies reviewed.

The Technological Dimension

Integrating digital tools to support learning is a crucial consideration when designing an online grant writing course. The literature reviewed highlighted the collaborative and decision-making roles of the instructional designer when considering the integration of digital tools into lesson plans. These roles include incorporating the views of learners about the suitability of digital tools, assessing learners' prior knowledge in using the digital tools and choosing tools that will support increased learning (Hoogerheide et al., 2019; Zheng et al., 2015; Zhou et al., 2012).

The literature reviewed also accentuated instructional strategies to be considered including integrating digital tools that support cognitive processes such as enhancing understanding and improving transfer performance of learners who may have minimal prior knowledge of the subject taught (Hoogerheide et al., 2019).

Conclusion

The aim of this study was to review the literature and to develop a comprehensive framework for designing an online collaborative grant writing course for professionals in international development.

To meet the study objectives, I posed three research questions:

1. What instructional design strategies should be considered when designing an online collaborative grant writing course in international development?

2. How best to integrate grant writing resources when designing a framework for an online collaborative grant writing course in international development?

3. What are the challenges and opportunities when designing an online collaborative writing course for a global audience?

To answer the research questions, I first reviewed the educational theories evident in the studies by assessing how they were applied in practice and the outcomes resulting from their application. I considered the cognitive constructivism, social constructivism, and experiential learning theories and reviewed their application in collaborative writing environments. Secondly, I examined the challenges and opportunities for designing an online collaborative grant writing course from the perspective of the context of grant writing in international development and the outcomes of the literature reviewed.

**Learning Theories and Online Collaborative Grant Writing**

Based on my review, it is evident that positive learning outcomes in collaborative writing environments emanated from a purposeful application of one or more than one learning theories and strategies that support the concepts. It was also evident that the learning theories are central to an interconnected structure consisting of cognitive, social, instructional, and technological

dimensions as shown in Figure 5 below. There are some patterns in the studies reviewed that highlight this interconnectedness.

In one example, Pittenger and Olson-Kellogg (2012) evaluated the effectiveness of collaborative writing in a wiki environment by introducing several learning approaches. These approaches included the integration of a wiki as a digital tool to support collaborative writing, assigning group work activities and using real-world examples in the pharmacotherapy field that are relatable and contextual to learners. These activities, which resulted in positive learning outcomes, emphasize using more than one learning strategies and their relationship to the technological, cognitive and social dimensions of designing and facilitating learning.

Figure 5:

Interconnected Relationship of Learning Strategies and Theories to The Four Dimensions of the Proposed Online Grant Writing Framework
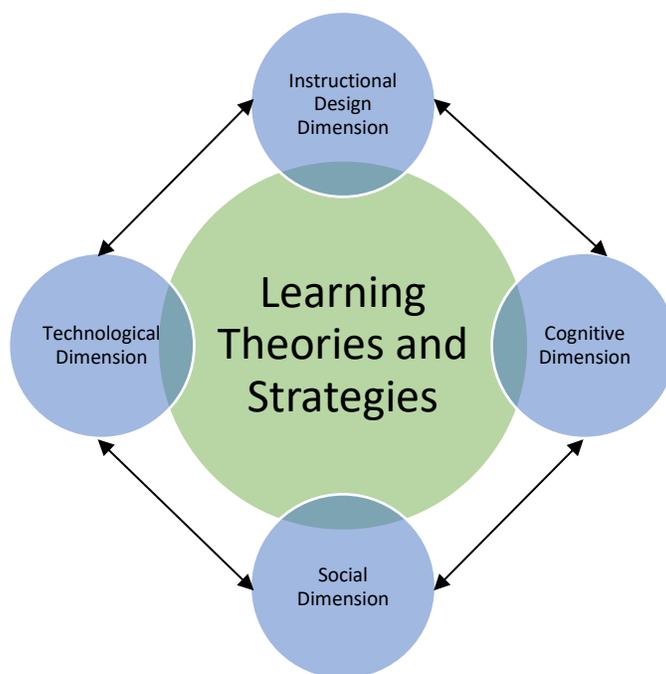
In another example, Brailas et al. (2017) replaced the lecture component of a research methodology course with activities that promoted experiential and social constructivist learning strategies. According to the investigators of this study, the introduction of small group activities, brainstorming, and opportunities for reflection during an online collaborative writing process resulted in a transformational research experience for students and tutors (Brailas et al., 2017).

There is opportunity therefore, to explore the context of the funding system and to investigate to what extent learning strategies can be applied to an online collaborative grant writing course in international development.

Promoting Online Collaboration for Grant Writers

According a published report by Cathexis, (2019), funders are encouraging grant seekers to work collaboratively. Moreso, communities across the globe who are working in international development are seeking ways to build their capacities by collaborating using digital technologies (Cathexis, 2019; *Inter-Council Network*, n.d.; UN Women Fund for Gender Equality, 2015).

However, the integration of digital tools in the course design requires careful thought when considering the transnational nature of the learning environment and disparities in access to technology and the internet, which are routed in the varying stages of economic progress of countries participating in international development. Although the studies I examined provided little evidence on the issue of access to technology in transnational communities, challenges regarding the use of digital tools including the wiki, Google Docs and videos were stressed in the review of literature (Kumi-Yeboah al., 2020; Pittenger & Olson-Kellogg, 2012); Zhou et al.,2012 and Zheng et al., 2015).

