



# GrEx

## The IDG Summary

**Hooks, patterns, and how the  
last shall be first**

'GrEx' is Latin for group or flock. When starlings murmurate, each bird flies with its own wings, but together the flock produces synergistic patterns of awe-inspiring beauty beyond what any individual bird could do alone. GrEx is also the technical term in botany for hybrid orchids. Its implication of collections of individuals into a collective whole greater than its parts led to 'grEx' being adopted as the name for one of the world's first open-source, collaboratively-developed, community-oriented, crowd-funded digital conferring systems.

GrEx just also happens to work as an acronym for 'grant excellence'. The concept of excellence through cross-fertilization and collaboration, the polysemy of 'grEx' makes it the ideal label for grants in digital humanities and AI4Society's themes. **Welcome to GrEx!**





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## How the Proposal Summary Differs from the Description

SSHRC grants allow 5-8 pages for project description, depending on the competition (e.g. Insight Grants, Insight Development Grants, Partnership Grants, etc.). The Summary, however, currently is ONE text box of 3800 characters. Most funders want something similar, like an abstract. What is the purpose of this one-pager? How does it differ from the project description?

Key differences between Summary and Description (besides the word count!):

- ☒ The Summary is the promotional piece—when a project is funded, the Summary will be shared publicly i.e. House of Commons and other communications. EVERYONE (politicians, book publishers, CEOs of non-profit organizations, your banker, your grocer, etc.) must be able to read it and understand it and applaud the funders for investing in it!
- ☒ The Summary must capture the imagination and hearts of the reader. Provide a sentence or two to contextualize the problem, or launch into the importance or prevalence of the problem right away! Use statistics, facts, current events, etc. to help the reader connect. “According to Canadian Statistics on Children’s Health” 85% of children are obese or overweight.” THIS statement packs more seductive punch than “Childhood obesity is a big problem in Canada.” OR, hit the taxpayer’s pocketbook: “In 2013 the Canadian Government invested \$43 M in programs to address childhood obesity. Tobacco reduction, the next highest health investment, cost taxpayers \$24 M.” (These facts are not real!)
- ☒ Methodology might be ‘mentioned’ in the summary, but in a general way. The instructions for writing the summary do not ask for methodology, so do not waste space on providing details about the research design. Do you think Ministers in the House of Commons care about that? (unless, of course, it is a study ABOUT methodology!). A statement such as, “This longitudinal and comparative case study will examine the factors that contribute to childhood obesity in rural, urban and suburban communities in territorial and provincial Canada” will suffice.
- ☒ The Summary must clarify what is to be gained and for whom. The expected outcomes should be clear and significant.
- ☒ The Summary contextualizes the problem by placing it within the literature in a general way. Do not use the Summary page to go into detail about the literature. A statement such as, “To date, studies have examined childhood obesity as if it were context-free, but urban, suburban, and rural communities are significantly different in resources and culture in our provinces and territories.” Save the literature review for the Description.
- ☒ The Summary has no space for references (Jones, 2014). You can refer to knowledge/scholarship, but avoid in-text citations. Save that for the literature review in the Description.
- ☒ While the Description will be read by many on the committee, the Summary will be read by ALL. The Chair of some committees, for example, only reads the Summary. This 3800 character text box has a BIG job.
- ☒ NEVER cut ‘n paste. A reviewer should not flip the page from the Summary only to find the same first paragraph in the Description. Never cut ‘n paste. EVER. ☹

**Indicate and rank up to five countries relevant to your proposal, with #1 the most relevant and #5 the least relevant.**

1. Canada
2. United States
3. United Kingdom
4. Australia
5. New Zealand

## **Revisions since previous application**

WEBER JOANNE

## **Summary of Proposal**

**Challenges:** Approximately half of deaf and hard of hearing children with bilateral hearing losses are at risk for language deprivation, a neurodevelopmental disorder that restricts their academic performance and social and emotional development (Hall, 2020; W. C. Hall et al., 2017). Providing exposure to language has become conflated with providing access to language. Access to language requires that the deaf child, with support from other interlocutors, can process the linguistic sounds into meaningful units. Mere exposure to sound or sign language does not always result in acquisition of a full language (Hall, 2020). For this reason, deaf high school students graduate from high school with the median reading level commensurate with the fourth grade (Cawthon, 2004; Qi & Mitchell, 2012; Traxler, 2000). Inclusive education settings are predominantly monolingual spoken language environments, which works well for only a small, privileged segment of the deaf child population who are able to process linguistic signals with minimal support from other interlocutors (Mauldin, 2016). **There is the need for alternative approaches that support the processing of spoken and signed language.**

Translanguaging theory posits that sustained levels of dialogue in which the deaf student engages with interlocutors to accomplish tasks or goals enables access to language (Swanwick, 2017). An alternative social interaction learning and teaching technique --playbuilding (Norris, 2009)--could support translanguaging by supporting a hybrid space consisting of multiple actors, languages and cultures (Cannon et al, 2016). Scholarly research has yet to investigate playbuilding as a tool for a truly inclusive education employing hybrid spaces.

**Research Activities:** The primary objective of the study is to explore how playbuilding can support translanguaging in deaf children and youth. To this end, the research study will initiate a test case playbuilding project with a partnership of university researchers, deaf youth and parents, teachers, artists, actors and directors, and deaf adults. The participants will work within the hybrid space, supported through play building, toward a workshopped script, and collected data from their work, will provide the material for a playbuilding curriculum to support language acquisition in deaf children and youth. This study will also explore deaf student participant translanguaging practices, the effectiveness of engaging multiple and diverse communities in hybrid learning environments for deaf students.

**Expected Impacts:** Results from this study will 1) provide educators and deaf community advocates with evidence of an intersectional, co-created, and culturally relevant pedagogical model that supports translanguaging practices and therefore provide better inclusion of students unable to benefit from current inclusive education practices; 2) build capacity within culturally and linguistically diverse communities to support deaf students' language acquisition; 3) offer an advanced draft of a playbuilding curriculum model adapted for deaf students; 4) contribute to the growing research on translanguaging in deaf education; 5) disseminate learning from the study to schools, school authorities, and teacher preparation programs; and 6) create a workshopped script that will be performed at the SoundOff Festival of Deaf Theatre in Edmonton, Alberta in 2023 and in drama classes at the University of Alberta. The script will address the oppression and marginalization of the Canadian deaf community who is in need of protection from linguistic and cultural oppression.

