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The Role of Self-Talk in Regulating Public Speaking Anxiety in Ethnically Diverse Young Adults in Canada

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By

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ABSTRACT

Public speaking is a commonly required skill within academic and workplace settings, and the ability to confidently and effectively communicate orally in group contexts is highly valued. However, public speaking is uncomfortable for many individuals, often associated with behavioural, cognitive, and physiological manifestations of anxiety. This discomfort may be even greater in individuals who are required to speak in a language in which they do not feel adequately proficient. Given the importance of oral communication skills within academic, workplace, and community settings, it is imperative that individuals are able to effectively regulate this anxiety response. One way in which an individual might regulate is through the use of self-talk (i.e., talking silently to oneself; Bivens & Berk, 1990).

The current two-phase study was conducted over the course of the COVID-19 pandemic (2021-2022). The primary purpose was to determine the influence that particular domains of self-talk (i.e., self-criticism, self-reinforcement, self-management, social-assessment; Brinthaupt et al., 2009) have on public speaking anxiety in a diverse group of undergraduate students. A secondary purpose of the current study was to determine the influence of English language proficiency on the use of self-talk, level of public speaking anxiety, and degree of foreign language anxiety. This was achieved, in part, by having participants with varying degrees of English language proficiency give an oral presentation in English in a virtual format. The current study utilized a concurrent design using a parallel approach, wherein quantitative and qualitative data were collected during the same period of time and integrated after data collection.

Participants in Phase 1 (N = 365) ranged in age from 18 to 50 years (39 male, 319 female, 3 non-binary individuals). The participants' self-reported self-critical self-talk and self-reinforcing self-talk predicted all domains of public speaking anxiety (i.e., total, behavioural,

cognitive, physiological). Self-reported social-assessing self-talk predicted behavioural and cognitive domains of public speaking anxiety, whereas self-managing self-talk did not predict any domains of public speaking anxiety. Degree of English language proficiency did not predict total public speaking anxiety. Participant gender predicted willingness to participate in Phase 2 of the current study, while other variables of interest (i.e., total public speaking anxiety, English proficiency, previous experience) did not.

Participants in Phase 2 (N = 21) ranged in age from 19 to 37 years (1 male, 19 female, 1 non-binary individual); they completed a virtual public speaking task and responded to interview questions. An inductive thematic analysis was conducted on the interview responses, and five themes were identified: 1) Self-Assessment of Task Competence, (2) “I Did Not Like That”: Experience and Drivers of Public Speaking Anxiety, (3) “It Added On The Original Stress”: The Impact of Language Proficiency, (4) “It Was Both Helping and Hindering”: The Role of Self-Talk in Managing and Exacerbating Anxiety, and (5) “Focus On Getting It Done”: Attempts at Problem-Focused Coping.

Findings of the current study have a number of clinical and theoretical implications, including supporting the relation between both positive and negative self-talk with managing or exacerbating public speaking anxiety, and highlighting the importance of considering cultural and linguistic diversity when addressing public speaking anxiety.

DEDICATION

I dedicate this dissertation to Ken and Denise Russell, both of whom were there when this project began and would have loved to celebrate this milestone with me. So much of who I am is a direct result of their love, support, and sacrifice, and I am forever grateful.

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CHAPTER 1

Introduction

Students in post-secondary institutions are often required to disseminate information orally both through formal presentation and informal classroom discussion. Beyond this, public speaking is often a requirement in the workplace and has been identified as a predictor of professional success (Martins & Fortes, 2008). However, public speaking commonly elicits an anxiety response that can impair performance (e.g., Diaz et al., 2001; Jones et al., 2012), produce significant discomfort (e.g., Bodie, 2010; Witt et al., 2006), and generate avoidance behaviours (American Psychiatric Association [APA], 2022; Beatty, 2009; Craske et al., 2014). One factor that may influence the presence or intensity of the anxiety response while public speaking is self-talk (e.g., Shi et al., 2015).

Self-talk is defined as talking to oneself, either aloud or silently (Vocate, 1994). The theoretical understanding of self-talk comes, in part, from the seminal work of Vygotsky (1978), who identified private speech with a regulatory function as being distinct from social speech with a communicative function. In Vygotsky's work, private speech (i.e., self-talk) is an adaptive developmental milestone that aids in behaviour regulation (Bivens & Berk, 1990; Vygotsky, 1978). Past research has consistently supported the influence that thoughts have on our emotions and behaviours (e.g., Beck, 2011), and this understanding is the basis for the cognitive-behavioural framework. More recent research has suggested that depending on the nature of the self-talk, it can function as an emotion regulation strategy consciously applied in an effort to reduce public speaking anxiety (e.g., social-assessing), or as a conscious or unconscious process that increases public speaking anxiety (e.g., self-criticism; Shi et al., 2015). In other words, self-talk can either help or hinder attempts to manage anxiety during a public speaking task.

One context in which public speaking anxiety may be particularly heightened is when people are required to speak in a second language. As academic institutions and cities across Canada become increasingly diverse, it is important to consider the prevalence and manifestation of public speaking anxiety in a culturally diverse population, including individuals with varying degrees of English language proficiency. This is particularly important given that individuals with less English language proficiency may experience foreign language anxiety, defined as nervousness and trepidation specifically associated with speaking, listening and/or learning in a second language (MacIntyre & Gardner, 1994). Thus, it is important to determine to what extent public speaking anxiety and foreign language anxiety uniquely contribute to anxiety during a public speaking task in students with lower levels of self-reported English language proficiency.

The purpose of the current study was twofold. The first purpose was to investigate the role of self-talk in regulating public speaking anxiety in a culturally diverse sample of young adults. Specific domains of self-talk, including self-criticism (i.e., discouragement about something one has said or done), self-reinforcement (i.e., pride about something that has happened), self-management (i.e., determining what one should say or do), and social assessment (i.e., examining the response of others; Brinthaupt et al., 2009) were addressed, as was the relation between these domains and levels of public speaking anxiety. The application of self-talk in regulating the anxiety response was further examined in a brief public speaking task and through a qualitative interview. A second purpose of the current study was to investigate public speaking anxiety, use of self-talk, and the unique contribution of foreign language anxiety in young adults with varying degrees of English language proficiency. The current, two-phase study employed a concurrent design using a parallel approach, wherein quantitative and qualitative data on public speaking anxiety, foreign language anxiety, and self-talk were collected during the

same period of time and integrated after data collection. In the following sections, a review is conducted on the link between public speaking anxiety, self-talk, and foreign language anxiety using a cognitive-behavioural framework (Beck, 2011).

Public Speaking Anxiety

Anxiety is a natural human response that serves the important evolutionary purpose of protecting individuals through anticipation of a future threat (APA, 2022), and has been referred to as a biological warning system (Hoehn-Saric & McLeod, 2000). However, the anxiety response becomes maladaptive when it is disproportionate to the actual threat or when it occurs in absence of an actual threat (APA, 2022). Furthermore, anxiety is considered to be clinically elevated when it produces significant distress or functional impairment (APA, 2022). Anxiety disorders are one of the most common mental health problems within Canada, with prevalence rates of 6.4% in males and 10.7% in females (Statistics Canada, 2017a). Although the current diagnostic system functions categorically (APA, 2022), the arbitrary nature of classification is a topic of ongoing debate within the psychological community; research findings suggest that psychopathology symptoms are often dimensional in nature (e.g., Millon et al., 2010). Therefore, there are likely individuals who experience sub-clinical levels of anxiety but who do not meet the diagnostic criteria for an anxiety disorder; these individuals may nonetheless be experiencing anxiety-related distress and impairment in their everyday lives at school, work, or within their communities.

A common source of anxiety in some everyday situations is public speaking. Public speaking anxiety, also referred to in the literature as glossophobia, refers to social anxiety associated specifically with the actual or expected completion of an oral presentation (Bodie, 2010). Public speaking anxiety can be clinically elevated or subclinical. In the *Diagnostic and*

Statistical Manual of Mental Disorders (*DSM-5-TR*; APA, 2022), public speaking anxiety is nested under Social Anxiety Disorder, defined by fear or anxiety about one or more social situations, such as public speaking. A diagnosis of Social Anxiety Disorder may or may not include public speaking anxiety. Individuals whose social anxiety is limited to performance situations in which they may be required to perform or speak in front of others are diagnosed with the "Performance Only" specifier of Social Anxiety Disorder (APA, 2022). Individuals without this specifier might still experience performance or public speaking related anxiety, but experience social anxiety in non-performance situations as well (APA, 2022). In fact, a large majority (97%) of people with Social Anxiety Disorder report public speaking anxiety (Beidel & Turner, 2007). Public speaking anxiety would be considered clinically significant and warrant a mental health diagnosis if the following criteria were met: (1) the individual fears they will be negatively evaluated due to visible symptoms of anxiety, (2) public speaking almost always provokes anxiety, (3) situations requiring public speaking are either avoided or tolerated with severe anxiety, (4) the fear is not proportionate to the actual threat posed by the public speaking situation, (5) the fear of public speaking has been present for 6 months or more, and (6) the fear or avoidance of public speaking causes clinically significant distress or impairment (APA, 2022).

It is important to distinguish between public speaking anxiety and communication apprehension, as these two terms are often used interchangeably. Communication apprehension is defined as anxiety or fear arising from actual or expected interpersonal communication, with one or more persons (McCroskey, 1977). Communication apprehension is broad and includes all forms of communication, including but not limited to, social interaction, writing, singing, and public speaking (McCroskey, 1984). Thus, public speaking anxiety can be understood as a specific subtype of communication apprehension (McCroskey, 1977).

Public speaking anxiety is highly prevalent; approximately one in three adults in a community sample reported excessive anxiety when speaking in front of an audience (Stein et al., 1996). In a study of undergraduate students at a Swedish university (Tillfors & Furmark, 2006), participants were asked to rate fourteen situations that might produce social anxiety or discomfort. Public speaking was the most distressing social fear reported; 18.7% of the entire sample indicated distress related to speaking (or performing) in front of a group of people (Tillfors & Furmark, 2006). The onset of public speaking anxiety most commonly occurs during the adolescent years (Wittchen & Fehm, 2003) and fear of public speaking has been identified as one of the most common reasons students do not enjoy school and drop out of high school prior to graduation (van Ameringen et al., 2003). Although fear of public speaking is highly prevalent, public speaking is commonly required in both academic and professional settings, and the ability to speak in public effectively has been identified as a predictor of professional success (Martins & Fortes, 2008). In addition to academic and professional achievement, the continued importance of communication education also includes self-development, educational enrichment, and sociocultural responsibility (Morreale & Pearson, 2008). Thus, understanding the public speaking anxiety response is crucial; one way to understand and conceptualize public speaking anxiety is through a cognitive-behavioural framework.

Understanding Public Speaking Anxiety through a Cognitive-Behavioural Framework

A commonly used theory to understand the anxiety response is the cognitive-behavioural framework, which was originally developed by Aaron Beck in the 1960s and 1970s (Beck, 1964; Beck, 1971) and remains a commonly used, efficacious intervention for a range of psychiatric presentations (e.g., Hofmann et al., 2012). This framework integrates the major tenets of both cognitive theory, which emphasizes the influence of maladaptive cognitions on the experience of

emotion (Hofmann et al., 2013) and behavioural theory, which emphasizes the influence of maladaptive behaviours on the experience of emotion (Eysenck, 1959). As it relates to the current study, cognitive-behavioural therapy is commonly used in the treatment of public speaking anxiety and its emphasis on cognitive modification is consistent with the current study's exploration of self-talk.

The concepts of classical conditioning (Pavlov, 1902) and operant conditioning (Skinner, 1938) greatly influenced behavioural therapy techniques. In general, behavioural therapy posits that learned, maladaptive behaviours contribute to psychological problems and can be modified through intervention (Eysenck, 1959). Common features of behaviour therapy include exposure, modeling, relaxation, and behavioural activation (Thoma et al., 2015). Cognitive therapy, founded by Aaron Beck in the 1960s, posits that maladaptive and deeply engrained thought patterns contribute to psychological problems and can be modified through a process of identification and restructuring (Beck, 2011; Thoma et al., 2015). Common features of cognitive therapy include identification of negative automatic thoughts, labeling of cognitive distortions, cognitive restructuring, and guided discovery (Beck, 2011). A number of behavioural techniques were integrated into cognitive therapy, resulting in cognitive-behavioural therapy (Thoma et al., 2015).

In addition to general cognitive-behavioural models, cognitive-behavioural models specific to the understanding and treatment of social anxiety have been developed. Models to understand social anxiety include Clarke and Wells' (1995) Cognitive Behavioural Model of Social Phobia and Rapee and Heimberg's (1997) Cognitive-Behavioural Model of Social Anxiety Disorder; within these models, the existence of and interaction between cognitive behavioural components are applied specifically to processes underlying socially-based anxiety.

More recently, Weeks and Howell (2012) proposed the Bivalent Fear of Evaluation Model of Social Anxiety, which posits that socially anxious individuals fear both positive and negative evaluation due, in part, to subsequent impact to social hierarchy. These theories have relevance to the current study and will be integrated as needed throughout the document.

Broadly speaking, cognitive-behavioural theory posits that an individual's thoughts, behaviours, and feelings influence one another and as a result of these bidirectional relations, the modification of maladaptive thoughts and behaviours can alleviate emotional distress (Beck, 2011). Modification of behaviours typically involves resisting engaging in emotionally driven behaviour and exposing oneself to situations that are feared or frequently avoided (Beck, 2011). Avoidance is a common behavioural response associated with anxiety and although it produces relief of anxiety symptoms in the short-term, it contributes to heightened anxiety and ongoing maintenance of anxiety in the long-term (e.g., Rapee & Heimberg, 1997). Avoidance also reduces the opportunity for individuals to experience success and learn other, more adaptive behavioural responses (Hayes & Wilson, 1994). Avoidance of public speaking is a common emotionally driven behaviour and is a criterion in the diagnosis of Social Anxiety Disorder (APA, 2022). Studies have found that those with public speaking anxiety exhibit high levels of both experiential avoidance (i.e., avoidance of internal experiences; Craske et al., 2014) and behavioural avoidance (i.e., avoidance of external experiences; Davies et al., 2015). A key behavioural intervention in a course of cognitive-behavioural therapy is exposure, which involves an individual exposing themselves to the feared situation or stimulus (e.g., public speaking; Wolpe 1968). Exposures can be engaged in through use of imagination, virtual reality, or in real life. Exposures are typically completed without engaging in "safety behaviours" (e.g., avoidance), as the use of safety behaviours in exposure treatment has been historically viewed as

detrimental (Salkovskis, 1991). In a study conducted by Tutino and colleagues (2020), undergraduate participants at a Canadian university were assigned to one of two experimental conditions (i.e., able to use a safety behaviour, unable to use a safety behaviour) and asked to complete a public speaking task. Safety behaviours available to participants included sitting down, standing behind a podium, and utilizing a stress ball. Results indicated no difference between the two groups on self-reported state anxiety, however participants who did not use a safety behaviour indicated increased willingness to complete a future public speaking task without use of safety behaviours (Tutino et al., 2020).