When examining how digital tools affect the educational experiences of culturally diverse learners, investigators of the articles reviewed reported that the lack of cultural context diminished their motivational levels of study participants and impeded learning (Kumi-Yeboah al., 2020). Further, Zhou et al. (2012), reported challenges encountered by students when using Google Docs based on differences in the pace of learning amongst participants. On the other hand, the integration of digital tools that support learning activities such as blogging and problem solving was viewed as a practical instructional approach to improve the competencies of adult learners (Hoogerheide et al., 2019; Sciutto, 2021). Some of the benefits and challenges evident in the study are summarized in Table 1 below.

Table 1 presents opportunities for future instructional design for an online collaborative grant writing course which may be understood in a funding system context, e.g., the summary of an environment scan of funders' educational resources presented here indicates the use of text, video and audio in funding guidelines, but the guidelines on "Funding Guidance" (Government of Canada, n.d.) are currently all text based. Promoting online collaboration, therefore, should include reviewing digital tools, the purpose the tools serve, accessibility to users, and the integration of existing information with web-based learning tools to support learner understanding of the funding system.

Table 1:

Summary of Benefits and Challenges Derived from The Review of Literature

Digital Tools	Benefits	Challenges
Wikis	• Flexibility for asynchronous activity • Generation of new socially constructed ideas	• Unequal group contributions • Lack of digital competence to use the tool • Distributed authority may lead to anxiety • Issues of leadership and team structure • Coordinating group tasks
Google Docs	• Real time collaboration • Problem solving • Critical thinking and concept mapping	• Failure for instructor to view students as creators of new knowledge • Cultural differences and hesitance to edit group members contributions • Communication
Blogs	• Encourages reflective writing • Improves communication skills • Supports experiential learning	• Time consuming • Communication due to differences in English Language competencies
Discussion Forums	• Supports both synchronous and asynchronous learning • Flexibility to integrate digital learning tools • Supports instructor assessments on student progress	• Challenges stemming from diverse viewpoints of multidisciplinary group members • Need for explicit course clarification and expectations from instructor
Videos	• Supports increased information retention • Can be used to build community amongst learners	• Pedagogic alignment and integration

Summary and Implications

While the articles reviewed presented tangible strategies for creating the course, only four articles discussed the context of grant writing. The articles reviewed were also limited in their references to grant writing in international development. As such, the proposed framework

should be used in collaboration with previous studies on grant writing in international development to maximize learner outcomes. Given the complex nature of the funding landscape for international development, I also recommend that the framework presented be tested in several iterations to assess the effectiveness of the elements proposed. This study adds to previous research on grant writing and its application to international development.

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Appendices

Appendix A

Types of educational resources provided by selected funders in international development

■ Video, Text and Audio n = 12   ■ Text only n = 6   ■ Text and Audio n = 6   ■
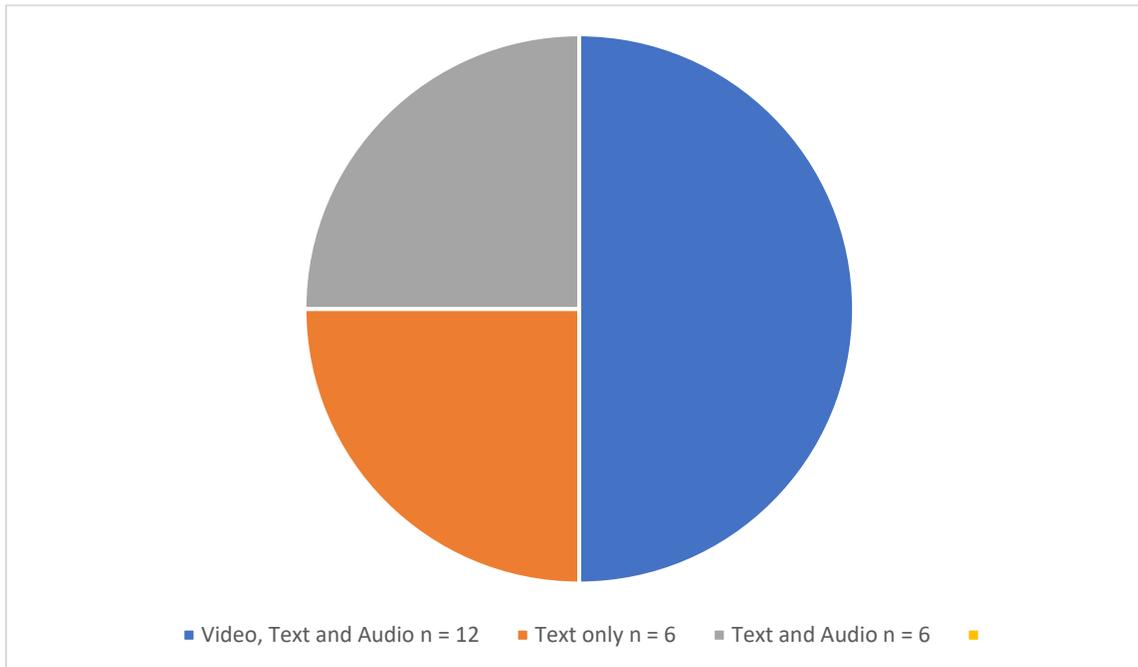
Note: This chart was created by the author after reviewing the types of online educational resources provided by selected funders in international development.