## **Roles and Responsibilities**

Principal Investigator - Joanne Weber - Proportion of time to be spent on this project: 50%

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Indicate and rank up to five countries relevant to your proposal, with #1 the most relevant and #5 the least relevant.

1. United Kingdom
2. United States
3. Egypt
- 4.
- 5.

## Revisions since previous application

ZELYCK LORNE

## Summary of Proposal

Papyrus manuscripts are priceless, historical artifacts, yet they have been bought and sold as a commodity on the antiquities market. Scholarly effort has traditionally been focused on reconstructing and interpreting the cryptic texts that they transmit, often without asking the preliminary question: How did this physical object come to light, and how did it end up in the collection of a foreign museum?

## Objective

Little is known about the acquisition history (i.e. provenance) of famous papyrus collections in North America and Europe. Although they were acquired 'legally' (since foreign powers influenced Egyptian laws), the lack of transparency from these institutions has hindered research in manuscript studies, the history of the antiquities market, and our ability to rejoin separated fragments of the same manuscript. This research project will address these problems by examining the provenance of papyrus manuscripts that were purchased by the British Museum and disseminated to North American and European collections in the early 1900s. The objective will be accomplished through examining the departmental archives of these institutions involved in the British Papyrus Syndicate, which contain detailed letters between curators, scholars, and antiquities dealers, as well as acquisition lists of the manuscripts purchased.

## Method

Research for this project will be conducted over two years. The first year (2021-2022) will be dedicated to data collection at the archives of the American institutions; interviewing curators; examining, transcribing, and synthesizing the data; and developing a database of the manuscripts acquired by the Syndicate. One graduate student from the department of History, Classics, and Religious Studies, or Library Sciences, will provide research assistance throughout this project and aid in the analyses of the data. Information about this project, and the initial formation of the Syndicate, will be presented at an international conference and then submitted to a peer-reviewed journal. I will also begin preparing an article about the American acquisition of papyrus manuscripts from the British Museum.

The second year (2022-2023) will focus on data collection at archives in the United Kingdom. This data will be analyzed, and form the basis of an article about the British acquisition of papyrus manuscripts from the Egyptian antiquities market. One graduate student in Classics will be hired as an additional research assistant for the last six months of the project. They will assist in identifying instances where the archival records suggest that a particular antiquities dealer was responsible for the sale of one fragment of a manuscript to the Syndicate, and the other fragment to another institution. These findings will be presented at a colloquium in Germany in 2023, with a corresponding peer-reviewed journal article.

## Outcome

This is the first project to examine the provenance of manuscripts obtained by the British Papyrus Syndicate, and therefore fills a significant lacuna in scholarship. The results, which will be disseminated in two conference papers, three peer-reviewed journal articles, and a project website, will be of interest to the fields of History, Classics, Religious Studies, Museum and Archival Science. They will inform public knowledge about the creation of papyrus collections, the antiquities market, and the western appropriation of cultural artifacts. I have previously worked on interpreting manuscripts, but this project will focus on the provenance of collections of manuscripts. It will lay the foundation for a monograph about American and European papyrus collections, and open up possibilities for collaboration with colleagues at Canadian,

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American and European  
Institutions



## Countries

Indicate and rank up to five countries relevant to your proposal, with #1 the most relevant and #5 the least relevant.

1. United States
2. United Kingdom
3. Netherlands
4. France
5. Algeria

## Revisions since previous application

HARVEY GILLIAN

## Summary of Proposal

Between 2016 and 2018, over 11 000 Canadians and 136 000 Americans died from accidental opioid overdoses—triple the number of deaths caused by motor vehicle accidents (Government of Canada, 2020). This public health crisis is so severe that, by 2017, Canadian life expectancy stopped increasing for the first time in four decades (Statistics Canada 2017, 2019). In response to this crisis, the Government of Canada increased access to life-saving naloxone kits nationwide. A 2019 Government of Alberta study found that naloxone kits are present at the scene of most overdoses but are often used incorrectly or not at all. Addiction researchers suggest that overdose response programs should target people who are most likely to witness an overdose, in addition to focusing on individuals who are at risk themselves (Kerensky et al., 2017). Thus, there is an urgent need for the instructions provided in these kits to be appropriate for a wide variety of audiences. Robust response to the Canadian opioid crisis must consider the needs of all stakeholders, increase distribution of life-saving naloxone kits, and work to develop clear, accessible, and effective design. While naloxone kits are a critical measure in Canada's national response to the opioid crisis, the wildly inconsistent and graphically insufficient design of these kits is an impediment to their usability and efficacy on the front lines. *This project, **Saving Lives: The Development and Evaluation of a Universal Information Design Response for Opioid Poisonings**, aims to explain opioid poisoning and response through effective information design.* In emergency situations, critical information must be presented clearly and accessibly so that it can be quickly acted upon. The most effective emergency communication messages are designed using a combination of graphics and typography to maximize impact and legibility. However, the application of basic visual communication principles and rules of legibility have not been included as emergency planning processes, skill sets, or training. As existing research in cognition, public health communication, and co-design suggest, visualization is a critical component of public response to an emergency situation.

We will conduct a comprehensive analysis of overdose prevention kits, visual materials, and communications from Canada's provincial and territorial health authorities, and host a national symposium for harm reduction educators, clinicians, and content and policy experts on overdose training and response to create a **Universal Information Design Response for Opioid Poisonings Field Guide**. We will produce a responsive, interactive website, which will include information templates about the stigma of addiction, the importance of clarity in messaging on emergency procedures related to overdose, and technical training on injection procedures for three main audiences: (1) first aiders and medical professionals; (2) people familiar with drugs or drug overdoses; and (3) community members with no training. Design prototypes will be tailored for each audience.

Undergraduate and graduate students will be immersed in co-design data collection and translating data into designed objects that have real-world applications; these unique project experiences will help advance students' academic careers and industry portfolios. But, most importantly, the project will help those who respond to overdoses—first aiders, outreach workers, friends of people who use drugs—save lives. This project will have direct, positive implications for the growing numbers of people across Canada who are facing the ongoing opioid crisis.

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2021 IDG

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Indicate and rank up to five countries relevant to your proposal, with #1 the most relevant and #5 the least relevant.