Modification of thoughts typically involves evaluating automatic thoughts by determining their validity (i.e., is this thought true) and utility (i.e., is this thought helpful), and identifying associated cognitive distortions (i.e., labels to describe common ways in which thoughts may be untrue or unhelpful; Beck, 2011). Common cognitive distortions include filtering, polarized thinking, overgeneralization, mind reading, catastrophizing, magnifying, personalization, and ‘should’ statements (McKay et al., 2011). Cognitive modification may be particularly beneficial for those with social anxieties, including public speaking anxiety; a recent study conducted by Kuru and colleagues (2018) identified that individuals with Social Anxiety Disorder engaged in significantly more cognitive distortions (e.g., catastrophizing, all-or-nothing thinking, “should” statements) when compared to a control group. Public speaking anxiety has also been associated with maladaptive cognitions that increase anxiety, such as the negative bias in interpretive social situations (e.g., Wilson & Rapee, 2005). Today, cognitive-behavioural therapy remains one of the most efficacious treatments for a range of anxiety disorders (van Dis et al., 2020), including Social Anxiety Disorder (e.g., Bogels et al., 2014). In a recent meta-analysis, cognitive-behavioural therapy was identified as the best initial intervention for Social

Anxiety Disorder when compared to other psychological (e.g., psychodynamic psychotherapy, interpersonal psychotherapy) and pharmacological (e.g., SSRIs) interventions (Mayo-Wilson et al., 2014).

A cognitive-behavioural framework has been applied to public speaking anxiety both in theory and clinical practice. One of the main interventions within cognitive behavioural therapy is cognitive modification; the process of noticing, assessing, and restructuring automatic self-talk. Thus, given that self-talk is a key feature of efficacious treatment of public speaking anxiety and self-talk is a main variable in the current study, a brief review of cognitive-behavioural intervention is addressed next. With respect to intervention, Finn and colleagues (2009) reported that brief repeated exposure was effective in reducing public speaking anxiety in a sample of undergraduate students. Anderson and colleagues (2005) adapted the typical cognitive-behavioural treatment by adding virtual reality exposures. During the virtual reality exposure sessions, participants wore a headset that displayed a virtual environment, including a virtual podium and virtual audience (Anderson et al., 2005). In doing so, participants were able to practice exposing themselves to public speaking in a manner that allowed researchers more control (e.g., researchers were able to control the number of audience members and the reaction of the virtual audience; Anderson et al., 2005). Results of this treatment demonstrated significant improvement in self-reported public speaking anxiety post-treatment and at a three-month follow-up (Anderson et al., 2005). Subsequent research has validated the use of virtual reality exposures in the treatment of public speaking anxiety (e.g., Lindner et al., 2019; Safir et al., 2012).

In a recent meta-analysis, Ebrahimi and colleagues (2019) found cognitive-behavioural interventions to be an efficacious treatment for public speaking anxiety, with both short-term and

long-term effects. A number of common CBT techniques were used in the treatment studies included in this meta-analysis, including addressing aspects of self-talk such as rumination (Anderson et al., 2013) and challenging negative thoughts (Botella et al., 2010). Acceptance and commitment therapy (ACT), a third-wave variation of cognitive-behavioural therapy that emphasizes mindfulness, acceptance, and psychological flexibility (Hayes et al., 2006), has also demonstrated efficacy in the treatment of public speaking anxiety (e.g., England et al., 2012). However, research has identified that traditional forms of CBT are more efficacious than ACT in patients with Social Anxiety Disorder who demonstrated higher levels of public speaking avoidance (Mesri et al., 2017). One potential reason for this may be the sequential, behavioural nature through which avoidance is targeted in CBT, which is not traditionally a component of ACT (Mesri et al., 2017). As it relates to the current study, the efficacy of cognitive-behavioural therapy in the treatment of public speaking anxiety supports the application of this framework in both clinical and research capacities.

A Three-Component Model of the Public Speaking Anxiety Response

Public speaking anxiety is commonly associated with behavioural, cognitive, and physiological manifestations, consistent with the three-component model of anxiety described by Lang (1971) and the cognitive-behavioural framework described above (Beck, 2011). Behavioural manifestations include rigidity of the body, hand gestures, stuttering, self-grooming, referencing notes, and inappropriate laughter (Fydrich et al., 1998; Harb et al., 2003, Lee & Kleinsmith, 2019), all of which may communicate the speaker's anxiety to an audience (Mulac & Sherman, 1975). An additional behavioural response to public speaking anxiety is avoidance; individuals with a fear of public speaking may avoid situations or opportunities that include a public speaking component (Davies et al., 2015). Cognitive manifestations of public speaking

anxiety include an underestimation of speaking ability (Alden & Wallace, 1995), expectation of negative evaluation (Wilson & Rapee, 2005), exaggerated thoughts (Daly et al., 1997) and maladaptive self-talk (Shi et al., 2015). Physiological manifestations, associated with activation of the autonomic nervous system, include elevated levels of palmar sweat (Clements & Turpin, 1996), increased heart rate and blood pressure (Bodie, 2010), and gastrointestinal upset (Witt et al., 2006). These physiological manifestations may involve the fight or flight response, which serves the evolutionary purpose of protecting an individual from danger (Hoehn-Saric & McLeod, 2000). Public speaking anxiety and its manifestations represent an instance of state anxiety, defined as temporary and situation specific (Witt & Behnke, 2006). However, higher levels of public speaking anxiety are associated with higher levels of trait anxiety, a general trait-like predisposition to experience anxiety across situations (e.g., Behnke & Sawyer, 1999; McCroskey et al., 1976). Thus, individuals who are generally more anxious are more likely to experience anxiety while public speaking.

Although public speaking anxiety is common, the specific nature of this form of fear may be unique. For instance, LeFebvre and colleagues (2018) explored public speaking anxiety fears through qualitative thematic analysis in a sample of undergraduate students within the United States. Participants, all enrolled in an introductory public speaking course, were asked to identify their most significant fears about public speaking (LeFebvre et al., 2018). Twelve themes were identified, each encompassing a specific fear, and the most commonly reported fears related to audience reaction (e.g., judgment, disengagement/disinterest, conspicuousness, perceived incomprehension, non-interaction) and an inability to self-regulate (e.g., memory glitches, eye contact, and transitions; LeFebvre et al., 2018). Similarly, Grieve and colleagues (2021) explored specific fears related to public speaking through qualitative analysis in a sample of

undergraduate students within the United Kingdom. Six themes were identified in this analysis, including fear of being judged, experience of physical symptoms, uncertainty about the topic, and negative effect on university experience. The results of this study also highlighted the need for more practical support related to public speaking (Grieve et al., 2021). Although gender differences were minimally explored in the above qualitative analyses, in part due to limitations of the sample, there is a body of literature that supports an association between gender and public speaking anxiety, as discussed below.

Public Speaking Anxiety and Gender

Research has consistently demonstrated gender differences in the prevalence rates of anxiety, including Social Anxiety Disorder and public speaking anxiety, wherein females are twice as likely to report anxiety as compared to males (e.g., APA, 2022; Costello et al., 2005). For example, Behnke and Sawyer (2000) reported that although both male and female undergraduate students in the United States experienced a similar trend of anxiety throughout all milestones of a public speaking task, female students reported higher levels of anxiety throughout. Increased public speaking anxiety in females has also been demonstrated in more recent self-report research cross-culturally in Brazilian (e.g., Marinho et al., 2017), Malaysian (e.g., Hwa & Peck, 2017), and Spanish (e.g., Carrillo et al., 2001) undergraduate student samples. These findings support the need to consider gender and other potentially relevant individual differences when conducting studies on public speaking anxiety. Another factor that research has found to be associated with public speaking anxiety is familiarity with the language in which the speech is being completed.

Foreign Language Anxiety

Language proficiency has been shown to be negatively related to public speaking anxiety; in other words, individuals tend to feel more anxious when public speaking in a language in which they perceive themselves to be less proficient (e.g., LeFebvre et al., 2018). One reason for this relation may be foreign language anxiety (also identified in the literature as xenoglossophobia), which refers to nervousness and uneasiness related specifically to speaking, listening, and/or learning in second language situations (MacIntyre & Gardner, 1994). In a study conducted by Woodrow (2006) with a sample of Australian undergraduates, foreign language anxiety was rated highest when engaging in an oral presentation, as compared to a number of other classroom-based situations (e.g., group discussion, answering a teacher's question). Similarly, in a study of multilingual students at a university in the United Kingdom, foreign language anxiety was rated highest when speaking in public, as compared to speaking with friends and speaking with strangers (Dewaele, 2007). In LeFebvre and colleagues' (2018) qualitative study of public speaking fears in undergraduate students in the United States, one emergent theme (i.e., disfluency) included fears of language proficiency. Students expressed concerns that they would not speak fluently, in part as a result of thinking in their first language and having to communicate in English (LeFebvre et al., 2018). In a qualitative study conducted by Dansieh and colleagues (2021), Ghanian students who spoke English as a second language identified many public speaking fears directly related to speaking English as a second language, including fear of making grammatical errors and fear of using poor or inadequate vocabulary. Additionally, higher levels of foreign language anxiety have been associated with a reduced willingness to communicate (e.g., Richmond & McCroskey, 1987; Wu & Lin, 2014) and an underestimation of language proficiency (MacIntyre et al., 1997). As such, when measuring

levels of public speaking anxiety, it is important to identify an individual's level of spoken fluency in the language that they are speaking in to complete the public speaking task.

Spoken fluency is particularly important to consider given the increasing linguistic diversity of Canadian cities and academic institutions. For instance, 19.2% of the Canadian population are French speaking and 21.7% have a first language that is not English or French, the most common of which are Mandarin, Cantonese, and Punjabi (Statistics Canada, 2017b). In Windsor, Ontario, Canada specifically, 71.2% of the population speaks English as a first language, with the other most common first languages being Arabic (4.2%), French (2.9%), and Italian (.08%; Statistics Canada, 2017b). However, the diversity of Canadian university students extends beyond their spoken language and encompasses culture in a broader sense, which includes a variety of traditions.

Public Speaking Anxiety and Culture

Spoken language is only one component of an individual's culture that also includes beliefs, rules, customs, knowledge and arts (American Sociological Association, 2020). Although the current study focused on spoken language (i.e., those with varying degrees of English language proficiency), it is important to acknowledge the larger context of culture given that previous research has identified a cultural influence on emotional expression and public speaking anxiety.

Past research has identified a relation between culture and expression of emotions. For example, Tsai and colleagues (2006) explored ideal affect (i.e., affective states that are valued and desired) in a sample of European American and Asian American undergraduate students in the United States. Results indicated significant differences between these two groups, such that Asian Americans more highly valued affect states that were low in arousal (e.g., calm; Tsai et al.,

2006). These results suggest that cultural differences might exist in the valuation of emotion and affective states. Research has also indicated lower prevalence rates of Social Anxiety Disorder in Asian samples (Hofmann et al., 2010) and more culturally specific (though not culturally bound) presentations of social anxiety have been explored. For instance, Taijin Kyofusho is a culturally-specific syndrome included in the DSM-5, which captures a form of social anxiety commonly demonstrated in Asian samples that is less focused on one's own discomfort and more related to causing discomfort in others (APA, 2022; Essau et al., 2012).

Past research has also identified a relation between culture and levels of public speaking anxiety. For instance, Croucher and colleagues (2015) explored communication apprehension cross-culturally by assessing native language communication apprehension in a sample of English, Finnish, and German individuals. Results suggested that individuals from England exhibited significantly lower levels of communication apprehension when compared to individuals from Finland and Germany (Croucher et al., 2015). There are a number of ways in which to interpret these results. For instance, they may be explained by cultural differences in the extent to which oral communication is valued and taught within the individual education curricula (Croucher et al., 2015). It is also possible that cultural differences in public speaking anxiety are explained, in part, by differences in low-context and high-context cultures (Pryor et al., 2005). High context cultures (e.g., China, Korea) communicate in ways that are implicit and rely heavily on context and nonverbal communication (Hall, 1976; Kim et al., 1998). In contrast, low context cultures (e.g., the United States) rely on explicit verbal communication (Hall, 1976). Thus, it is possible that a public speaking task may elicit more anxiety in individuals with a cultural identity that places less value on verbal communication (Pryor et al., 2005).

Cultural differences on a public speaking task might also be explained by power differentials that exist societally; for instance, in non-Anglo communities, public speaking may be more imbedded in social hierarchies, wherein those speaking in public are typically high-powered males, such as elders or chiefs (e.g., Boromisza-Habashi et al., 2015; Philips, 2010). This concept of the influence of social hierarchies might also extend to other marginalized identities and has been proposed as an explanation for why women consistently report higher levels of public speaking anxiety (Mills, 2006). More generally, Boromisza-Habashi and colleagues (2015) have identified the public speaking competency that is taught and required in North America as an ideal of Anglo culture. Regardless of the source of discomfort, either social anxiety or foreign language anxiety, individuals who experience public speaking anxiety are often still required to engage in public speaking and benefit from the ability to effectively manage their emotions.

Emotion Regulation and Public Speaking Anxiety

In order to successfully engage in public speaking, individuals must be able to effectively regulate their emotional and physical discomfort. First, it is imperative to distinguish between coping and emotion-regulation, as these concepts are distinct, yet often used interchangeably. One distinguishing factor is the automaticity of the process, whereby emotion regulation encompasses both automatic and controlled processes and coping behaviour is exclusively a controlled process (Compas et al., 2014). A second distinguishing factor involves when the response occurs, whereby emotion regulation occurs in a number of situations and coping behaviour occurs exclusively in response to stress (Compas et al., 2014). Thus, coping can be conceptualized as a specific type of emotion regulation (Compas et al., 2014). In the present

study, both automatic and controlled processes during a public speaking task will be addressed as features of emotion regulation.

Studies have identified specific emotion regulation deficits in individuals with Social Anxiety Disorder (e.g., Werner et al., 2011). Although the current study is not focused on those meeting the diagnostic criteria for Social Anxiety Disorder, research related to Social Anxiety Disorder and symptoms of social anxiety are relevant given the connection to public speaking anxiety. For example, Werner and colleagues (2011) had participants with and without a diagnosis of Social Anxiety Disorder complete a two-minute, video recorded public speaking task after which a structured clinical interview specific to emotion regulation was administered. Results indicated that individuals with Social Anxiety Disorder engaged in more expressive suppression (i.e., concealment of visible anxiety symptoms) during the public speaking task (Werner et al., 2011), consistent with previous research (e.g., Campbell-Sills & Barlow, 2007; Gross & John, 2003). Individuals with Social Anxiety Disorder also engaged in more avoidance when compared to healthy controls (Werner et al., 2011). Additionally, Niles and Craske (2018) identified explicit emotion regulation (i.e., a conscious attempt to modify emotion) and incidental emotion regulation (i.e., an automatic response, not an intentional modification of emotion) deficits in participants with public speaking anxiety. Thus, not only do those with social anxiety engage in more attempts to regulate their emotions (Werner et al., 2011), but they also have more difficulty successfully implementing these emotion regulation behaviours (Niles & Craske, 2018). Although those diagnosed with Social Anxiety Disorder have been identified as having these various symptoms, these symptoms may also be present at subclinical levels when engaging in a socially stressful situation like public speaking. One emotion regulation

strategy explored by Werner and colleagues (2011) was cognitive reappraisal, which involves changing how one is thinking or talking to themselves.

Self-Talk

Self-talk is defined as talking to oneself, either aloud (overtly) or silently (covertly; Vocate, 1994), and the understanding of self-talk derives, in part, from Vygotsky's (1978) seminal work on the concept of private speech and thought. Vygotsky conceptualized private speech as a universal stage in child development during which speech directed towards oneself becomes distinct from speech directed towards others (Berk, 1992). As development progresses, this distinction between private speech and social speech increases (Vygotsky, 1978). Private speech is initially spoken outloud (overt), but eventually (around 7 years old) becomes largely internalized (covert; Berk & Landau, 1993). Both overt and covert private speech serve the adaptive, self-regulatory function of planning, directing, and controlling behaviour (Bivens & Berk, 1990). In addition to regulation, use of self-talk has been associated with a number of additional benefits. For instance, Depape and colleagues (2006) reported that overt self-talk during completion of a task was associated with increased emotional intelligence in a sample of undergraduate students. The role of self-talk is also commonly studied with respect to athletic success and wellbeing within the sports psychology literature (e.g., Hardy, 2006).