1. Canada
- 2.
- 3.
- 4.
- 5.

## Revisions since previous application

KONO SHINTARO -

## Summary of Proposal

### Online leisure education intervention to enhance well-being of university students

**Challenge:** Leisure is the original antidepressant. University students can use more of it. A 2019 national survey showed that 51.6% of Canadian university students felt too depressed to function, while 16.4% seriously considered suicide. Yet, only 19.1% used traditional mental health services for depression. This situation has worsened due to COVID-19. We need alternative approaches to support students' subjective well-being (SWB).

One possible approach is leisure education (LE). Leisure refers to recreational activities (e.g., sports, arts, socials) during free time that accompany psychological states such as perceived freedom. Engagement in quality leisure experiences enhances SWB of university students. LE increases awareness of leisure opportunities and constraints. It also helps develop knowledge, skills, and attitudes conducive to quality leisure experiences and better SWB. LE has helped diverse groups of people. However, extant LE programs for university students: focus on providing specific activities and fail to facilitate learning about leisure in general and deeper behavioural and attitudinal changes; lack causal evidence; and are limited to in-person delivery. The purpose of the proposed study is to develop and pilot-test an online LE intervention to enhance the quality of leisure experiences and SWB of university students.

**Feasibility:** Development of our intervention content will be guided by Dattilo's LE model, self-determination theory (SDT), and the principal investigator's theory on leisure and *ikigai*, or "life worth living" in Japanese. SDT will also inform our delivery of LE (e.g., autonomy support by giving meaning choice). We will conduct an 8-week, randomized online experiment with a control group. A convenience sample of 80 students across gender and academic groups will be recruited at the University of Alberta (U of A). The intervention will involve short lecture videos about key topics (e.g., developing a leisure ethic, exploring leisure resources) and associated online and offline activities (e.g., photo-diary, leisure resource scavenger hunt in a community). We will use the U of A's Moodle-based learning management portal.

We will assess the intervention in terms of acceptability (e.g., activity engagement rate, weekly quizzes) and efficacy (e.g., changes in leisure experience and SWB variables). A mixed-methods design will be employed. Quantitative data will be collected via four rounds of online surveys: before, 4 weeks into, immediately after, and 4 weeks after the intervention. The surveys will measure basic psychological need satisfaction during leisure, leisure satisfaction, depression and anxiety symptoms, and SWB. Qualitative data will be collected through semi-structured interviews with 10 purposefully chosen intervention participants along with students' assignments. Group comparisons will be conducted quantitatively via MANOVA, while a thematic analysis of the qualitative data will identify factors that facilitated or prevented students' learning and changes.

**Impacts:** This project will create the first online LE intervention designed to enhance university students' SWB. Online delivery is timely and crucial because it increases the project's feasibility during the COVID-19 pandemic, and makes the outcome intervention deliverable to students around the world. Moreover, the evidence will allow us to propose a campus-wide online LE campaign to U of A administrators and clinicians. The intervention will be shared with other researchers and instructors in higher education locally and internationally at conferences. Findings can contribute to leisure studies, higher education, and positive psychology.

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2021 IDG

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1. Canada
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## Revisions since previous application

CAMMARATA LAURENT

## Summary of proposal

French immersion programs play a key role in promoting Canadian bilingualism. Immersion programs outside the province of Quebec are designed to help children in English-speaking communities become functionally bilingual. To achieve this goal, they propose an immersive approach in which most school subjects are taught in French in the elementary years. However, despite their growing popularity, these programs do not always produce the desired results in terms of students' language development, which can have a negative effect on students' academic success (e.g., underperformance on provincial achievement tests). To meet the challenge associated with immersion students' language development, the preparation of future teachers needs to be rethought placing greater emphasis on teaching language (e.g., grammar and vocabulary) and literacy skills (e.g., reading and writing strategies) in the context of the different school subjects (e.g., mathematics, science, and social studies).

The integration of language, literacy, and content teaching is a complex task that demands specific knowledge and skills. Therefore, it requires well-adapted preparation as early as possible in teachers' professional development. The proposed project aims to provide pre-service teachers (i.e., student teachers) with the skills to plan lessons using an integrated approach to facilitate the concurrent teaching of language skills and content knowledge. Teacher educators specialized in a given school subject, will work together to revisit their didactic courses to help the student teachers 1) understand the importance of language and literacy in the specific disciplinary context, and 2) plan well-integrated lessons where concepts are taught along with the language and literacy skills needed to complete associated activities. More specifically, this project will attempt to answer the following questions:

- To what extent has the instruction they received enabled the student teachers to deepen their understanding of the key concepts at the heart of the integrated approach?
- To what extent has the instruction they received enabled the student teachers to implement the integrated approach while planning lessons in different subjects?

To answer these questions, we will adopt a mixed methodology that borrows from both quantitative and qualitative approaches, including action research. The study will take place in the preservice teacher education program at Campus SaintJean (University of Alberta). Participants will be composed of future teachers who are students of the teacher educators who will be our partners during all stages of the research. Our data will be gathered from a variety of sources, such as questionnaires administered to student teachers at the beginning and end of the courses, student teachers' lesson plans, and followup semistructured interviews conducted with a sample of the student teachers.

In terms of scholarly benefits, the research results will provide a better understanding of how to prepare student teachers to use an integrated approach, and thereby guide the development of teacher education models particularly adapted to the immersion context. This pilot project will then be a springboard for a larger-scale study on the applicability and improvement of the models in question, which could subsequently be used to guide reforms undertaken by other institutions in their own immersion teacher preparation programs. In terms of social benefits, we anticipate that this work by teacher educators with student teachers will improve the student teachers' capacity to help students increase their proficiency in French, thus supporting the development of competent bilinguals, a mission at the heart of French immersion programs.

## Roles and responsibilities

### Research team:

- Dr. Laurent Cammarata (PI), Full Professor, Education, Faculté StJean, University of Alberta
- Dr. Martine Cavanagh (coapplicant), Full Professor, Education, Faculté StJean, University of Alberta
- Dr. Joël Thibeault (coapplicant), Associate Professor, Education, University of Ottawa
- Dr. Dominic Manuel (coapplicant), Assistant Professor, Education, Faculté StJean, University of Alberta
- Dr. Alice Prophète (collaborator), Assistant lecturer, Education, Faculté StJean, University of Alberta

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# MANAL KLEIB

## Summary of Proposal

Canadian health systems are investing in digital health tools (e.g., electronic health records) and new service delivery processes (e.g., mobile and virtual care) to improve health of citizens and access to care. Nurses are increasingly using digital health tools when providing direct care; however, they have significant knowledge gaps to use these systems. Excessive use of technology without adequate knowledge may lead nurses to view technology as a task when providing care. Observation of practice behaviors of nurse models can have a profound impact on learning and socialization of pre-licensure student nurses for their future practice roles with digital health. Approaches for educating students focused mainly on informatics competency and self-report methods for competency assessment. Digital health, which is broader than informatics, is not yet integrated in nursing curricula. Assumptions that students are tech-savvy also prevail. Little is known about core digital health education for nurses, student nurses' perceived preparedness to provide care using digital health and the social learning processes and contexts that influence their learning, nor how newly qualified nurses actually utilize digital health once they join the workplace.

An exploratory comparative case study of two Canadian prelicensure nursing programs from Eastern and Western Canada will be used to identify similarities and differences. Social Learning Theory will inform all aspects of the research. In phase 1, we will conduct a scoping review with an environmental scan to identify the scope and approaches to digital health education as reported in the literature and on websites of Canadian pre-licensure nursing programs and professional associations. In phase 2, we will collect data to understand the types of experiences in academic and clinical contexts that students perceive as influencing their knowledge acquisition and understanding of digital health and nursing experiences of care when working with digital health from the perspectives of newly qualified nurses and nurse managers. This will be achieved by conducting focus group interviews with a purposive sample of students in their last year of study at each site. Additionally, a purposive sample of nurse managers and recently qualified nurses. (graduates in the last two years) from within practice settings will be invited to participate in a one-on-one interview. Organizational documentation from academic and practice settings relevant to students' learning (e.g., digital health training programs) and policy documents from professional associations will also be collected. In phase 3, we will invite all students in their final year of study in both sites to complete a survey, to be developed based on data from interviews and literature. Survey data will provide a broader understanding of students' perceived knowledge and opinions toward digital health, the education they currently receive, and most pressing needs for further education. We will analyze data from each unit (students, graduates, managers) at each site separately, compare and contrast between sites within each unit of analysis, and aggregate data accordingly. Trainees will be mentored and involved in all phases of the research. Our knowledge mobilization strategies including webinars, infographic, social media, conference presentations, and publications will strategically target key stakeholders involved in student education. Digitization of healthcare is inevitable. It has consequences for Canadians who desire to access digital health services and for nurses using these tools when providing care. This project will have implications for the way we educate nurses on how to provide digital healthcare now and in the future.



## Summary of proposal

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### The Problem

**Listening comprehension**, or understanding of words, sentences and discourse, **is exclusive to each individual**. Children create meaning from the language that they hear, but the meanings they construct - and their errors - are usually **not directly observable**, and parents and educators often overestimate how much children actually understand (Paul, 2000). Compared to children's expressive language abilities (i.e., production), listening comprehension is relatively invisible, and has been subject to **far less research**. Therefore, a child who struggles putting words together to form sentences has significantly more opportunities to receive support than a child who struggles to understand the meaning of a conversation. Yet, to understand instructions in class, to sustain a conversation, or to read for meaning, a child **must** develop strong listening comprehension skills. This is a complex process requiring **explicit** comprehension of each word and sentence, **and implicit** comprehension to connect a message with prior knowledge to fill the gaps, referred to as **inferential comprehension**.

**Inferential comprehension difficulties of young children are often invisible**, may significantly impact children's ability to engage with others or with learning content, and/or be misinterpreted as behavioral issues. For example, a child may avoid interactions, leading others to think that they are shy, or may become frustrated and act out when struggling to understand in class. Therefore, when a child is struggling at home or in school, it is important to determine if inferential comprehension difficulties are part of the problem. In previous work, we have found that inferential comprehension difficulties can be detected in young children with **Developmental Language Disorder (DLD)** (Filiatrault-Veilleux et al., 2015b) and **on the autism spectrum** (Westerveld et al., 2021). The **underlying causes** of inferential comprehension difficulties in these two vulnerable populations and the **real-life consequences** on the daily functioning of these children are **unknown and require investigation**. Therefore, this research project aims to (1) explore **WHY** young children with DLD and on the autism spectrum show inferential comprehension difficulties, drawing from a theoretical model (including linguistic and cognitive predictors), and (2) investigate **HOW** these difficulties impact their daily life functioning, **in order to make the invisible visible** and provide the opportunity for vital support for this essential skill.

### The Impact

Findings will: (1) inform **better and earlier access to individualized support** based on theoretically informed and empirically validated linguistic and cognitive strengths and challenges underlying under-recognized inferential comprehension difficulties of children with DLD and on the autism spectrum, and (2) inform teachers, parents, caregivers, speech-language pathologists and other related professionals of the **functional impacts** of inferential comprehension difficulties on these children's daily lives. As comprehension difficulties and quality of life have also been highlighted as key priorities for future research by both DLD (Kulkarni et al., 2022) and autism communities (Roche et al., 2021; Clark & Adams 2020), we will include **co-creation with key stakeholders** to produce outcomes that are relevant to the DLD and autism communities. Finally, this new knowledge will be essential moving forward with best-practice models of inclusive education, a high priority for education departments and governments across Canada and internationally (Forlin et al., 2009; Lindsay, 2003), aiming at developing a better understanding of skills that enable access to the curriculum and to support social, emotional and behavioral development of **ALL children**.

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### Roles and responsibilities

Principal Applicant (PA): Dr. Pamela Filiatrault-Veilleux

Dr. Filiatrault-Veilleux is an emerging scholar and a leader in the study of inferential comprehension in young children. As a new Assistant Professor in the Communication Sciences and Disorders (CSD) Department at the University of Alberta, her outstanding research potential is demonstrated by substantial prior financial research support, including SSHRC doctoral and postdoctoral fellowships and grant funding (e.g., Speech and Audiology Canada clinical research grant, Speech Pathology Australia - Nadia Verrall Research Grant). Her program of research on inferential comprehension of young children has led to eight peer-reviewed publications on this topic (e.g. Filiatrault-Veilleux et al., 2015a; 2016a). She has developed, tested, and published the assessment tool to be used in the current project, the Inferential Comprehension in a Narrative - Assessment (ICNA) (Filiatrault-Veilleux & Desmarais, 2020). This tool was shortlisted for the INPAQTS award in Quebec, designed to highlight innovative solutions that help transform the health system, and reported in an article by the Chief Scientist of the Quebec Government (2020).