Researchers have identified a relation between the content or function of self-talk and levels of public speaking anxiety (e.g., Shi et al., 2015). Consistent with cognitive behavioural theory, thoughts (e.g., self-talk) are associated with and often influence emotion (Beck, 2011). Researchers have identified that use of non-first-person pronouns can increase self-distancing and subsequently, increase participants' awareness and ability to regulate while preparing for a public speaking task (e.g., Hayes et al., 2006; Kross et al., 2014). For instance, when completing

a public speaking task, participants who used non-first-person pronouns (e.g., you, he/she, the participant's first name; "why does Jane feel this way?") in their speech preparation demonstrated more confidence and less nervousness when compared to those who used first-person pronouns (e.g., I, my; "why do I feel this way?"; Kross et al., 2014).

The measurement of self-talk has also been dichotomized into positive and negative self-talk (e.g., Hofmann & DiBartolo, 2000). Research has shown that negative cognitions related to public-speaking anxiety are associated with increased state anxiety during a public speaking task (e.g., England et al., 2012). More recent research has identified a positive correlation between positive self-talk and trait mindfulness, as well as a negative correlation between negative self-talk and trait mindfulness (Grzybowski & Brinthaupt, 2022).

In addition to the function of pronouns or the identification of self-talk as either positive or negative, the content of self-talk has also been explored. Brinthaupt and colleagues (2009) identified four domains of self-talk, unique in their function: (a) self-criticism, when an individual feels dispirited about what they have said or done, (b) self-reinforcement, when an individual feels pride associated with a positive occurrence, (c) self-management, when an individual is required to determine what to say or do, and (d) social-assessing, when an individual examines the response of others to something they have said or has a desire to redo something they have said. Shi and colleagues (2015) reported that higher levels of self-critical self-talk and social-assessing self-talk were associated with higher levels of public speaking anxiety in a sample of undergraduate students preparing for a speech. Additionally, higher levels of self-reinforcing self-talk were associated with lower levels of public speaking anxiety, while self-managing self-talk was not significantly associated with public speaking anxiety (Shi et al., 2015). These results were largely replicated in a follow-up study that had participants actually

engage in a public speaking task (Shi et al., 2017), as opposed to preparing for a public speaking task that they were not actually required to engage in. Notably however, self-reinforcing self-talk, originally found to be significantly associated with lower levels of public speaking anxiety (Shi et al., 2015) was found to not predict changes in public speaking anxiety (Shi et al., 2017). The authors call for future research to clarify this discrepancy in the influence of self-reinforcing self-talk (Shi et al., 2017). Based on the above findings, Shi and colleagues (2017) proposed a two-step intervention that involved first, becoming aware of one's self-talk and second, consciously adjusting one's self-talk; this is consistent with cognitive intervention techniques described earlier. Of note, particular domains of self-talk reviewed above have also been categorized in recent research as either positive (i.e., self-reinforcing, self-managing) or negative (i.e., self-critical, social-assessing; Grzybowski & Brinthaupt, 2022).

Overall, more self-talk across domains of self-talk (i.e., a "busier" mind) has been associated with higher levels of public speaking anxiety (Shi et al., 2015). In more recent research, Kittani and Brinthaupt (2022) utilized an experimental design to identify frequency of reported self-talk while recalling a recent memory. Each participant was randomly assigned to one of four experimental conditions, asked to recall either a sad, anxious, or cognitively disruptive memory, or a control condition (wherein they were not prompted to recall a memory). Results indicated increased levels of overall self-talk in the sad and anxious experimental groups, consistent with previous research indicating greater frequency of self-talk during emotionally salient experiences, throughout which self-talk may be utilized as an emotion regulation strategy (Kittani & Brinthaupt, 2022).

Based on the above literature review, it is evident that public speaking is an important, yet often anxiety provoking task (e.g., Tillfors & Furmark, 2006). The anxiety response,

consistent with the three-component model of anxiety (Lang, 1971), can manifest itself behaviourally, cognitively, and/or physiologically. Public speaking anxiety may be particularly elevated in individuals who speak English as a second language or those with lower levels of English language proficiency, as a result of already feeling anxious about communicating in second-language contexts (e.g., Woodrow, 2006). Effective emotion regulation is required in order to complete public speaking tasks while anxious and one of the ways that someone might regulate is through the use of self-talk (e.g., Shi et al., 2015).

As elaborated on below, the purpose of the current study was to fill a number of gaps in the existing literature. To begin, the current study examined the relation between specific domains of self-talk (self-critical, self-reinforcing, self-managing, social-assessing; Brinthaupt et al., 2009) and specific manifestations of public speaking anxiety (behavioural, cognitive, physiological; Bartholomay & Houlihan, 2016). This degree of specificity is unique and allowed for the identification of specific influences of domains of self-talk in relation to any one or more domains of public speaking anxiety (Lang, 1971). The current study also aimed to fill a gap in the literature through the use of a linguistically diverse sample. Finally, only a few studies have been conducted on foreign language anxiety in Canada (e.g., MacIntyre et al., 1997) and the current study contributes to this literature on foreign language anxiety in Canada for individuals for whom English is not the first language.

The Present Study

The purpose of the present study was to examine the relation between self-talk and public speaking anxiety in a culturally diverse sample of young adults in Canada. The first objective was to determine whether particular domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing) were related to specific manifestations of public speaking anxiety

(i.e., behavioural, cognitive, physiological). The second objective was to determine the association between English language proficiency and other variables of interest, including self-talk, public speaking anxiety, and foreign language anxiety. The third objective was to obtain qualitative reports of what the experience of giving an oral presentation in English was like for those participants who speak English as a second language, as well as for those participants whose first language was English.

Of note, a mixed-methods design was chosen for the current study in an effort to increase the depth of understanding of participant experience of public speaking anxiety, beyond what could be achieved using quantitative or qualitative approaches independently (Creswell, 2014). In general, quantitative analysis allowed for breadth of experience (i.e., completion of a number of questionnaires by a large number of participants) and qualitative analysis allowed for depth of experience (i.e., fewer participants speaking in more detail).

Historical Context of the Present Study (COVID-19 Pandemic, 2021-2022)

When conceptualizing and proposing the present study, Phase 2 was originally intended to be completed in-person. However, data collection occurred between 2021 and 2022, in the midst of the COVID-19 pandemic and related restrictions. As a result, it was determined that Phase 2 would be completed virtually through the Zoom platform; procedural details are discussed further below. Although not originally proposed, there were some benefits to virtual completion of the public speaking task in Phase 2. For instance, the COVID-19 pandemic required a sudden and complete shift to virtual learning, requiring students to engage in any academic public speaking tasks virtually. Despite many academic institutions largely transitioning back to in-person learning at the time of this writing, virtual learning opportunities

remain. For that reason, the virtual nature of the public speaking task in the present study provides valuable information on the experience of completing public speaking tasks virtually.

Research Questions and Hypotheses

The primary variables of interest examined in the current study are public speaking anxiety, self-talk, and foreign language anxiety in a culturally diverse sample of undergraduate university students. Participant age, gender, previous experience with public speaking, English language proficiency, and impression management were included as potential covariates. The current study consisted of two distinct phases that included online questionnaires (Phase 1), and a live public speaking task followed by a brief, semi-structured interview (Phase 2). The interview questions qualitatively assessed the individual participant's experience during the public speaking task.

Quantitative Research Questions

Research Question 1 (Phase 1 – Online Questionnaires): How is use of self-talk related to public speaking anxiety? As previously described, positive self-talk may help to regulate emotional response, whereas negative self-talk may heighten negative emotional response (Shi et al., 2015). Thus, Research Question 1 addressed whether the four domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing; Brinthaupt et al., 2009) would be related to manifestations of public speaking anxiety (i.e., total, behavioural, cognitive, physiological), as measured by self-report.

Hypothesis 1a: Self-talk and total public speaking anxiety. After controlling for potential covariates (i.e., age, gender, previous experience, English proficiency, impression management), higher frequency of self-critical self-talk and social-assessing self-talk will predict

higher levels of total public speaking anxiety, whereas higher frequency of self-reinforcing self-talk and self-managing self-talk will predict lower levels of total public speaking anxiety.

Hypothesis 1b: Self-talk and behavioural public speaking anxiety. After controlling for potential covariates (i.e., age, gender, previous experience, English proficiency, impression management), higher frequency of self-critical self-talk and social-assessing self-talk will predict higher levels of behavioural public speaking anxiety, whereas higher frequency of self-reinforcing self-talk and self-managing self-talk will predict lower levels of behavioural public speaking anxiety.

Hypothesis 1c: Self-talk and cognitive public speaking anxiety. After controlling for potential covariates (i.e., age, gender, previous experience, English proficiency, impression management), higher frequency of self-critical self-talk and social-assessing self-talk will predict higher levels of cognitive public speaking anxiety, whereas higher frequency of self-reinforcing self-talk and self-managing self-talk will predict lower levels of cognitive public speaking anxiety.

Hypothesis 1d: Self-talk and physiological public speaking anxiety. After controlling for potential covariates (i.e., age, gender, previous experience, English proficiency, impression management), higher frequency of self-critical self-talk and social-assessing self-talk will predict higher levels of physiological public speaking anxiety, whereas higher frequency of self-reinforcing self-talk and self-managing self-talk will predict lower levels of physiological public speaking anxiety.

Research Question 2 (Phase 1 – Online Questionnaires): How is degree of English language proficiency related to public speaking anxiety? As previously described, individuals who speak second languages often experience apprehension associated with communication in

second language contexts, known as foreign language anxiety (e.g., MacIntyre & Gardner, 1994). Thus, Research Question 2 addressed how degree of English language proficiency was related to public speaking anxiety.

Hypothesis 2. After controlling for potential covariates (e.g., age, gender, previous experience, impression management), participants with lower levels of English language proficiency will report experiencing higher levels of total public speaking anxiety.

Research Question 3 (Phase 1 – Online Questionnaires): How is gender, public speaking anxiety, English proficiency, and previous experience with public speaking as measured in Phase 1 related to willingness to participate in Phase 2? As previously described, public speaking anxiety is associated with behavioural avoidance (e.g., Davies et al., 2015) and females typically experience higher levels of public speaking anxiety when compared to males (e.g., Marinho et al., 2017). Thus, Research Question 3 addressed whether those students who are female, have higher levels of public speaking anxiety, have lower levels of English language proficiency, and have less previous experience with public speaking were more likely to avoid a situation in which they may be required to engage in a live public speaking task (i.e., Phase 2).

Hypothesis 3. Participants who are female, have higher levels of total, self-reported public speaking anxiety, have lower levels of English language proficiency, and have less previous experience with public speaking will be less likely to express willingness to participate in Phase 2 of the present study, which included a virtual interview and public speaking task.

Qualitative Research Questions

Research Question 4 (Phase 2 – Interview): How is use of self-talk related to the experience of participants during the public speaking task? In a brief, semi-structured

interview, all participants were asked if they found themselves talking to themselves in their head during the public speaking task and if so, how they think this self-talk might have influenced both the level of anxiety they experienced and the effectiveness of their communication. The coding of participants' interview responses was expected to elucidate the extent to which participants were engaged in self-talk and identify whether the use of self-talk hindered and/or benefited their performance. The purpose of this research question was to clarify the role of self-talk in affecting individual experiences during a live public speaking task.

Research Question 5 (Phase 2 – Interview): How are concerns of language proficiency related to participants' experiences during the public speaking task for those whose first language is not English? In a brief, semi-structured interview, participants who reported speaking English as a second language were asked if their experience during the live public speaking task might have been influenced by concerns surrounding English proficiency and if they think the experience might have been different if they were to complete the same task in their first language. The coding of participants' interview responses was expected to help elucidate the extent to which foreign language anxiety related to English language proficiency contributed to anxiety during completion of a public speaking task in English. The purpose of this research question was to further clarify the role that language proficiency may have in the experience of public speaking anxiety.

CHAPTER II

Method

This mixed methods study consisted of two discrete phases: online data collection through Qualtrics (Phase 1) and a live public speaking task and semi-structured interview through Zoom (Phase 2). Data collection for Phase 1 and Phase 2 occurred simultaneously, and as such, results of Phase 1 did not influence or inform interview questions utilized in Phase 2. All participants from Phase 1 had the opportunity to participate in Phase 2. Separate consent forms were utilized for each phase of the study (see Appendix A and Appendix B).

Phase 1: Online Self-Report Questionnaires

Participants (Phase 1)

At least 109 participants were required for Phase 1 of the study based on the proposed analytics plan (conducted on a hierarchical multiple regression with eight predictors), which was determined using G*Power, specifying an alpha value of .05, desired power of .80, and a medium effect size (Faul et al., 2007). However, the target number of participants was higher, anticipating attrition, outliers, and incomplete measures. Participant recruitment continued beyond the target number in an attempt to increase statistical power. The final sample consisted of 365 undergraduate students (39 male [10.7%], 319 female [87.4%]) recruited through the psychology participant pool at the University of Windsor. Of note, participants included three individuals (0.8%) who identified as gender diverse (e.g., trans male) and did not fit within the male/female gender binary. University students are an ideal sample for the study of public speaking anxiety given the frequency with which many students are required to complete individual and group presentations, as well as engage in classroom discussion. A sample of university students from the University of Windsor was considered particularly ideal, with

international students comprising around 23% of the total student body (University of Windsor, n.d.). Participants received one bonus point through the participant pool as compensation for approximately one hour of online participation.

Demographic information for Phase 1 is presented in Table 1. Participants ranged in age from 18 to 50 years old (M = 21.67, SD = 4.85). Most participants identified as White (47.9%) and spoke English as a first language (79.2%). Two hundred and twelve participants (58.4%) identified as multilingual, with participants reporting speaking between one and six languages with at least 50% fluency. Additionally, 339 participants (93%) reported having completed a public speaking task in the past and 136 participants (37%) reported having decided against participating in a class or other academic related activity because it involved a performance or presentation component. Ninety two participants (25.3%) self-reported having an anxiety disorder (e.g., generalized anxiety disorder, social anxiety disorder, panic disorder), while fifty seven participants (15.7%) self-reported having a mental health diagnosis that was not anxiety (e.g., major depressive disorder, obsessive compulsive disorder). Mental health comorbidities were also identified; forty seven participants (12.9%) self-reported having both an anxiety disorder and another mental health diagnosis. The above prevalence rates of anxiety disorder are higher than would be expected in the general population, with prevalence rates of 6.4% in males and 10.7% in females (e.g., Statistics Canada, 2017a). However, more recent research has identified a rise in rates of anxiety in undergraduate students over the last 12 years (Oswalt et al., 2020) and during the COVID-19 pandemic (Lee et al., 2021). Of note, mental health diagnoses in the current study were self-reported by participants and as a result, it is unclear if they represent self-diagnosis or formal diagnosis communicated by a regulated mental health professional. Despite this, the current sample reported experiencing rates of anxiety disorder that

Table 1

Descriptive Statistics for Demographic Variables of Phase 1 Sample (N = 363)

Variable		*n* (Percent of Total)
First language		
	English	289 (79.2)
	Arabic	19 (5.2)
	Spanish	6 (1.6)
	Chinese	5 (1.4)
	French	4 (1.1)
	Polish	4 (1.1)
	Urdu	4 (1.1)
	Albanian	2 (.5)
	Assyrian	2 (.5)
	Cantonese	2 (.5)
	Gujarati	2 (.5)
	Punjabi	2 (.5)
	Romanian	2 (.5)
	Vietnamese	2 (.5)
	Bengali	1 (.3)
	Chaldean	1 (.3)
	English/Punjabi	1 (.3)
	English/Kriol	1 (.3)
	German	1 (.3)
	Hindi	1 (.3)
	Ilocano	1 (.3)
	Japanese	1 (.3)
	Korean	1 (.3)
	Kurdish	1 (.3)
	Macedonian	1 (.3)
	Ma'di	1 (.3)
	Pushto	1 (.3)
	Russian	1 (.3)
	Serbian	1 (.3)
	Somali	1 (.3)
	Swahili	1 (.3)
	Teluga	1 (.3)
Racial or ethnic identity		
	White	175 (47.9)
	Arab	29 (7.9)

	European	21 (5.8)
	African	18 (4.9)
	Mixed Race	17 (4.7)
	South Asian	14 (3.8)
	Asian	10 (2.7)
	Middle Eastern	10 (2.7)
	Chinese	9 (2.5)
	Indian	8 (2.2)
	Black	6 (1.6)
	Caribbean	5 (1.4)
	Lebanese	5 (1.4)
	Hispanic	4 (1.1)
	Filipino	4 (1.1)
	Canadian	3 (.8)
	Indigenous	3 (.8)
	Latin	3 (.8)
	Punjabi	2 (.5)
	South East Asian	2 (.5)
	Assyrian	1 (.3)
	Bangladeshi	1 (.3)
	Dominican	1 (.3)
	East Asian	1 (.3)
	Iranian	1 (.3)
	Iraqi	1 (.3)
	Jewish	1 (.3)
	Kurdish	1 (.3)
	Laos	1 (.3)
	Macedonian	1 (.3)
	Pakistani	1 (.3)
	South American	1 (.3)
	South Korean	1 (.3)
	Vietnamese	1 (.3)
Number of languages (with at least 50% fluency)		
	1	151 (41.6)
	2	116 (32.0)
	3	65 (17.9)
	4	22 (6.1)
	5	4 (1.1)
	6	5 (1.4)

Have you ever completed a public speaking task in the past?		
	Yes	337 (92.8)
	No	25 (6.9)
Have you ever avoided an academic related activity because it involved a presentation component?		
	Yes	136 (37.5)
	No	227 (62.5)
Have you ever avoided a non-academic related opportunity because it involved a presentation component?		
	Yes	95 (26.2)
	No	267 (73.6)
Do you have any known, diagnosed mental or physical disorders?		
	Yes	108 (29.8)
	No	255 (70.2)
Do you consent to being contacted by the primary investigator to participate in a second, related study?		
	Yes	284 (78.2)
	No	79 (21.8)

are at, or perhaps even above, what would be expected in the general population.

Measures (Phase 1)

Demographic Questionnaire – Form A. All participants completed a demographic questionnaire (Appendix C) to collect data on age, gender, ethnicity, program of study, and grade point average. Participants were asked to identify their first language, as well as all other spoken languages. Participants were asked if they had any known, diagnosed mental or physical disorders, such as communication disorders or anxiety disorders. Participants were asked to identify and describe any previous experience in public speaking, as well degree of experience engaging in a performance more broadly (e.g., public speaking, artistic performance). Lastly, participants were asked whether they had ever avoided taking a class or pursuing a non-academic related opportunity (e.g., work, volunteer, recreational) because it involved a performance or presentation component.

Additional open-ended questions asked participants to write about situations in which they avoided public speaking and their thought process in coming to this decision. Participants who indicated speaking English as a second language were asked to describe their experiences with public speaking in both English language and first-language contexts. These data were not analyzed for the purposes of the current study.

Previous Experience. Previous experience in a public speaking and/or performative capacity in the English language was calculated through the use of four questions developed by the primary investigator on the demographic questionnaire in Phase 1. These questions asked participants to rate the degree of their previous experience in individual oral presentation (Question 1), group oral presentation (Question 2), public speaking classes (Question 3), and live artistic performance (e.g., dance, instrumental, theatre; Question 4), rated on a 5-point scale (1 =

no experience to 5 = *considerable experience*). These four items were summed to create a composite score of previous experience, with scores ranging from 4 to 20 and higher scores indicating more experience with public speaking. Analysis of the current sample demonstrated a Cronbach's alpha coefficient of .68. This reliability coefficient is slightly below .70, which is generally considered acceptable (Tavakol & Dennick, 2011), and should be interpreted with caution.

English language proficiency: The Language and Social Background Questionnaire (LSBQ; Anderson et al., 2017). All participants completed the 22-item Language and Social Background Questionnaire (Anderson et al., 2017) in order to measure degree of English language proficiency. Items include asking participants to list all languages spoken and understood in order of fluency, which languages were used or heard most frequently at various stages of development (e.g., infancy, preschool age, primary school age), which languages were generally used when speaking with various people (e.g., parents, siblings, partner, friends), and which languages were generally used in various situations (e.g., home, school, work) and for various activities (e.g., reading, emailing, texting, watching movies). Items were scored using three different 4-point scales (0 = *none* to 4 = *all*; 0 = *never* to 4 = *always*; 0 = *all English* to 4 = *only the other language*). Raw data was entered into an excel spreadsheet provided by the authors of the scale and factor scores were automatically calculated. Three individual factors (i.e., non-English home use and proficiency, non-English social use, English proficiency) and one composite factor (i.e., overall bilingualism score) were generated; only the 5-item English Proficiency factor was included in the analyses for the current study, which included self-reported levels of English proficiency in the areas of speaking, understanding, reading, and writing. Higher scores indicate higher levels of English language proficiency. Analysis of the

current sample demonstrated good reliability, with a Cronbach's alpha coefficient of .86 for the English Proficiency factor.

Foreign language anxiety: The Foreign Language Classroom Anxiety Scale (FLCAS; Horwitz et al., 1986). All participants completed the 33-item Foreign Language Classroom Anxiety Scale (Horwitz et al., 1986) in order to measure foreign language anxiety in three domains: (1) communication apprehension, (2) fear of feedback by peers and teachers, and (3) fear of language tests. Although all items were completed by participants, only the Communication Apprehension subscale was included in analyses for the current study. Items include "I never feel quite sure of myself when speaking in English" and "I feel very self-conscious about speaking the English language in front of other students". Items are rated on a 5-point scale (1 = *strongly agree* to 5 = *strongly disagree*). The measure has demonstrated sound internal consistency, with Cronbach's alpha values within the range of .93 (Horwitz et al., 1986) and .95 (Li et al., 2018). Analysis of the current sample demonstrated excellent reliability, with a Cronbach's alpha coefficient of .94 for the total score and .90 for the Communication Apprehension subscale.

Public speaking anxiety: The Public Speaking Anxiety Scale (PSAS; Bartholomay & Houlihan, 2016). All participants completed the 17-item Public Speaking Anxiety Scale (Bartholomay & Houlihan, 2016) in order to measure behavioural, cognitive, and physiological responses to public speaking anxiety. Items include, "I fidget before speaking" (behavioural), "I am focused on what I am saying during my speech" (cognitive), and "I feel sick before speaking in front of a group" (physiological). Items are rated on a 5-point scale (1 = *not at all* to 5 = *extremely*). This measure has demonstrated sound internal consistency, with Cronbach's alpha values of .88, .75, and .87, for the cognitive, behavioural, and physiological subscales,

respectively (Bartholomay & Houlihan, 2016). Analysis of the current sample demonstrated excellent reliability, with a Cronbach's alpha coefficient of .94 for the total score. Analysis of individual subscales in the current study demonstrated good reliability, with Cronbach's alphas of .75 (behavioural), .88 (cognitive), and .86 (physiological).

Self-talk: Self-Talk Scale (STS; Brinthaupt et al., 2009). All participants completed the 15-item Self-Talk Scale (Brinthaupt et al., 2009) in order to measure frequency of four domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, and social-assessing). Items include "I should have done something differently" (self-critical), "I'm proud of something I've done" (self-reinforcing), "I need to figure out what I should do or say" (self-managing), and "I'm imagining how other people respond to things I've said" (social-assessing). Items are rated on a 5-point scale (1 = *never* to 5 = *very often*), beginning with "I talk to myself when…". This measure has demonstrated sound internal consistency, with Cronbach's alpha values of .83 (self-critical), .89 (self-reinforcing), .79 (self-managing), and .82 (social-assessing; Brinthaupt et al., 2009). Analysis of the current sample demonstrated excellent reliability, with a Cronbach's alpha coefficient of .91 for the total score. Analysis of individual subscales also demonstrated good reliability, with Cronbach's alphas of .85 (self-critical), .88 (self-reinforcing), .80 (self-managing), and .87 (social-assessing).

Impression management: The Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991). All participants completed the 40-item Balanced Inventory of Desirable Responding (Paulhus, 1991) in order to measure social desirability. Only the 20-item Impression Management subscale was included in the analysis. Items include, "When I hear people talking privately, I avoid listening" and "I sometimes drive faster than the speed limit". Items are rated on a 7-point scale (1 = *not true* to 7 = *very true*) and then dichotomized (0 = item scores of 1 to 5

and 1 = item scores of 6 or 7) according to the guidelines recommended by Paulhus (1991). The Impression Management subscale has demonstrated sound internal consistency, with a Cronbach's alpha value of .74 (Li & Bagger, 2007). Analysis of the current sample demonstrated good reliability, with a Cronbach's alpha coefficient of .82 for the Impression Management subscale.

Trait anxiety: The State-Trait Anxiety Inventory (STAI; Spielberger, 1983). All participants completed the 20-item Trait Anxiety Scale (T-Anxiety) from the State-Trait Anxiety Inventory (Spielberger, 1983) in order to measure trait anxiety. Items include, "I am a steady person" and "I feel nervous and restless". Items are rated on a 4-point scale (1 = *not at all* to 4 = *very much so*). A total score is derived through a sum of items, with higher scores indicating higher levels of trait anxiety. This measure has demonstrated sound internal consistency, with Cronbach's alpha values ranging from .86 to .95 (Spielberger, 1983). Analysis of the current sample demonstrated excellent reliability, with a Cronbach's alpha coefficient of .94.

Procedure (Phase 1)

Before beginning data collection, the primary investigator received clearance through the University of Windsor Research Ethics Board. The study was then posted on the University of Windsor participant pool website, consistent with all guidelines in the researcher manual (Scoboria et al., 2013). Participants completed all Phase 1 questionnaires online using Qualtrics and were provided with a secure link through the participant pool to obtain access to the survey. Upon completion, participants were provided with contact information for the primary investigator and their research supervisor, and the primary investigator provided compensation to participants (i.e., one bonus point through the participant pool). Participants indicated consent

(i.e., yes/no) to being contacted by the primary investigator to participate in a second, related study.

Phase 2: Online Public Speaking Task

Participants (Phase 2)

All participants from Phase 1 were given the opportunity to participate in Phase 2. Quantitative analyses were initially proposed to link participant data collected in Phase 2 with questionnaire data collected in Phase 1. An a priori power analysis was conducted using G*Power 3 (Faul et al., 2007) to determine the required sample size. An alpha value of .05, desired power of .80, and a medium effect size were specified, and the analysis recommended 100 participants for Phase 2 of the study to conduct the proposed quantitative analyses. The only inclusion criteria for Phase 2 was participation in Phase 1.

While every effort was made to obtain the recommended sample size, there were considerable challenges with recruitment, including insufficient incentive to participant enrollment. As the current study occurred entirely virtually, participants were not able to receive an additional incentive typically awarded for in-person study participation (i.e., an additional half bonus point through the university participant pool). For this reason, participants received an equal reward (i.e., one bonus point through the university participant pool) for online questionnaire completion and a virtual study that required live, video participation and thus, participants may have been less motivated to participate in virtual studies.

A number of factors were considered when making the determination to stop qualitative data collection, including ongoing difficulties with recruitment and academic time constraints of the primary investigator. In addition, the primary investigator was beginning to recognize similarities across participant responses to interview questions, suggesting the data had reached

saturation. Factors impacting information power were also considered in determining sufficiency of Phase 2 sample size (Malterud et al., 2016). For instance, quality of interview dialogue in the current study was determined to be high, given the primary investigator's previous knowledge of the interview topic and ability to establish rapport (as a result of PhD level therapeutic training). Additionally, the study aim is relatively narrow, exploring a particular type of social anxiety experienced in a particular situation. These factors suggest a lower number of participants required to achieve higher information power (Malterud et al., 2016). Thus, while the sample size of Phase 2 was not sufficient to complete the initially proposed quantitative analyses, it was sufficient to complete the proposed qualitative analysis. The final sample consisted of 21 undergraduate students (1 male [4.5%], 19 female [86.4%], 1 individual identifying outside of the gender binary [4.5%]) recruited through the psychology participant pool at the University of Windsor. In Phase 2, participants received one bonus point through the participant pool as compensation for approximately one hour of online participation. Demographic information is presented in Table 2. Participants ranged in age from 19 to 37 years old (M = 22.04, SD = 3.79). Most participants identified as White (31.8%) or African (27.3%), and spoke English as a first language (72.7%). Additionally, 12 participants (59.1%) identified as multilingual, with participants reporting speaking between one and six languages with at least 50% fluency.

Measures (Phase 2)

Demographic Questionnaire – Form B. All participants completed a brief demographic questionnaire (Appendix D), an abbreviated version of the demographic questionnaire completed in Phase 1 to ensure that demographic variables integral to research objectives were collected and to protect against any technological failures or missing data. Participants were asked to

Table 2

Descriptive Statistics for Demographic Variables of Phase 2 Sample (N = 21)

Variable		*n* (Percent of Total)
First language		
	English	16 (72.7)
	Arabic	1 (4.5)
	Korean	1 (4.5)
	Setswana	1 (4.5)
	Spanish	1 (4.5)
	Swahili, Luganda, and Kinande	1 (4.5)
Number of languages (with at least 50% fluency)		
	1	9 (40.9)
	2	7 (31.8)
	3	1 (4.5)
	4	3 (13.6)
	5	0 (0.0)
	6	1 (4.5)
Racial or ethnic identity		
	White	7 (33.3)
	African	6 (28.5)
	Caribbean	2 (9.5)
	Arab	1 (4.8)
	East Asian	1 (4.8)
	Korean	1 (4.8)
	Latin	1 (4.8)
	Lebanese	1 (4.8)
	Mixed Race	1 (4.8)

confirm their age, gender, racial/ethnic background, first language, major and minor areas of study, and any known diagnosed mental or physical disorders (e.g., anxiety disorders).

Public speaking anxiety: The Public Speaking Anxiety Scale (PSAS; modified state version; Bartholomay & Houlihan, 2016). All participants completed the 17-item Public Speaking Anxiety Scale (Bartholomay & Houlihan, 2016) in order to measure behavioural, cognitive, and physiological responses to public speaking anxiety. This measure was administered one time during Phase 2 (i.e., immediately following the public speaking task) to measure public speaking anxiety experienced during the public speaking task. Minor modifications (i.e., changing question tense to reflect an analysis of state anxiety) made to this questionnaire were reviewed with and accepted by the first author of the measure (i.e., Emily Bartholomay) through e-mail correspondence in September 2020. Analysis of the current sample demonstrated excellent reliability, with a Cronbach's alpha coefficient of .91 for the total score. Analysis of individual subscales demonstrated reliability ranging from adequate to good, with Cronbach's alphas of .64 (behavioural), .86 (cognitive), and .77 (physiological). The reliability coefficient for the behavioural subscale is below .70, which is generally considered acceptable (Tavakol & Dennick, 2011), and should be interpreted with caution.