Dr. Filiatrault-Veilleux will lead the research project, from ethics application and recruitment of student researchers to data analysis and dissemination of results. She will take overall responsibility for reporting and budget requirements, planning and organization with the Stakeholders, RAs, PhD/MSc students' supervision. She will be lead author of the manuscripts in addition to participating in podcasts for SLPs and the general public. She will contribute 70% to the project and devote 70% of her research time to the project.

Co-applicant (Co-A, University of Alberta): Dr. Monique Charest

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2024 IDG

Compiled by Sylvia Madueke



Indicate and rank each entry relevant to your proposal, with Entry 1 as the most relevant and the last entry the least relevant.

1. Canada , Alberta
2. United States , Indiana
- 3.
- 4.
- 5.

### Revisions Since Previous Application

N/A

KOTELNIKOVA YULIYA

### Summary of Proposal

"A real nightmare!" – is a label that can be given by adults to a child who wiggles in their seat, loudly interrupts others, climbs on furniture, and runs around. Youth, and in particular boys, who struggle with developing skills to regulate their emotions and behavior are frequently viewed as "problematic," "lazy," "disruptive," and "all over the place" in classrooms, on playgrounds, and at family dinners. Indeed, youth who struggle with self-regulation are at increased risk for short- and long-term educational, professional, and interpersonal challenges. Further, our understanding of development of self-regulation is complicated by the lack of integration of two disparate yet equally relevant research literatures that have existed mainly independently in the fields of developmental psychology and cognitive neuropsychology. We aim to integrate these two research traditions to develop a unified, developmentally informed model of self-regulation to characterize its childhood development. We will draw upon theoretical models of self-regulation and its components as well as rich, multimethod approaches (i.e., informant-report questionnaires and cognitive/behavioral tasks) from child temperament and neuropsychology literatures to gain a better understanding of how self-regulation develops across childhood and adolescence. By capitalizing on the information gained from multiple informants (i.e., caregivers and teachers) and multiple methods (i.e., informant reports and cognitive/behavioral tasks) and using advanced statistical techniques, we hope to shed light on the ontogeny of self-regulation beginning in early childhood through adolescence, a critical period for evolving capacity to self-regulate. Using a longitudinal design, we will characterize self-regulation in 120 3-year-olds via caregiver report, including a novel measure developed by our research team and corresponding cognitive/behavioral tasks. Additional information about children's social-emotional functioning will be obtained from their caregivers and kindergarten teachers. We will then examine components of children's self-regulation by combining information provided by caregivers and obtained from task completion through a series of data reduction techniques. The derived components of self-regulation will be further validated by examining their associations with additional dimensions of children's socioemotional functioning (e.g., social knowledge and competence, emotional health and maturity, language and cognitive development). Preschoolers and their families who participate in the baseline assessment outlined in the proposed study will be followed up over time with questionnaire assessments to be completed every year and visits to the research laboratory at the University of Alberta every 2 years until reaching adolescence. Findings will contribute to developmental psychology, neuropsychology, clinical psychology, and pedagogy by yielding a better understanding of developmental trajectories of self-regulation, which may further inform expectation setting in educational environments and training for psychologists and educators. Further, we aim to provide a set of tools for early identification of youth with self-regulation difficulties that can be used by educators, mental health professionals, and community organizations with the goal of providing at-risk youth with early intervention opportunities and subsequent improved well-being and educational success.

### Roles and Responsibilities

Yuliya Kotelnikova (h-index =10) - principal investigator (PI)

Assistant Professor, School & Clinical Child Psychology Program, University of Alberta

PI will dedicate 60% of her time relative to other ongoing research projects.

Responsibilities: theoretical conceptualization and direction of the proposed study and broader research program, establishing collaborations and seeking consultation from the leaders in the field of child

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2023 IDG

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# HUDSON BREEN

## Summary of Proposal

How does a young person choose a future career in the face of the climate crisis? Most contemporary career education is built on models of career development which uphold capitalist models of work-life that are contributing to the climate crisis, while also placing onus on the individual to cope and navigate (Guichard, 2022). While there has been some shift towards addressing context in career development, including realities of oppression, marginalization, precarity, and the erosion of decent work—work that is “fair, dignified, stable, and secure” (Blustein et al., 2019, p. 2), there continues to be a lack of attention to contemporary existential issues of ecological sustainability and its reciprocal relationship with economic uncertainty and associated mental health challenges.

Climate change has been termed the defining issue of our time. Young people stand to face disproportionate effects of climate change, with those who face additional marginalization at risk for greatest harms, yet we continue to fall behind targets to address the crisis (UN, 2023). In particular, there has been an increase in research on the psychological impacts of climate change, and a call for enhanced response to mental health in the face of the climate crisis (APA, 2022). Climate change also has major implications for young people’s access to decent work, which is strongly linked to good mental health (e.g. Lopez et al., 2021).

Current career development education represents a missed opportunity to address issues of climate change, sustainability, and related mental health impacts. While it can be argued that uncertainty has always been an aspect of career development, the scope of the threats facing young people today is truly unprecedented. Traditional career development was designed to support the functioning of neoliberal, capitalist economy, given that it evolved as a means of fitting individuals into jobs within the emerging context of industrialization (Plant, 2020). Helping young people to feel hopeful about the future and to engage in meaningful action towards building the future they want requires an understanding of life/work that goes beyond traditional models to create opportunities for work to contribute to transformation, social justice, and sustainable development.

Hope is essential in motivating engagement and action on climate (Ojala, 2023). Eco-anxiety and career-life planning both involve cognitive and emotional experiences in the present while looking towards the future. Work and career are intrinsically connected to wellbeing and mental health, and career development can support mental health and wellbeing by increasing hope that a positive future is possible (Redekopp & Huston, 2021). Applied research on hope supports the potential of working with hope both implicitly and explicitly to support the mental health and wellbeing of individuals in a variety of contexts (Larsen et al., 2024).

Using participatory action research methods, this project will explore how youth experience and sustain hope in the face of the climate crisis, and the implications for future life planning, including ways youth can mobilize work—individually and collectively—to address the climate crisis. The project will result in the development of resources for educators and youth that address current realities of the climate crisis, barriers to decent work, and the potential for individual work to contribute to positive social change in the areas of climate justice, equity, and sustainability.