Self-talk: Self-Talk Scale (STS; modified public speaking version; Brinthaupt et al., 2009). All participants completed a modified version of the 15-item Self-Talk Scale, public speaking version (Brinthaupt et al., 2009) in order to measure frequency of four domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, and social-assessing). This measure was administered two times during Phase 2 to measure self-talk both in preparation for the public speaking task and during the public speaking task. Minor modifications (e.g., changing questions from present to past tense, changing language within the prompt) made to the version of this

questionnaire administered following the public speaking task were reviewed with and accepted by the first author of the measure (Dr. Thomas Brinthaupt) through e-mail correspondence in September 2020. For example, one original item read, “I’m proud of something I’ve done” (self-reinforcing) and was modified to read, “I was proud of something I had done”. Analysis of the current sample for the first administration demonstrated reliability ranging from acceptable to good, with Cronbach’s alpha coefficients of .83 (total score), .82 (self-critical), .60 (self-reinforcing), .77 (self-managing), and .77 (social-assessing). Analysis of the second administration demonstrated reliability ranging from good to excellent, with Cronbach’s alpha coefficients of .91 (total score), .90 (self-critical), .82 (self-reinforcing), .80 (self-managing), and .82 (social-assessing). The reliability coefficient for the self-reinforcing subscale in the first administration is below .70, which is generally considered acceptable (Tavakol & Dennick, 2011), and should be interpreted with caution.

State anxiety: The State-Trait Anxiety Inventory (STAI; Spielberger, 1983). All participants completed the 20-item State Anxiety Scale (S-Anxiety) from the State-Trait Anxiety Inventory (Spielberger, 1983) in order to measure state anxiety. This measure is commonly used in studies of public speaking anxiety (e.g., Behnke & Sawyer, 2000; Witt et al., 2006) and was administered three times during Phase 2 to measure baseline anxiety, anticipatory anxiety, and post speech anxiety. Items include, “I feel at ease” and “I feel upset”. Items are rated on a 4-point scale (1 = *not at all* to 4 = *very much so*). A total score is derived through a sum of items, with higher scores indicating higher levels of state anxiety. The measure has demonstrated sound internal consistency, with Cronbach’s alpha values ranging from .86 to .95 (Spielberger, 1983). Analysis of the current sample demonstrated excellent reliability, with Cronbach’s alpha

coefficients of .94 (first administration), .96 (second administration), and .94 (third administration).

Live Public Speaking Task and Behavioural Observation Checklist. Although many studies have addressed public speaking anxiety by implementing a public speaking task, there is considerable variability in the tasks themselves. For instance, the length of the public speaking task has ranged from one minute (e.g., Niles & Craske, 2018) to three minutes (e.g., Rapee & Abbott, 2007) to eight minutes (e.g., Behnke & Sawyer, 2000), with the majority of studies having a duration of around five minutes (e.g., King & Finn, 2017; Roberts et al., 2004; Witt et al., 2006). Some public speaking tasks were described as an informative speech (e.g., discuss past travel experiences; e.g., Behnke & Sawyer, 2000; King & Finn, 2017), whereas others have been described as a persuasive speech (e.g., argue for and against use of animals for recreation, research, and food; e.g., Feldmen et al., 2004; Shi et al., 2017). Other factors considered in a review of previous public speaking tasks include speech topic, preparation time, and number of audience members. Notably, a number of studies have not provided a comprehensive description of the public speaking task and the associated procedures necessary for replication.

In the current study, participants were given two minutes to prepare for a three-minute speech. These time parameters were modelled after Rapee and Abbott (2007), who provided participants two minutes to prepare for a three-minute speech on a topic of their choice. The instructions for the Public Speaking Task below were communicated to participants orally and were adapted from Helbig-Lang and colleagues (2015):

> *We would like you to hold a three-minute, impromptu speech. The speech will be delivered in this virtual format, in front of a small audience, and the speech will be evaluated. You will be given a topic and two minutes to prepare.*

The topic for the public speaking task was university students' experience during the COVID-19 pandemic and the subsequent educational impact. This topic was chosen because all students would have had direct, recent experience with the effects of COVID-19. The topic also allowed students to talk about educational issues broadly, ensuring the ability to share personal examples should they wish, but also providing an option to discuss the impact to others or impact more generally if discussion of personal experience was determined to be too uncomfortable or emotionally salient. Based on the procedure implemented by Niles and Craske (2018), participants were asked to stand to complete the public speaking task. The audience consisted of three seated, non-responsive researchers (i.e., the primary investigator and two research assistants).

During the public speaking task, the primary investigator and two trained research assistants conducted live behavioural observation through use of a behaviour observation checklist (Appendix E). Recordings on the checklist assessed the frequency of behaviours of interest that were indicative of anxiety or discomfort as identified in the Social Performance Rating Scale (Fydrich et al., 1998). Common behavioural manifestations of anxiety include nail biting, pacing, fidgeting, and throat clearing (Fydrich et al., 1998). The checklist used in the current study also included a section for raters to indicate any other notable behaviours not otherwise identified. Of note, the participants were asked to stand for this portion of the study and were typically only visible from the waist up. Although this allowed for sufficient observation of a number of behavioural indicators of anxiety, certain behaviours (e.g., movement of the feet) were not able to be observed. This checklist served two purposes. First, it allowed for researchers to observe common behavioural manifestations of anxiety during the task, which may be used in future analyses. Second, and perhaps more importantly, completion of the

checklist gave the primary investigator and research assistants a task to complete while the participant engaged in the public speaking task that may, to the participant, have been perceived as an "evaluation". This is consistent with the instructions provided to the participant (i.e., "… *the speech will be evaluated*") and may have contributed to creating a more anxiety provoking environment. The live public speaking task was audio and video recorded through Zoom. Of note, the content of the public speaking task was both recorded and transcribed, but not analyzed for the current study. These data may be used in future studies.

It is recognized that the public speaking task completed by participants in the current study is not wholly representative of a typical public speaking task in academic or workplace settings. For instance, the impromptu nature of the public speaking task in the current study is likely rare in other settings; individuals are often made aware of the speech topic in advance and given a reasonable period of time to prepare. Procedural details in the current study were determined in an effort to intentionally increase levels of discomfort (as described in more detail above) rather than in an effort to most closely mirror a public speaking task in an academic or workplace setting. However, it is recognized that the design of the public speaking task in the current study likely limited the number of coping strategies available to participants (e.g., preparation, practice, recognition of non-verbal audience reinforcement).

Semi-Structured Interview. The primary investigator conducted a semi-structured video-recorded interview with all participants (see Table 3). The purpose of this interview was to further examine the extent to which participants engaged in self-talk during the public speaking task, and their perspective on how it might have influenced both the effectiveness of their communication and level of anxiety throughout the task. Those participants who spoke English as a second language were asked an additional set of questions, examining the degree to which

Table 3

Semi-Structured Interview Protocol (Phase 2)

All participants	1. Thank you for your participation in the public speaking task. How was that experience for you? 2. How effectively do you think you were able to communicate during the task? 3. During the public speaking task, did you find yourself talking to yourself in your head? 4. *(If participant indicates engaging in self-talk)* How do you think that might have influenced the level of anxiety or discomfort you experienced? 5. *(If participant indicated engaging in self-talk)* How do you think that might have influenced the effectiveness of your communication?
Participants indicating English as a second language	6. Do you think that your experience of the public speaking task was influenced by concerns surrounding English proficiency or your ability to communicate in the English language? a. (*If yes*) Please explain. 7. How do you think completing this same task in your first language might have been different?
All participants	8. What are you most looking forward to this year?

their experience during the public speaking task was influenced by concerns around English proficiency and how completing the same task in their first language might have been different. The semi-structured interview took approximately 10-minutes to complete.

Procedure (Phase 2)

Phase 2 was posted on the University of Windsor participant pool website and participants obtained access to a personalized Zoom link for the specific study timeslot through the participant pool. Of note, mild deception was involved in Phase 2, as participants were asked to complete a public speaking task without this being explicitly stated in the study advertisement or consent form (on both of which participants were informed that they would be asked to engage in a "social task"). Upon the participant entering the Zoom meeting, they were prompted to turn on their video if not on already and participants were required to have their video on for the entire duration of the study. As such, it is likely that most participants were able to see themselves on video while completing the study; however, there is a Zoom feature that allows a user to hide their own video (i.e., Hide Self View) and participants were not asked if they did so. The ability to see oneself may have created or increased anxiety during task completion, particularly for more socially anxious participants.

The primary investigator shared the link for the Qualtrics questionnaire to the participant through the Zoom chat function. The primary investigator reviewed the consent form with the participant using the share screen function, and the participant then signed the online consent form within the Qualtrics questionnaire to indicate consent. Each participant was emailed a copy of the consent form for their records. Participants completed a brief demographic form to ensure the collection of key demographic variables (e.g., gender, age, first language). Immediately after doing so, participants completed the State Anxiety Scale from the STAI, which functioned as a

baseline measure of anxiety. Upon completion, the instructions for the Public Speaking Task were provided, adapted from Helbig-Lang and colleagues (2015). Following these instructions, participants completed a second State Anxiety Scale from the STAI, which functioned as a measure of anticipatory anxiety. Participants were then verbally provided the topic prompt by the primary investigator (i.e., *"Please conduct a three-minute speech on the impact of COVID-19 on education, as it relates to yourself and/or to others"*). Participants were given two minutes to prepare for the three-minute public speaking task (adapted from Rapee & Abbott, 2007), during which they were able to utilize pen and paper or electronics to make notes. This was an intentionally insufficient amount of time to prepare, in order to make the live public speaking task more anxiety provoking. Following this preparation period, participants completed the Self-Talk scale (public speaking version). The primary investigator then invited two research assistants into the Zoom meeting.

Upon the research assistants entering the Zoom meeting, the primary investigator confirmed with the participant that they did not recognize either research assistant. The primary investigator then began video-recording through Zoom and prompted the participant to begin the public speaking task. Throughout the task, participants were able to utilize and reference any notes made during the preparation period. During the task, the primary investigator and research assistants evaluated the participant's behavioural manifestations of anxiety using the behaviour observation checklist. The primary investigator and research assistants were seated, with their videos on and microphones muted, and did not respond to participants verbally (e.g., verbal reinforcement) or physically (e.g., facial expressions) during the task (adapted from Niles & Craske, 2018). Consistent with the protocol developed by Rapee and Abbott (2007), if participants stopped talking before three minutes had elapsed, they were prompted once by the

primary investigator to continue (i.e., *"It has not yet been three-minutes. Please try your best to continue"*). If they did not continue following this prompt, the public speaking task was stopped. If the participant spoke for the full three minutes, they were cut-off at that time (Rapee & Abbott, 2007). Immediately following the public speaking task, the research assistants left the Zoom meeting, and the participant completed a third State Anxiety Scale from the STAI, a second Self-Talk Scale (public speaking version), and the Public Speaking Anxiety Scale. The primary investigator then conducted the semi-structured interview. After the interview, participants were thanked for their participation, fully debriefed (including recognition of mild deception and a rationale for its use), provided with an opportunity to ask questions, and emailed a page with resources for managing emotional distress.

Debriefing Procedure. All participants were debriefed using the following standardized script that had been reviewed by the research ethics board:

> *The purpose of this study was to determine the influence that particular types of self-talk have on public speaking anxiety. We also wanted to determine the influence that language proficiency has on the use of self-talk, level of public speaking anxiety, and degree of foreign language anxiety. However, many people who are anxious speaking in front of other people avoid situations in which they might have to speak in front of other people – it is common to avoid the things that make us uncomfortable! As a result of this, it was necessary to be intentionally vague in the Participant Pool advertisement and the consent form you signed at the beginning of our session today. Feeling anxiety and discomfort before and during a public speaking task is common. As such, if you felt anxious or uncomfortable at any point during the study, this is a common response. Research suggests that there are many ways someone might cope with public speaking*

anxiety, including through the use of self-talk (i.e., talking silently to oneself). In an attempt to maintain the validity of the study findings, please refrain from discussing the procedures of this study with your peers and others who may participate in the future. Study results will be available August 2021 and can be obtained through the University of Windsor REB website.

Participant reaction following debriefing was variable. Some participants shared that they should have suspected a public speaking task given the study name or questions asked in Phase 1 of the study. The primary investigator did not perceive any participant as being visibly upset as a result of the mild deception utilized in the current study.

See Appendix F for a detailed review of Phase 2 protocol. See Table 4 for a list of all measures used in the current study and Appendix G for permissions for all measures.

Table 4

Study Measures and Associated Constructs and Hypotheses

Measure	Construct	Items	Variable	Hypotheses
Balanced Inventory of Desirable Responding (Paulhus, 1991)	Social desirability	20 items	Impression management (IM)	1a-d, 2
Foreign Language Classroom Anxiety Scale (Horwitz et al., 1986)	Foreign language anxiety	33 items	Communication apprehension (CA)	Additional analyses
The Language and Social Background Questionnaire (Anderson et al., 2017)	Language proficiency and bilingualism	22 items	English language proficiency	2, 3
Public Speaking Anxiety Scale (Bartholomay & Houlihan, 2016)	Public speaking anxiety (PSA)		Total PSA	1a, 2, 3
		4 items	Behavioural PSA	1b
		5 items	Cognitive PSA	1c
		8 items	Physiological PSA	1d
Self-Talk Scale (Brinthaupt et al., 2009)	Self-talk (ST)	4 items	Self-critical ST	1a-1d
		4 items	Self-reinforcing ST	1a-1d
		4 items	Self-managing ST	1a-1d
		4 items	Social-assessing ST	1a-1d
State-Trait Anxiety Inventory (Spielberger, 1983)	Anxiety	20 items	Trait anxiety	Correlational analyses
		20 items	State anxiety	

CHAPTER III

Results

Quantitative Results

Overview of Quantitative Results

Multiple hierarchical regressions were conducted to determine whether self-talk predicted domains of public speaking anxiety (Hypotheses 1a-d) and whether English language proficiency predicted total public speaking anxiety (Hypothesis 2). A logistic regression was conducted to determine predictors of willingness to participate in Phase 2 of the current study (Hypothesis 3). All quantitative statistical analyses were completed using IBM SPSS Statistics Version 28.

Phase 1: Preliminary Analyses

Missing Data

A missing values analysis was conducted; Little's MCAR test was not significant (χ^2 (11) = 12.33, p = .34), indicating that data were missing completely at random. Listwise deletion was used to address missing data (n = 8).

Assumptions

All multivariate assumptions of regression analyses for Hypothesis 1a-d, 2 and 3 were assessed for the entire sample, including normality, outliers, independence of errors, homoscedasticity, and multicollinearity.

Multivariate assumptions were assessed for all main variables included in quantitative analyses; these included all domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing), all domains of public speaking anxiety (i.e., total, behavioural, cognitive, physiological), trait anxiety, English proficiency, communication apprehension, and previous experience. Normality was assessed using a visual inspection of histograms, Shapiro-

Wilk test, and skewness and kurtosis values. A visual inspection of histograms suggested a violation of normality for the English proficiency variable. This is not unexpected, as all participants are proficient enough in the English language to be admitted into and attending an English speaking university. Shapiro-Wilk tests were significant for all variables except trait anxiety. However, the Shapiro-Wilk test is known to be sensitive to small deviations from normality (Field, 2013). The kurtosis value for English proficiency exceeded +/- 3, and was thus outside normal limits. Skew and kurtosis values were within normal limits (i.e., within +/- 2 and +/- 3, respectively; Tabachnick & Fidell, 2016) for all other variables (i.e., all domains of self-talk, all domains of public speaking anxiety, trait anxiety, communication apprehension, previous experience).

Multivariate outliers were examined using Mahalanobis distances, Cook's distances, and leverage values. Cook's distance values were all below the predetermined cut-off value of 1.00 (Cook & Weisberg, 1982) and no value was greater than three times that of the average leverage value, suggesting no influential cases. Two Mahalanobis distances were greater than the chi-square critical value (set at an alpha of .001); these potential outliers were removed from the data set. Durbin-Warson values were all within normal limits (between 1 and 3; Field, 2013), indicating independence of errors. A visual inspection of the residual scatterplot suggested that the data met the assumption of homoscedasticity.

Multicollinearity and singularity were assessed using Tolerance and Variance Inflation Factors (VIF) scores, with predetermined cut-offs of less than .01 and greater than 10 representing concerns (Fields, 2013); tolerance and VIF values were within these limits for all variables (i.e., all domains of self-talk, all domains of public speaking anxiety, trait anxiety, English proficiency, communication apprehension, previous experience).

Correlational Analyses for Phase 1 Measures

A correlational analysis was conducted among all main variables and covariates of interest in Phase 1 (see Table 5). As expected, there was a negative correlation between English proficiency and total public speaking anxiety, and English proficiency and communication apprehension. As expected, there was a positive correlation between total public speaking anxiety and the following variables: communication apprehension, trait anxiety, and self-talk (i.e., total, self-critical, self-managing, social-assessing). As expected, there were also positive correlations between trait anxiety and the following variables: communication apprehension, all domains of self-talk, and all domains of public speaking anxiety. As expected, participant age was negatively correlated with public speaking anxiety (i.e., total, behavioural, cognitive, physiological) and trait anxiety. Identifying as female was correlated with English proficiency, public speaking anxiety (i.e., total, behavioural, physiological), and trait anxiety. Previous experience was negatively correlated with public speaking anxiety (i.e., total, behavioural, physiological) and communication apprehension, and positively correlated with English proficiency and self-reinforcing self-talk. Impression management was negatively correlated with public speaking anxiety (i.e., total, behavioural, cognitive, physiological), communication apprehension, trait anxiety, and self-talk (i.e., self-critical, social-assessing).

Phase 1: Primary Quantitative Analyses

Research Question 1 (Phase 1 – Online Questionnaires): Self-Talk and Public Speaking Anxiety

Four hierarchical multiple regression analyses were conducted to determine if types of self-talk predicted public speaking anxiety. Age, gender, previous experience, English proficiency, and impression management were significantly correlated with public speaking

Table 5

Correlation Matrix for Variables of Interest (Phase 1; N = 365)

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Age	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Gender	-.06	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Anxiety Disorder	.01	**.16****	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Previous Experience	-.02	.08	.02	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-
5. IM	.07	.01	**-.14****	.00	1.00	-	-	-	-	-	-	-	-	-	-	-	-
6. English Proficiency	-.04	**.15****	.01	**.18****	.06	1.00	-	-	-	-	-	-	-	-	-	-	-
7. Total PSAS	**-.16****	**.22****	**.33****	**-.22****	**-.20****	**-.11***	1.00	-	-	-	-	-	-	-	-	-	-
8. Behavioural PSAS	**-.14****	**.21****	**.31****	**-.18****	**-.17****	-.10	**.90****	1.00	-	-	-	-	-	-	-	-	-
9. Cognitive PSAS	**-.13***	.09	**.22****	-.07	**-.18****	-.09	**.51****	**.41****	1.00	-	-	-	-	-	-	-	-
10. Physiological PSAS	**-.12***	**.19****	**.31****	**-.19****	**-.18****	-.05	**.92****	**.80****	**.42****	1.00	-	-	-	-	-	-	-
11. CA	.00	.05	.09	**-.14****	**-.13***	**-.39****	**.49****	**.41****	**.24****	**.40****	1.00	-	-	-	-	-	-
12. Trait Anxiety	**-.13***	**.20****	**.37****	-.00	**-.30****	-.08	**.56****	**.49****	**.38****	**.48****	**.33****	1.00	-	-	-	-	-
13. Total ST	-.06	.05	**.15****	.08	**-.12***	-.00	**.23****	**.19****	**.78****	**.22****	.07	**.27****	1.00	-	-	-	-
14. Self-Critical ST	**-.11***	.09	**.21****	-.00	**-.20****	-.00	**.33****	**.28****	**.66****	**.29****	**.11***	**.45****	**.77****	1.00	-	-	-
15. Self-Reinforcing ST	**.11***	-.09	-.07	**.13***	.02	-.03	-.08	-.09	**.46****	-.07	-.02	**-.16****	**.63****	**.23****	1.00	-	-
16. Self-Managing ST	-.09	.10	.10	.05	-.03	.04	**.20****	**.16****	**.63****	**.23****	.03	**.22****	**.85****	**.58****	**.39****	1.00	-
17. Social-Assessing ST	-.09	.06	**.20****	.09	**-.14****	-.01	**.25****	**.24****	**.68****	**.24****	.08	**.31****	**.86****	**.59****	**.33****	**.73****	1.00

Note. IM = Impression Management, PSAS = Public Speaking Anxiety Scale, CA = Communication Apprehension, ST = Self-Talk
Gender: 0 = male, 1 = female; Anxiety Disorder: 0 = no self-reported anxiety disorder, 1 = self-reported anxiety disorder
*$p < .05$, **$p < .01$.

anxiety and included as covariates in the analyses of public speaking anxiety. These covariates were entered in the first step of each model. The four domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing) were entered in the second step of each model as described below for Hypotheses 1a, 1b, 1c, and 1d.

Hypothesis 1a: Self-talk and total public speaking anxiety. A hierarchical multiple regression was conducted to determine whether domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing) predicted total public speaking anxiety. Covariates were entered in the first step of the model and domains of self-talk were entered in the second step of the model (see Table 6). The regression model accounted for 26% of the variance (F (9, 345) = 13.57, $p < .001$). Age (β = -.10, $p = .03$), gender (β = .20, $p < .001$), previous experience (β = -.22, $p < .001$), English proficiency (β = -.10, $p = .04$), impression management (β = -.12, $p = .01$), self-critical self-talk (β = .23, $p < .001$), and self-reinforcing self-talk (β = -.13, $p = .01$) were significant predictors of total public speaking anxiety. Self-managing self-talk (β = -.01, $p = .95$) and social-assessing self-talk (β = .14, $p = .06$) were not significant predictors of total public speaking anxiety.

Hypothesis 1b: Self-talk and behavioural public speaking anxiety. A hierarchical multiple regression was conducted to determine whether domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing) predicted behavioural public speaking anxiety. Covariates were entered in the first step of the model and domains of self-talk were entered in the second step of the model (see Table 7). The regression model accounted for 21% of the variance (F (9, 345) = 9.96, $p < .001$). Gender (β = .19, $p < .001$), previous experience (β = -.18, $p < .001$), impression management (β = -.11, $p = .03$), self-critical self-talk (β = .18, $p = .01$), self-reinforcing self-talk (β = -.13, $p = .02$), and social-assessing self-talk (β = .19, $p = .01$)

Table 6

Summary of Hierarchical Regression Analysis for Hypothesis 1a: Total PSA (N = 354)

Variables	*B*	*SE B*	95% CI	β	sr^2	Δ R^2	Model R^2
Step 1						**.17****	**.17****
Age	-.44	.15	[-.72, -.15]	**-.15***	-.16		
Gender	10.54	2.20	[6.21, 14.86]	**.24****	.25		
Previous experience	-.89	.19	[-1.27, -.51]	**-.23****	-.24		
English proficiency	-.37	.20	[-.76, .02]	-.09	-.10		
IM	-.64	.17	[-.98, -.30]	**-.18****	-.20		
Step 2						**.09****	**.26****
Age	-.31	.14	[-.58, -.03]	**-.10***	-.12		
Gender	8.93	2.12	[4.76, 13.09]	**.20****	.22		
Previous experience	-.84	.19	[-1.21, -.47]	**-.22****	-.24		
English proficiency	-.38	.19	[-.75, -.01]	**-.10***	-.11		
IM	-.43	.17	[-.76, -.10]	**-.12***	-.14		
Self-critical ST	.91	.24	[.44, 1.38]	**.23****	.20		
Self-reinforcing ST	-.54	.21	[-.94, -.13]	**-.13***	.14		
Self-managing ST	-.02	.34	[-.68, .64]	-.01	-.00		
Social-assessing ST	.50	.26	[-.02, 1.02]	.14	.10		

Note. *B* = unstandardized regression coefficient, *SE B* = standard error of regression coefficient, β = standardized regression coefficient, PSA = public speaking anxiety, IM = impression management, ST = self-talk
Gender: 0 = male, 1 = female.
**p* < .05, ***p* < .01.

Table 7

Summary of Hierarchical Regression Analyses for Hypothesis 1b: Behavioural PSA (N = 354)

Variables	*B*	*SE B*	95% CI	β	sr^2	Δ R^2	Model R^2
Step 1						**.13****	**.13****
Age	-.10	.04	[-.17, -.02]	**-.12***	-.13		
Gender	2.62	.60	[1.45, 3.79]	**.22****	.23		
Previous experience	-.19	.05	[-.30, -.09]	**-.19****	-.20		
English proficiency	-.10	.05	[-.20, .01]	-.09	-.09		
IM	-.15	.05	[-.24, -.06]	**-.17***	-.17		
Step 2						**.07****	**.21****
Age	-.07	.04	[-.14, .01]	-.08	-.09		
Gender	2.28	.58	[1.14, 3.42]	**.19****	.21		
Previous experience	-.19	.05	[-.29, -.09]	**-.18****	-.19		
English proficiency	-.09	.05	[-.19, .01]	-.09	-.09		
IM	-.10	.05	[-.19, -.01]	**-.11***	-.12		
Self-critical ST	.19	.07	[.06, .31]	**.18***	.15		
Self-reinforcing ST	-.13	.06	[-.24, -.02]	**-.13***	-.12		
Self-managing ST	-.07	.09	[-.25, .11]	-.06	-.04		
Social-assessing ST	.19	.07	[.04, .33]	**.19***	.14		

Note. *B* = unstandardized regression coefficient, *SE B* = standard error of regression coefficient, β = standardized regression coefficient, PSA = public speaking anxiety, IM = impression management, ST = self-talk
Gender: 0 = male, 1 = female.
**p* < .05, ***p* < .01.

were significant predictors of behavioural public speaking anxiety. Age (β -.08, p = .09), English proficiency (β = -.09, p = .08), and self-managing self-talk (β = -.06, p = .46) were not significant predictors of behavioural public speaking anxiety.

Hypothesis 1c: Self-talk and cognitive public speaking anxiety. A hierarchical multiple regression was conducted to determine whether domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing) predicted cognitive public speaking anxiety. Covariates were entered in the first step of the model and domains of self-talk were entered in the second step of the model (see Table 8). The regression model accounted for 64% of the variance (F (9, 345) = 72.11, p < .001). Age (β = -.08, p = .01), gender (β = .07, p = .04), previous experience (β = -.13, p < .001), self-critical self-talk (β = .33, p < .001), self-reinforcing self-talk (β = .27, p < .001), and social-assessing self-talk (β = .31, p < .001) were significant predictors of cognitive public speaking anxiety. Gender (β = .06, p = .08) and self-managing self-talk (β = .10, p = .05) were not significant predictors of cognitive public speaking anxiety.

Hypothesis 1d: Self-talk and physiological public speaking anxiety. A hierarchical multiple regression was conducted to determine whether domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing) predicted physiological public speaking anxiety. Covariates were entered in the first step of the model and domains of self-talk were entered in the second step of the model (see Table 9). The regression model accounted for 20% of the variance (F (9, 345) = 9.47, p < .001). Gender (β = .16, p = .002), previous experience (β = -.19, p < .001), impression management (β = -.12, p =.01), self-critical self-talk (β = .16, p = .009) and self-reinforcing self-talk (β = -.15, p = .006) were significant predictors of physiological public speaking anxiety. Age (β -.06, p = .20), English proficiency (β = -.04, p = .42), self-managing self-talk (β = .11, p = .15), and social-assessing self-talk (β = .08, p = .28)

Table 8

Summary of Hierarchical Regression Analysis for Hypothesis 1c: Cognitive PSA (N = 354)

Variables	*B*	*SE B*	95% CI	β	sr^2	Δ R^2	Model R^2
Step 1						**.06****	**.06****
Age	-.10	.05	[-.20, -.01]	**-.12***	-.12		
Gender	1.30	.70	[-.07, 2.68]	.10	.10		
Previous experience	-.08	.06	[-.20, .04]	-.07	-.07		
English proficiency	-.11	.06	[-.23, .02]	-.09	-.09		
IM	-.16	.05	[-.26, -.05]	**-.15***	-.15		
Step 2						**.59****	**.64****
Age	-.07	.03	[-.13, -.02]	**-.08***	-.13		
Gender	.91	.43	[.06, 1.77]	**.07***	.11		
Previous experience	-.15	.04	[-.22, -.07]	**-.13****	-.20		
English proficiency	-.08	.04	[-.16, -.01]	**-.07***	-.12		
IM	-.06	.03	[-.13, .01]	.06	-.10		
Self-critical ST	.39	.05	[.29, .49]	**.33****	.39		
Self-reinforcing ST	.32	.04	[.24, -.41]	**.27****	.38		
Self-managing ST	.14	.07	[.00, .27]	.10	.11		
Social-assessing ST	.34	.05	[.24, .45]	**.31****	.33		

Note. *B* = unstandardized regression coefficient, *SE B* = standard error of regression coefficient, β = standardized regression coefficient, PSA = public speaking anxiety, IM = impression management, ST = self-talk
Gender: 0 = male, 1 = female.
**p* < .05, ***p* < .01.

Table 9

Summary of Hierarchical Regression Analysis for Hypothesis 1d: Physiological PSA (N = 354)

Variables	*B*	*SE B*	95% CI	β	sr^2	Δ R^2	Model R^2
Step 1						**.12****	**.12****
Age	-.10	.05	[-.20, -.01]	**-.11***	-.11		
Gender	2.90	.75	[1.43, 4.37]	**.20****	.20		
Previous experience	-.27	.07	[-.39, -.14]	**-.21****	-.21		
English proficiency	-.05	.07	[-.18, .09]	-.04	-.04		
IM	-.19	.06	[-.30, -.08]	**-.16***	-.17		
Step 2						**.08****	**.20****
Age	-.06	.05	[-.16, .03]	-.06	-.07		
Gender	2.31	.73	[.88, 3.74]	**.16***	.17		
Previous experience	-.25	.06	[-.37, -.12]	**-.19****	-.20		
English proficiency	-.05	.07	[-.18, .08]	-.04	-.04		
IM	-.14	.06	[-.26, -.03]	**-.12***	-.13		
Self-critical ST	.21	.08	[.05, .38]	**.16***	.14		
Self-reinforcing ST	-.20	.07	[-.34, -.06]	**-.15***	-.15		
Self-managing ST	.17	.12	[-.06, .39]	.11	.08		
Social-assessing ST	.10	.09	[-.08, .28]	.08	.06		

Note. *B* = unstandardized regression coefficient, *SE B* = standard error of regression coefficient, β = standardized regression coefficient, PSA = public speaking anxiety, IM = impression management, ST = self-talk
Gender: 0 = male, 1 = female.
**p* < .05, ***p* < .01.

were not significant predictors of physiological public speaking anxiety.

Research Question 2 (Phase 1 – Online Questionnaires): English Language Proficiency and Public Speaking Anxiety

A hierarchical multiple regression was conducted to determine whether English language proficiency predicted total public speaking anxiety. Covariates were entered in the first step of the model and English language proficiency was entered in the second step of the model (see Table 10). The regression model accounted for 17% of the variance (F (5, 349) = 14.41, p < .001). Age (β = -.15, p = .003), gender (β = .24, p < .001), previous experience (β = -.23, p < .001), and impression management (β = -.18, p < .001) were significant predictors of total public speaking anxiety. English language proficiency (β = -.09, p = .06) was not a significant predictor of total public speaking anxiety.