# DEMANS EPP

## Summary of Proposal

### **I hate this lesson! Understanding how children manage their affect during online reading lessons.**

Many of us have been frustrated when trying to learn something that we feel is difficult. Some of us chose to quit when facing frustration and others chose to work more so that they can overcome these difficulties. While several theories detail the role of adults' emotions (i.e., affect) in language learning or technology enhanced learning, few (if any) detail how children's feelings fluctuate when they are completing literacy lessons online. Moreover, **existing theories have yet to detail how children monitor and manage their feelings (i.e., meta-affect) to maintain their focus and support their learning.** A lack of measurement instruments is one barrier to achieving this understanding. Such instruments are needed so that we can understand how children monitor and manage their feelings during learning which would enable us to develop supports to help children learn to manage their emotions and improve their literacy.

Existing instruments for measuring affect and meta-affect have been developed for use with adults or high-literacy learners. These instruments rely on advanced vocabulary and literacy skills that prevent them from being used with children. **This project will use participatory design methods to adapt existing instruments so that they are appropriate for use with children.** We will then use these instruments to better understand how children behave, how they feel, and how they manage their feelings when engaged in online reading lessons.

As part of this work, we have partnered with an e-learning company. **This partnership will facilitate the integration of these instruments into a game-based e-learning environment that is used by over 2 million learners worldwide.** The integration of these instruments into an online reading game will enable the broader study of young learners' meta-affective strategies by enabling the measurement of their affect and meta-affective tendencies so that those can be linked to behavioural patterns in educational technologies. This insight will later enable the design and development of new, personalized technological features that better support childrens' learning.



Indicate and rank each entry relevant to your proposal, with Entry 1 as the most relevant and the last entry the least relevant.

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## Revisions Since Previous Application

RUISSSEN GERALYN

## Summary of Proposal

**BACKGROUND:** Subjective well-being (SWB) reflects how a person evaluates or perceives their overall quality of life. How an individual perceives their overall quality of life can influence, for example; their long-term health/longevity, their relationships with others, as well as their participation in society (e.g., work, community). Based on these far-reaching implications, strategies to enhance an individual's SWB are needed. Based on recent research, participation in physical activity improves SWB. However, this research has examined this relationship taking place, on average, between individuals. In doing so, this approach has neglected how the relationship between physical activity and SWB will be different across individuals, and may even be different within the same individual over time or in different contexts. Without considering the dynamic, person-specific (i.e., idiographic) nature of the relationship between physical activity and SWB, our conceptual understanding of this relationship is incomplete. This, in turn, will impair researchers' ability to fully optimize SWB based on the specific needs of an individual, or the specific aspects of their environment/context.

**PURPOSE:** The purpose of the proposed research is to use ecological momentary assessment (EMA) methods to explore how the dynamic, reciprocal relationships between the affective and cognitive subcomponents of SWB (i.e., satisfaction with life, incidental affect, integral affect) and physical activity behaviour change over time, in person-specific ways.

**METHODS:** Using a 21-day EMA mixed-sampling design, our study will involve a gender-balanced community sample of 100 individuals from the Greater Edmonton Area (50 active and 50 low active). Data will be analysed using hierarchical Bayesian continuous-time structural equation modelling (CT-SEM), as well as machine-learning approaches (i.e., CT-SEM trees) to examine what individual characteristics and situational factors meaningfully predict distinct person-specific dynamics between facets of SWB and physical activity.

**ANTICIPATED IMPACT OF THE PROPOSED RESEARCH:** The proposed research has the potential to bolster our conceptual understanding of the within-person dynamic relationships that underpin physical activity and the subcomponents of subjective well-being (i.e., life satisfaction, incidental affect, and integral affect). Should empirical support be derived for distinct idiographic dynamics relating physical activity and the affective and cognitive subcomponents of SWB, findings can be extended to develop person-specific intervention targets to optimize SWB (e.g., just-in-time-adaptive-interventions).

## Roles and Responsibilities

The research team is composed of the principal investigator, Dr. GERALYN RUISSSEN, one graduate student, and two undergraduate research assistants. GERALYN RUISSSEN (principal investigator), is an Assistant Professor in the Faculty of Kinesiology, Sport, and Recreation at the University of Alberta. She has experience in the dynamic, affective processes underpinning physical activity behavior (e.g., RUISSSEN, BEAUCHAMP et al., 2022). She also has experience in the collection and analysis of intensive longitudinal data to examine idiographic processes (e.g., RUISSSEN, ZUMBO et al., 2022).

Dr. RUISSSEN will be responsible for the overall program of research, oversee its administration, and will be involved centrally in scholarly output. These responsibilities include; hiring research assistants, conducting

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2023 IDG

Compiled by Sylvia Madueke



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MARKLE JOSH

## Revisions Since Previous Application

## Summary of Proposal

Mathematics is typically conceived as a cerebral, solitary activity. Think of Russell Crowe's portrayal of John Nash in *A Beautiful Mind* or Benedict Cumberbatch's of Alan Turing in *The Imitation Game*. But where and how, exactly, does mathematical knowing take place? Is it all in the head? Are these beautiful minds simply beautiful brains? Not so from the perspective of embodied cognition. In this diverse field, knowing and doing mathematics are seen to enlist the whole body, and this has important implications for how mathematics educators design learning tasks and other experiences for students.

Tasks are ubiquitous in the mathematics classroom. From traditional textbook questions and worksheets to collaborative, inquiry-based problems, tasks are the stage on which mathematical knowing and doing play out. Moreover, their careful selection and adaptation should be an integral part of mathematics teacher education. Drawing on research in cognitive science and psychology, recent scholarship has emerged around the idea of embodied task design, or the design of learning experiences that provide affordances for the body as a cognitive resource in learning mathematics.

There are two critical aspects to this emerging field of inquiry. On the one hand, embodied task design introduces a whole new set of questions around how students learn mathematics and how teachers assess their understanding. On the other, teachers, many of whom learned mathematics through traditional pencil-and-paper work, must be cognizant of how tasks might engage the body, and ultimately, the role of their own bodies in the selection, adaptation, and development of tasks. Relatively more focus has been on the former than the latter.

This pilot study intends to address that gap. I propose to use the frameworks of enactivism (Varela, Thompson, & Rosch, 1991), which is a theory of embodied cognition, and sensory ethnography (Pink, 2015) to describe and interpret how pre-service teachers experience their bodies (e.g., through sensation, perception, movement, etc.) when they explore and design tasks for the K to 12 math classroom. This project will involve six task design sessions with pre-service teachers as participants (up to 8 per session) at the University of Alberta, along with focus group interviews with participants. The aim of this pilot study is to directly inform pre-service mathematics teacher education, which I will achieve by (1) characterizing pre-service teachers' sensory and embodied experiences in their work with mathematical tasks; (2) investigating the relationship between those affordances and pre-service teachers' mathematical content knowledge, specifically in the context of spatial reasoning; and (3) theorizing how training might enable teachers to adopt insights from research in embodied cognition to support effective task design in mathematics instruction.