Research Question 3 (Phase 1 – Online Questionnaires): Gender, Public Speaking Anxiety, English Proficiency, Previous Experience and Participation in Phase 2

A logistic regression was conducted to determine if public speaking anxiety and other relevant variables predicted willingness (i.e., yes/no) to participate in Phase 2 (see Table 11). Independent variables included in the model were participant gender, total public speaking anxiety, degree of English language proficiency, and previous experience as measured by self-report in Phase 1. The dependent variable was participants' indicated willingness to participate in Phase 2. The model revealed a good fit as indicated through the Hosmer and Lemeshow test, χ^2 (8) = 8.47, p = .389, Cox and Snell R^2 = .031, and Nagelkerke R^2 = .048. The model correctly classified 78.3% of cases. Participant gender was a significant predictor of willingness to participate in Phase 2 (B = -1.00, SE = .38, Wald $\chi^2(1)$ = 7.15, p = .007), wherein the odds of being willing to participate was 63.3% lower if a participant identified as a man. Of note, the

Table 10

Summary of Hierarchical Regression Analysis for Hypothesis 2: Prediction of Total PSA (N = 354)

Variables	*B*	*SE B*	95% CI	β	sr^2	ΔR^2	Model R^2
Step 1						**.16****	**.16****
Age	-.43	.15	[-.71, -.14]	**-.14***	-.15		
Gender	9.93	2.18	[5.63, 14.22]	**.22****	.24		
Previous experience	-.95	.19	[-1.32, -.57]	**-.24****	-.26		
IM	-.66	.17	[-1.00, -.33]	**-.19****	-.20		
Step 2						.01	**.17****
Age	-.44	.15	[-.72, -.15]	**-.15***	-.16		
Gender	10.54	2.20	[6.21, 14.86]	**.24****	.25		
Previous experience	-.89	.19	[-1.27, -.51]	**-.23****	-.24		
IM	-.64	.17	[-.98, -.30]	**-.18****	-.20		
English proficiency	-.37	.20	[-.76, .02]	-.09	.10		

Note. *B* = unstandardized regression coefficient, *SE B* = standard error of regression coefficient, β = standardized regression coefficient, PSA = public speaking anxiety, IM = impression management, ST = self-talk
Gender: 0 = male, 1 = female.
**p* < .05, ***p* < .01.

Table 11

Summary of Logistic Regression Analysis for Hypothesis 3: Prediction of Participation in Phase 2 (N = 363)

Variables	*B (SE)*	Wald	Sig.	Odds ratio	
				Exp (*B)*	95% CI
Gender	-1.00 (.38)	7.15	**.007**	.37	[.18, .77]
Total PSA	-.01 (.01)	.27	.61	1.00	[.98, 1.01]
English proficiency	-.04 (.04)	1.08	.30	.96	[.90, 1.03]
Previous experience	-.01 (.04)	.07	.80	.99	[.92, 1.10]

Note. SE *B* = standard error of unstandardized regression coefficient, *B* = unstandardized regression coefficient, PSA = public speaking anxiety
Gender: 0 = male, 1 = female.

significant result of gender should be interpreted with caution given the sample size of men in the current study (i.e., $n = 39$). Total public speaking anxiety, degree of English language proficiency, and previous experience were not significant predictors of willingness to participate in Phase 2 ($p_s > .05$).

Phase 1: Additional Quantitative Analyses

English Language Proficiency and Communication Apprehension

A hierarchical multiple regression was conducted to determine whether English language proficiency predicted communication apprehension. Covariates were entered in the first step of the model and English language proficiency was entered in the second step of the model (see Table 12). The regression model accounted for 17% of the variance (F (3, 353) = 23.87, $p <$ .001). Impression management (β = -.11, p = .02) and English language proficiency (β = -.37, p < .001) were significant predictors of communication apprehension. Previous experience (β = -.08, p = .13) was not a significant predictor of communication apprehension.

See Table 13 for a summary of all Phase 1 quantitative findings.

Phase 2: Preliminary Analyses

Phase 2 consisted primarily of qualitative analyses of a semi-structured interview, although some quantitative measures (i.e., questionnaires) were also administered, allowing for the following correlational analyses. All quantitative statistical analyses were completed using IBM SPSS Statistics Version 28.

Missing Data

A missing values analysis indicated that no data were missing. As such, a Little's MCAR test was not computed.

Table 12

Additional Analysis: Summary of Hierarchical Regression Analysis Predicting Communication Apprehension (N = 356)

Variables	*B*	*SE B*	95% CI	β	sr^2	Δ R^2	Model R^2
Step 1						**.16****	**.16****
Previous experience	-.43	.16	[-.75, -.11]	**-.14***	-.14		
IM	-.37	.14	[-.65, -.09]	**-.14***	-.14		
Step 2						.01	**.17****
Previous experience	-.23	.15	[-.53, .07]	-.08	-.08		
IM	-.31	.13	[-.57, -.04]	**-.11***	-.12		
English proficiency	-1.16	.16	[-1.46, -.85]	**-.37****	-.37		

Note. *B* = unstandardized regression coefficient, *SE B* = standard error of regression coefficient, β = standardized regression coefficient, IM = impression management, ST = self-talk
Gender: 0 = male, 1 = female.
**p* < .05, ***p* < .01.

Table 13

Summary of Primary and Additional Quantitative Findings (Phase 1)

Study Hypothesis	Result
Hypothesis 1a	
• Self-critical self-talk will predict total public speaking anxiety.	Supported
• Self-reinforcing self-talk will predict total public speaking anxiety.	Supported
• Self-managing self-talk will predict total public speaking anxiety.	Not Supported
• Social-assessing self-talk will predict total public speaking anxiety.	Not Supported
Hypothesis 1b	
• Self-critical self-talk will predict behavioural public speaking anxiety.	Supported
• Self-reinforcing self-talk will predict behavioural public speaking anxiety.	Supported
• Self-managing self-talk will predict behavioural public speaking anxiety.	Not Supported
• Social-assessing self-talk will predict behavioural public speaking anxiety.	Supported
Hypothesis 1c	
• Self-critical self-talk will predict cognitive public speaking anxiety.	Supported
• Self-reinforcing self-talk will predict cognitive public speaking anxiety.	Supported
• Self-managing self-talk will predict cognitive public speaking anxiety.	Not Supported
• Social-assessing self-talk will predict cognitive public speaking anxiety.	Supported
Hypothesis 1d	
• Self-critical self-talk will predict physiological public speaking anxiety.	Supported
• Self-reinforcing self-talk will predict physiological public speaking anxiety.	Supported
• Self-managing self-talk will predict physiological public speaking anxiety.	Not Supported
• Social-assessing self-talk will predict physiological public speaking anxiety.	Not Supported

Hypothesis 2 • English language proficiency will predict total public speaking anxiety.	Not Supported
Hypothesis 3 • Gender, total public speaking anxiety, degree of English language proficiency, and previous experience will predict willingness to participate in Phase 2.	Partially Supported
Additional Analyses • English language proficiency will predict communication apprehension	Supported

Assumptions

All assumptions of the Pearson correlation coefficient were assessed for the entire Phase 2 sample, including normality, outliers, and linearity. Assumptions were assessed for all variables included in correlational analysis, including data collected in Phase 1 (i.e., communication apprehension, English proficiency, total public speaking anxiety, state anxiety) and data collected in Phase 2 (i.e., state anxiety [at Time 1, Time 2, and Time 3], self-talk [at Time 1 and Time 2], and total public speaking anxiety).

Normality was assessed using a visual inspection of histograms, Shapiro-Wilk test, and skewness and kurtosis values. A visual inspection of histograms suggested a violation of normality for the following variables: English proficiency, state anxiety (at Time 1, Time 2, and Time 3), total public speaking anxiety, and self-talk (at Time 1). This is not entirely unexpected given the sample size (N = 21). However, Shapiro-Wilk tests were significant for the following variables: English proficiency, state anxiety (at Time 1), and total public speaking anxiety (as measured in Phase 2). The kurtosis value for total public speaking anxiety as measured in Phase 2 exceeded +/-3, and was thus outside normal limits. However, there were no outliers for this variable and for this reason, no changes were made to the variable. Skew and kurtosis values were within normal limits (i.e., within +/- 2 and +/- 3, respectively; Tabachnick & Fidell, 2016) for all other variables (i.e., communication apprehension, English proficiency, total public speaking anxiety [Phase 1], previous experience, trait anxiety, state anxiety [at Time 1, Time 2, and Time 3], and self-talk [at Time 1 and Time 2]).

Univariate outliers were examined using *z*-scores; no variables had outliers greater than the predetermined cut-off value of +/- 3.29 (Tabachnick & Fidell, 2013). Linearity was assessed through visual inspection of bivariate scatterplots; there was no evidence of non-linearity.

Correlational Analyses for Phase 1 and Phase 2 Measures

Integration of Phase 1 and Phase 2 data was initially intended to, in part, compare public speaking anxiety as reported in Phase 1 with public speaking anxiety as reported in Phase 2. However, as a result of the considerably reduced Phase 2 sample size, integration of Phase 1 data was used exclusively in a correlational analysis to provide support for the interpretation of the Phase 2 qualitative analysis.

A correlational analysis was conducted among all main variables and covariates of interest in Phase 2 (see Table 14), which included data collected in both Phase 1 and Phase 2 for those who participated in Phase 2. As previously reviewed, some variables in Phase 2 were assessed at multiple time points. For instance, state anxiety was measured at three time points; at baseline (Time 1; M = 41.33, SD = 11.34), immediately after instructions for the public speaking task were provided (Time 2; M = 49.33, SD = 13.25), and immediately after completing the public speaking task (Time 3; M = 54.57, SD = 11.86). Self-talk was measured at two time points; immediately following the preparation period (Time 1; M = 48.52, SD = 10.43) and immediately after completing the public speaking task (Time 2; M = 53.67, SD = 13.17). As expected, there was a positive correlation between total public speaking anxiety (as measured in Phase 2) and total self-talk (as measured in Phase 2, at Time 1 and Time 2). As expected, there was also a positive correlation between total public speaking anxiety (as measured in Phase 2) and state anxiety (as measured in Phase 2, at Time 3). As expected, there was a positive correlation between self-talk as measured in Phase 2 at Time 1 and self-talk as measured in Phase 2 at Time 2. There was also a positive correlation between state anxiety at Time 2 and state anxiety at Time 3. In summary, the above correlational analysis indicated a number of expected relations among variables in Phase 1 and Phase 2, as well as between the same

Table 14

Correlation Matrix for Variables of Interest, Data Collected at Phase 1 (P1) and Phase 2 (P2; N = 19, all female subsample)

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age (P1)	1.00	-	-	-	-	-	-	-	-	-	-	-	-
2. Previous Experience (P1)	**-.52***	1.00	-	-	-	-	-	-	-	-	-	-	-
3. First Language	.20	-.16	1.00	-	-	-	-	-	-	-	-	-	-
4. English Proficiency (P1)	-.20	.15	-.24	1.00	-	-	-	-	-	-	-	-	-
5. Trait Anxiety (P1)	.13	-.12	-.32	-.07	1.00	-	-	-	-	-	-	-	-
6. CA (P1)	.08	-.34	**-.50***	**-.55***	-.18	1.00	-	-	-	-	-	-	-
7. Total PSAS (P1)	-.04	-.42	.23	-.44	.30	**.67****	1.00	-	-	-	-	-	-
8. Total PSAS (P2)	.17	-.28	.03	-.07	-.06	.11	.21	1.00	-	-	-	-	-
9. Total ST (P2, T1)	.13	-.11	.16	.10	-.10	-.20	-.03	**.65****	1.00	-	-	-	-
10. Total ST (P2, T2)	-.17	.13	-.01	.10	-.15	-.17	-.05	**.76****	**.69****	1.00	-	-	-
11. State Anxiety (P2, T1)	.36	-.28	.03	-.01	.22	.25	.17	.29	.08	.05	1.00	-	-
12. State Anxiety (P2, T2)	.05	-.18	-.43	-.02	.39	-.14	.08	.45	.20	.20	.43	1.00	-
13. State Anxiety (P2, T3)	.03	.03	-.04	-.16	.22	.18	.25	**.58****	.14	.34	.34	**.51***	1.00

Note. PSAS = Public Speaking Anxiety Scale, ST = Self-Talk, CA = Communication Apprehension, ST = Self-Talk, P1 = data collected in Phase 1, P2 = data collected in Phase 2 at either T1 (time 1), T2 (time 2), or T3 (time 3). N = 19 females who completed both Phase 1 and Phase 2.
First language: 1 = English, 2 = a language other than English.
*$p < .05$, **$p < .01$

variable measured at different time points in Phase 2. As expected, there was a negative correlation between English proficiency and communication apprehension.

Phase 2: Additional Quantitative Analyses

State Anxiety across Three Time Points

A repeated measures ANOVA was conducted to determine whether self-reported state anxiety differed across three time points; Time 1 (at baseline), Time 2 (immediately after instructions for the public speaking task were provided), and Time 3 (immediately after completing the public speaking task). There was a statistically significant difference in state anxiety across the three time points (F (2, 40) = 16.57, p = <.001, η^2 = .45). Pairwise comparisons using the Bonferroni correction indicated significant difference in levels of self-reported state anxiety between Time 1 and Time 2 (p = .008), and Time 1 and Time 3 (p = <.001). There was not a significant difference in state anxiety between Time 2 and Time 3 (p = .09). Thus, anxiety was significantly higher immediately after instructions for the public speaking task were provided (Time 2; M = 49.33, SD = 13.25) and immediately after completing the public speaking task (Time 3; M = 54.57, SD = 11.86), when compared to state anxiety at baseline (Time 1; M = 41.33, SD = 11.34).

Qualitative Results

Overview of Qualitative Results

An inductive thematic analysis was conducted to further explore how use of self-talk is related to all participants' (N = 21) experience during the public speaking task (Research Question 4) and how concerns of English language proficiency are related to participants' experience during the public speaking task for those whose first language is not English (n = 5; Research Question 5). The current study employed a concurrent design using a parallel approach,

wherein quantitative and qualitative data were collected during the same period of time and integrated after data collection.

Positionality Statements

Positionality Statement of Primary Investigator

I am conducting this research from the perspective of an English-speaking, Canadian-born, White woman. English is my first and only spoken and written language and thus, I do not share the experience of many study participants who speak English as a second language and have concerns related to English language proficiency. For instance, I have never had to consider the impact of language barriers or foreign language anxiety when communicating with others, either formally or informally.

Clinical experiences and didactic learning opportunities over the course of my graduate school training have also likely introduced bias. I am trained in cognitive-behavioural therapy and thus, I am familiar with research supporting the effectiveness of cognitive modification as a coping strategy for anxiety. I also recognize, through clinical experiences, the impact that self-talk can have on increasing anxiety or discomfort when attempting to engage in an anxiety-provoking situation (e.g., public speaking). Personally, I have had a number of public speaking experiences over the course of my academic career, during which I have experienced varying degrees of anxiety and utilized various strategies in an attempt to manage this anxiety. It is possible that my personal and professional experiences result in a more empathetic view of those experiencing public speaking anxiety and a more passionate stance regarding the ability to manage anxiety through cognitive intervention (e.g., shifts in self-talk).

Positionality Statement of Research Assistant

Below is a quote of the positionality statement written by the primary research assistant who participated in the coding of qualitative data and development of the codebook.