## Roles and Responsibilities

I have extensive experience in mathematics education as a secondary classroom teacher, teacher educator, and emerging researcher. I have taught in a variety of secondary settings, including advanced, post-secondary-stream mathematics classes, an alternative grade 9 program for students who were not finding success in conventional mathematics classrooms, and a workplace mathematics course I designed and taught in which students obtained high school credits through canoe building. Over the last several years, I have taught over 400 pre-service teachers in mathematics curriculum and instruction courses in teacher education programs at post-secondary institutions in Alberta and Ontario. I am also an active

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Indicate and rank each entry relevant to your proposal, with Entry 1 as the most relevant and the last entry the least relevant.

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## Revisions Since Previous Application

LAFRENIERE KATHERINE

## Summary of Proposal

Managers regularly insert themselves in conversations among consumers about products, brands, and services (i.e., word of mouth). The practice of management responses is not surprising in the context of negative reviews. Prior work has shown how managers should respond to unhappy consumers in order to positively influence subsequent reviews and revenue. Yet, management responses to *positive reviews* seem to make things worse. They have been shown to negatively influence subsequent reviews and revenue. Currently, it is unclear how managers should respond to positive reviews in order to improve consumer outcomes. We propose that the problem for managers is that management responses do not meet consumer expectations. Thus, we aim to develop and test a model of management responses that will improve consumer outcomes.

We identified two key components of management responses to positive reviews (e.g., a restaurant review that reads, "dinner was fantastic!"). Managers usually (1) accept the compliment (e.g., "Thank you!") and (2) indicate their agreement with the compliment (e.g., "I'm glad your dinner was fantastic!"). However, these responses (whether they contain acceptance, agreement, or both) seem to imply that the manager recognizes the compliment as one that *should* be accepted. They are, in essence, praising themselves. This social violation may explain why consumers react negatively towards management responses to positive reviews. Instead, we propose that, relative to no response, responses with *scaled-down acceptance and agreement* (e.g., "Thank you! We try our best, but our local suppliers are a big help.") will lead to positive consumer outcomes because they convey humility. In addition to exploring how managers should respond to positive reviews, we consider two variables that may diminish its effects: product- and occasion-type.

We propose to test our framework using field data and experiments. We will examine how the components of management responses (vs. no response) can impact online engagement and patronage of the business. We will also examine if responses with scaled-down acceptance and agreement can positively impact consumer outcomes compared to those that convey (1) acceptance only or (2) acceptance and agreement. Finally, we will examine when responses with scaled-down agreement are less effective, such as for reviews of utilitarian products and for reviews that state a special occasion.

The proposed research would contribute to both theory and practice. First, we would provide the first empirical test of the different components of management responses. Second, we would identify an alternative response for managers that conveys humility and therefore boosts positive consumer outcomes. Third, we would identify two novel variables that change consumer expectations and therefore diminish the impact of management responses: product- and occasion-type. Fourth, this research would qualify prior work showing that management responses to positive reviews can negatively impact consumers. We would confirm that responses are less effective when managers accept and/or agree with the compliment, but show they are more effective when they scale down their agreement.

Finally, this work offers insights to review platforms about best practice guidelines for managers, and highlights when management responses are most valuable. Our model suggests that platforms and managers may benefit from changing how they respond to positive reviews: management responses are powerful communication tools that help consumers, but only when they scale-down their acceptance and agreement to the positive review.

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**Indicate and rank up to five countries relevant to your proposal, with #1 the most relevant and #5 the least relevant.**

1. Canada , British Columbia
- 2.
- 3.
- 4.
- 5.

## **Revisions since previous application**

LIAO CHA-YING

## **Summary of Proposal**

Anti-Asian racism has surfaced during the Covid-19 pandemic. In 2021 a Cantonese-speaking senior was slapped on the face and told, "Go back to China... You don't live here, " while walking in Vancouver's Chinatown (Chau, 2021). This heinous sentiment exposes the forever foreigner stereotype imposed on Asian/Chinese diaspora communities in Canada. Through this project, I intend to challenge this stereotype by highlighting the liveliness and diversity of the Chinese diaspora community in Western Canada. Using the Strathcona basketball program in Vancouver, BC as a case study, I will explore how the Chinese diaspora community creates cultural belonging through sport in contemporary Canada. Launched in 1972 by two Chinese Canadian university students, the Strathcona basketball program has been a space for generations of Chinese Canadians to play ball and build community. Since its early years, the program has maintained active interactions with other Chinese sporting organizations in the Pacific Northwest, and it regularly sends teams to participate in the North American Chinese Basketball Tournament. While the program is not ethnically exclusive, its leadership remains mostly East Asian/Chinese, and many of the staff members are alumni of the program. The longevity of this program offers an opportunity to explore multigenerational stories of "playing while Chinese." As a Chinese Canadian who also plays basketball, I have an established personal connection with members of the program, who have agreed to facilitate initial contact with potential interviewees. Then, using the snowball sampling approach, I will recruit and interview 20 players who have participated in the program at any point between 1972 and 2022, with at least one player from each 5-year interval (e.g. 1972-1976, 1977-1981, and so on). One-hour interviews will be guided by these questions: How have and do Chinese Canadians lay claim to basketball in and through the VSBC? How have and do these claims influence their conceptualizations of Canada and their Chinese identities? These interviews will be analyzed alongside archival materials relating to local histories that are held by the City of Vancouver and Vancouver Public Library. Bringing interviews and archival materials together will enable me to map out a picture of how Chinese Canadian identity was and is constructed in and through basketball. This research will expand current sport studies on Chinese/Asian sporting identity by introducing a framework of diaspora and transnationality. It will also enrich the public discourse on Chinese Canadian communities and challenge the invisibility of Chinese diasporas in the common imagination of Canadian sporting culture. Besides academic venues, this research will be disseminated through a podcast series that is accessible to the general public. The podcast series will also be used as an outreach activity to Canadian public history websites, as well as Chinese cultural organizations (such as Vancouver Chinatown Storytelling Centre) to explore future collaborations to explore the Chinese diasporas' sporting culture.

## **Roles and Responsibilities**

As the principle investigator, I will be responsible for developing relationships with the community (Strathcona Community Centre, the Vancouver Strathcona Basketball Club, and program participants) and conducting field work (observation and oral history interviews). I will also be responsible for managing the work of two research assistants -- one MA RA and one senior undergraduate student from the University of Alberta. In the first year of my project, they will assist me with transcription and preliminary analysis. In the second year, they will assist me in creating and promoting a podcast series, and the RAs will also be invited to co-author scholarly publications resulting from the project. The details of the students' employment are given in the Roles and Training of Students section.

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**Indicate and rank up to five countries relevant to your proposal, with #1 the most relevant and #5 the least relevant.**

1. Canada
2. United States
- 3.
- 4.
- 5.

TAMAR MESCTEL

## **Revisions since previous application**

## **Summary of Proposal**

Arbitration has long been used to resolve disputes in the United States and Canada. When parties choose arbitration, they resolve their dispute outside of the court system, before a decision-maker of their choosing, and largely in accordance with procedural rules of their choosing. The arbitrator's decision is binding on the parties and may be enforced as a court judgment. Accepted as quicker and more cost-effective than litigation in the courts, arbitration has become particularly popular in the resolution of commercial disputes between corporate parties and labour disputes between unions and employers. Yet arbitration is increasingly being used in other contexts as well, most notably consumer and individual (nonunionized) employment disputes. Contracts for the purchase and/or use of internet services, rental cars, travel bookings, and mobile transportation services such as Uber contain terms making arbitration "mandatory", meaning that the consumer cannot opt to bring any future claim in court. These "standard-form" contracts are also used in non-collectivized employment contracts, requiring employees to accept mandatory arbitration of any future dispute arising from the employment relationship. In these contexts, the advantages of arbitration as an alternative to the courts may be outweighed by its increased cost to consumers and employees, lack of public scrutiny, and inadequacy in class wide rather than individual actions. Indeed, the inclusion of mandatory arbitration in employment and consumer contracts has been fiercely debated in the literature and the media for over two decades. However, few studies have empirically tested the normative arguments for and against the use of arbitration in these contexts. My project will contribute to this gap by using quantitative analysis to evaluate the suitability of arbitration for the resolution of individual as well as class wide employment and consumer disputes in Canada and the United States.

Empirical analysis is needed because the controversy surrounding employment and consumer arbitration is not merely theoretical. The Supreme Courts of Canada and the United States have been called upon to decide whether employment and consumer arbitration agreements are unconscionable because they are not freely negotiated, are unfair to the employee/consumer, or are inadequate to safeguard their rights. Legislatures on both sides of the border have also been pressured to amend existing arbitration legislation and limit its use in employment and consumer disputes. Such normative calls for action are useful in articulating the social and legal interests at play, but they are insufficient for determining whether arbitration is, in fact, disadvantageous to employees and consumers as compared with litigation in the courts. To do so, normative arguments must be supplemented with empirical data on the actual operation of arbitration in these contexts.

I will present the results of my study in two academic conferences and publish them in the form of an academic article in an American and/or Canadian peer-reviewed open-access law journal. The study will be of interest to dispute resolution, arbitration, consumer, and employment legal and social science scholars, as well as to organizations and lawyers working in these areas and policy-makers in Canada and the United States.

## **Roles and Responsibilities**

As the principal investigator and sole applicant, I will be responsible for designing and setting the project's research goals and the plan for implementation, and I will also be responsible for student training, supervision, and time management. I will write up the results of the research and disseminate them to academics, lawyers, and organizations researching or working in the areas of arbitration, employment law, and consumer protection law.

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## Countries

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Indicate and rank up to  
five countries relevant  
to your proposal, with  
#1 the most relevant  
and #5 the least  
relevant.

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Revisions since previous application

SARAH MOORE

## Summary of Proposal

Like many firms, beauty retailer Sephora's website offers an artificial intelligence (AI) chat agent where consumers can get help and ask about products. Imagine a consumer who asks Sephora's agent for a personalized recommendation. In response, the AI agent could say: "Some products for you are listed below", "The products listed below are recommended for your skin", or "The products listed below best address your skin concerns." Would the consumer respond differently to these statements? Which reply would most increase their satisfaction, likelihood of accepting the recommendation, and likelihood of using the chat agent again? The current research proposes to answer these questions.

Firms use online chat to provide efficient and convenient customer service, anytime and anywhere. To date, human agents have predominantly provided such services. However, firms are increasingly adopting AI agents in this domain—yet it is not clear whether this practice is optimal. Indeed, consumers are wary of AI agents, and prior research shows positive and negative consumer responses toward these agents, particularly as a function of how human they are perceived to be. These conflicting results offer little guidance for firms on how to design or use AI agents to provide engaging and satisfying customer service.

We address this issue by focusing on the words that AI chat agents use when interacting with consumers. We develop a framework to explain how, when, and why consumers are impacted by AI agents' language use. Specifically, we focus on lexical diversity—the number of unique words in a text—as an indicator of AI agents' humanness. We argue that when AI agents use more diverse language, consumers will perceive them as more human-like. Further, we identify a novel variable that determines when consumers will respond positively or negatively to more human-like AI agents: consumers' stage in the decision journey (pre-transaction, transaction, post-transaction). We predict that because consumers have different goals at each stage, their preferences for AI agents' humanness—and their responses to lexical diversity—will vary. For example, our framework suggests that the consumer in our opening example, who is in the pre-transaction stage, should respond most positively to the second reply, which exhibits moderate lexical diversity. We will test our framework across multiple experiments with consumers, using real chat bots and consequential choices.

The proposed research aims to make theoretical and practical contributions. First, we contribute to the nascent literature on AI chat agents by investigating language use, a fundamental aspect of AI design in text-based interactions that has been relatively overlooked. Second, we identify a novel variable, decision journey stage, that predicts when consumers will respond positively to more human-like AI agents. Third, we contribute to the customer service literature by introducing lexical diversity, which is easy to measure and implement. Fourth, we lay the groundwork for future research combining AI, language, and marketing.

Practically, this project will offer specific guidance to firms who design or use AI chat agents regarding how to improve their interactions with customers and increase positive customer outcomes such as satisfaction. For society, this project speaks to the appropriate—and optimal—uses of emerging technologies such as AI, which consumers encounter more and more frequently.

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2022 IDG

Compiled by Sylvia Madueke