I am a research assistant who worked with the primary investigator to create the qualitative code book. I am a Vietnamese-Chinese woman who speaks Vietnamese as the first language and English as a second language. I am able to speak and write in the English language at a university level. I immigrated to Canada from Viet Nam at the age of 16. Since sixth grade, I had studied English at school in Vietnam, with a focus on listening, writing, and reading rather than speaking. In order to strengthen my proficiency and fluency in English, I also attended additional weekend English sessions at an English learning academy. However, my lack of public speaking skills and concerns about my English language in an English-speaking country put me at a disadvantage in comparison to my peers. I was afraid of being judged and not understood by peers, stuttering, and having my pronunciation ridiculed by peers. Because of cultural differences and language barriers, my public speaking anxiety may differ from that of native English speakers as a result of my emphasis on syntax and sentence structures, audience comprehension of my speech, and audience perception of me as a non-native speaker.

My personal experience is likely to have introduced biases, as I have a predisposition to empathize with non-native speakers who may have had similar experiences. Hearing about other people's anxiety, critical thoughts, and difficulties with language switching makes me feel more relatable. Although both native English speakers and non-native speakers have both anxious and critical thoughts, I felt most connected with non-native speakers since they were more concerned about speaking, language switching and audience perception. Native English speakers, on the

other hand, have a lot of self-talk focusing on problem solutions, such as what to do next, and even supportive thoughts to calm them down.

My lived experience as a non-native English speaker brings a unique and important perspective to this study. There are several variables that might contribute to public speaking anxiety among second language learners who have little experience speaking as opposed to native speakers who have had exposure to learning English. I have completed several presentations over my four years at the University of Windsor, which provided me with abilities and a unique approach to understanding public speaking. My academic and personal experiences have prompted me to discover individual and cultural factors that impact the fear of public speaking in both native and non-native speakers.

Approach to Inductive Thematic Analysis

In order to code the qualitative data, an inductive thematic analysis was used, where codes and themes identified were data-driven with little or no predetermined theory, structure, or framework to analyze the data (Braun & Clarke, 2022). The overarching research questions for the qualitative portion of the study were: "How is use of self-talk related to all participants' experience during the public speaking task?" (Research Question 4) and "How are concerns of language proficiency related to participants' experience during the public speaking task for those whose first language is not English?" (Research Question 5). Consistent with inductive thematic analysis, the coding was not guided by existing theory, but rather guided by the data. Using the mixed methods research data analysis software Dedoose, an iterative approach was implemented to review and code interview transcripts. The following six-phase approach was used to conduct the inductive thematic analysis, as described by Braun and Clarke (2022): (1) familiarization with the dataset, (2) coding, (3) generation of initial themes, (4) development and review of

themes, (5) refine, define, and name themes, and (6) writing. Each phase is described in more detail below.

Six-Phase Approach to Inductive Thematic Analysis

Phase 1: Familiarization with the dataset. Audio-video recordings of participant interviews were transcribed verbatim by the primary investigator prior to data analysis and reviewed for accuracy by the research assistant. This process allowed for familiarization with the dataset. The primary investigator and research assistant also engaged in conversations following the process of transcription, sharing initial reflections and thoughts on the dataset. Of note, an audit trail was maintained by the primary investigator and research assistant throughout the process of qualitative analysis. Documentation within this audit trail related to project development, decision-making rationale, recognition of bias, and questions or concerns that arose throughout, and included detailed description of the process of transcription checking (see Appendix H).

Phase 2: Coding. All interview transcripts were analyzed using Dedoose, a mixed-method analysis software. A total of 26 interviews were completed and transcribed, however only 21 interviews were retained for analysis; one interview was withdrawn at the participant's request, one interview was not included as the participant was not in an appropriate environment during the public speaking task, and three interviews were not included as only one research assistant was present for the public speaking task. The codebook was developed by the primary investigator and research assistant. The primary investigator and research assistant each coded a transcript individually, before meeting virtually to discuss. This process of dual coding continued for 52% (n = 11) of the total transcripts, following which the primary investigator coded the remaining transcripts (n = 10) independently. The primary investigator conducted a second

review of all coded transcripts to ensure consistency and thoroughness, as suggested by Braun and Clarke (2022). The audit trail detailed the process of qualitative coding (see Appendix I) and codebook development (see Appendix J).

Phase 3: Generation of initial themes. Initial themes were developed independently by the primary investigator.

Phase 4: Development and review of themes. Following generation of initial themes, the primary investigator reviewed themes through consultation with the research assistant, dissertation advisor, and an academic research group. The audit trail detailed the process of theme development (see Appendix K).

Phase 5: Refine, define, and name themes. Theme review and refinement occurred over the course of weeks, to ensure adequate time to reflect on themes. The primary investigator named themes independently, with input from the research assistant, dissertation advisor, and members of an academic research group.

Phase 6: Writing. The primary investigator independently wrote up the qualitative analysis results. Participant quotes are contextualized throughout by providing relevant demographic information including age, gender (F = female, M = male, NB = non-binary), first language (EFL = English first language, ESL = English second language), and number of languages spoken (monolingual, multilingual). Of note, the qualitative analysis of the current study tells one of many potential stories from the transcript data of participant interviews. Although this story describes, in part, anxiety experienced by participants related to the public speaking task, it should be acknowledged that not all participants reported distress associated with the task, or exclusively reported distress. For instance, one participant shared, "*I really enjoyed [the public speaking task]*" [21 y/o, F, EFL, multilingual]. Additionally, two participants

reported feeling confident during the task. For instance, one participant shared, *"[I] was fairly confident because I felt I had some really good points*" [22 y/o, F, EFL, multilingual]. Another participant shared, "*Luckily, it was a topic that I felt confident talking about, so then when you announced the topic, then I felt more relaxed*" [19 y/o, F, EFL, multilingual]. A third participant described participation in the current study as a "*learning experience*" [21 y/o, M, EFL, multilingual]. In general, although many participants experienced distress during completion of the public speaking task, which is captured in the qualitative thematic analysis reviewed in detail below, this was not the experience of all study participants.

Results of Primary Qualitative Analyses

Participant experience as provided in the interviews was organized around five themes, some consisting of additional sub-themes. The five themes identified were: (1) Self-Assessment of Task Competence, (2) "I Did Not Like That": Experience and Drivers of Public Speaking Anxiety, (3) "It Added On The Original Stress": The Impact of Language Proficiency, (4) "It Was Both Helping and Hindering": The Role of Self-Talk in Managing and Exacerbating Anxiety, and (5) "Focus On Getting It Done": Attempts at Problem-Focused Coping. Themes and sub-themes are summarized in Table 15, represented visually in a thematic map in Figure 1, and reviewed in detail below.

Theme 1: Self-Assessment of Task Competence

When asked to do so by the primary investigator, participants reflected on how effectively they felt they had been able to communicate during the public speaking task. Five participants spontaneously provided a numerical rating but were not prompted or required to do so. These reflections on communication effectiveness were categorized into those who identified their communication as "Effective", "Moderately Effective", and "Not Effective".

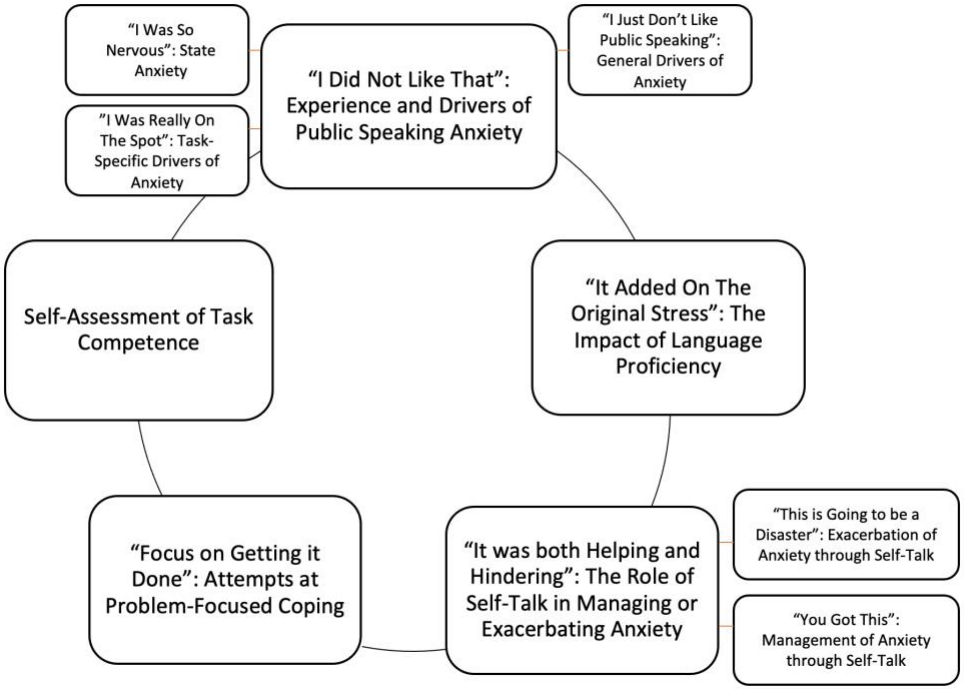
Table 15

Description of Themes and Subthemes (Hinch & Ngai, 2023)

Themes and Subthemes	Description
1. Self-Assessment of Task Competence	How effectively participants felt they had been able to communicate during the public speaking task.
2. "I Did Not Like That": Experience and Drivers of Public Speaking Anxiety a. "I Just Don't Like Public Speaking": General Drivers of Anxiety b. "I Was So Nervous": State Anxiety c. "I Was Really On The Spot": Task-Specific Drivers of Anxiety	Participants' report of public speaking anxiety throughout task completion.
3. "It Added On The Original Stress": The Impact of Language Proficiency	The reported impact of language proficiency on discomfort and communication effectiveness for those participants' who spoke English as a second language.
4. "It Was Both Helping and Hindering": The Role of Self-Talk in Managing or Exacerbating Anxiety a. "This is Going to be a Disaster": Exacerbation of Anxiety through Self-Talk b. "You Got This": Management of Anxiety through Self-Talk	The reported impact of self-talk on discomfort and communication effectiveness.
5. "Focus on Getting it Done": Attempts at Problem-Focused Coping	Reported attempts to engage in problem-focused coping, largely through concentrating on task completion.

Figure 1

Thematic Map



Ten participants' description of their ability to communicate during the public speaking task was categorized as "Moderately Effective." For instance, one participant shared, "*I wouldn't say great, but I also wouldn't say bad"* [19 y/o, F, EFL, monolingual]. Another participant shared feeling less effective when not able to rely on what they had prepared: *". . . what I did write down, I feel like I communicated that somewhat well, but other than that, it was . . . I tried to make up stuff on the spot and it didn't really work"* [19 y/o, F, EFL, monolingual]. Six participants identified their ability to communicate during the public speaking task as "Not Effective." For instance, one participant shared, *"I think [I did] very poorly because I couldn't think"* [22 y/o, F, ESL, multilingual]. Another participant shared, *"I don't believe that I got my ah, my information through, like to the audience, 'cause like I was, I wasn't um, I wasn't understanding myself"* [19 y/o, F, ESL, multilingual]. Five participants identified their ability to communicate during the public speaking task as "Effective." For instance, one participant shared, *"I think, I think I was able to get my points across"* [21 y/o, F, EFL, multilingual]. Another participant, when asked how effectively they felt they had been able to communicate during the task, responded, *"I would say effectively. I would say I did… I was able to get everything I wanted to get out"* [20 y/o, F, EFL, monolingual]. In general, participant responses indicated a considerable range in self-assessed communication effectiveness.

Theme 2: "I Did Not Like That": Experience and Drivers of Public Speaking Anxiety

Fifteen participants identified the live public speaking task as being anxiety-provoking. This is not particularly surprising, given that public speaking anxiety is highly prevalent and that specific parameters of the public speaking task in the current study were designed to elicit and heighten anxiety (e.g., requirement to stand, insufficient preparation time, additional audience members). Three sub-themes related to the experience of public speaking anxiety reported by

participants were identified and are described in detail below.

"I Just Don't Like Public Speaking": General Drivers of Anxiety. Some participants described drivers of public speaking anxiety that were more general in nature and not necessarily related to specific parameters of the public speaking task in the current study. These included a general dislike of public speaking, a lack of recent experience public speaking, and audience characteristics. These general drivers of anxiety are understood to have influenced participant experience during the public speaking task.

For instance, seven participants identified a general dislike of public speaking that extended beyond the public speaking task in the current study. One participant shared, *". . . I'm generally not a public speaker. I generally don't like public speaking, so that is also part of the problem"* [20 y/o, F, EFL, monolingual]. Two participants shared that they, *"hate public speaking"* [21 y/o, F, EFL, monolingual; 21 y/o, F, EFL, multilingual]. As previously stated, dislike of or anxiety related to public speaking is not uncommon and these participants' reflections speak to how that general dislike of public speaking likely influences all public speaking tasks engaged in. It is also not surprising that individually held beliefs about oneself (e.g., "I'm generally not a public speaker") would influence engagement in activities related to that belief.

Four participants identified a lack of recent public speaking experience as contributing to discomfort during the public speaking task in the current study. It is not uncommon for less familiar situations to provoke anxiety, particularly if the situation has been actively avoided in the past in an attempt to decrease feelings of discomfort. For instance, one participant shared not having engaged in public speaking since high school and identified this as contributing to feelings of discomfort.

> *I think getting spontaneously asked to do a presentation is a little nerve-wracking because I haven't done that since high school, and so that is very much like, 'oh wow, oh my god, we're doing this again'. . . so a little nerves there.* [20 y/o, F, EFL, monolingual]

Another participant shared the sentiment that lack of recent public speaking experience increased nerves related to the public speaking task: "*I haven't done public speaking in a really long time it feels like, so I think I was a bit more nervous than I expected to be"* [26 y/o, F, EFL, monolingual].

In additional to a general dislike of public speaking and a lack of recent experience public speaking, participants also identified particular characteristics of the audience that influence anxiety when completing public speaking tasks. For instance, one female participant reported a general preference for female audience members and a relief that the audience members in the current study were all female, sharing, *"Like, if it were guys, I would not have liked that. I would have hated that even more"* [19 y/o, F, EFL, monolingual]. This same participant also shared a general preference for smaller audiences: *"The number also helped too, like at least it wasn't five or six or whatever . . . "*. In general, this subtheme identifies general beliefs and preferences related to public speaking, and how these influenced participant experience during the public speaking task in the current study.

"I Was So Nervous": State Anxiety. Many participants reported experiencing state (i.e., situation-induced) anxiety while completing the public speaking task. The intensity of reported anxiety was variable, as illustrated by some of the words used by participants to describe the task, ranging from *"not that great"* [21 y/o, NB, EFL, multilingual], *"really stressful"* [19 y/o, F, ESL, multilingual], and *"nerve-wracking"* [20 y/o, F, EFL, multilingual], to *"awful"* [21 y/o, F, EFL, monolingual] and *"completely terrifying"* [21 y/o, F, EFL, multilingual].

Of particular interest, two participants, although identifying feeling anxious, conceptualized this anxiety in a positive light, describing that the anxiety allowed them to complete the public speaking task more effectively and was not intense enough to be debilitating. For example, one participant shared how the experience of anxiety supported her in completing the public speaking task and was self-assessed as normative.

> *I think it gave me a reasonable amount of anxiety that I could still do well. If I didn't have that anxiety I would probably just go off on a tangent . . . and if I didn't have any level of anxiety at all, I probably would have just said something completely random that had nothing to do with the task, like I was having a conversation with a friend. But because I knew this was more of a formal speech . . . I was more mindful and aware of what I was saying, which gave me some anxiety, but I think that's normal.* [19 y/o, F, EFL, multilingual]

In contrast, five participants described experiencing more debilitating levels of anxiety and spoke directly to the impact of this anxiety on their ability to communicate effectively during the public speaking task. For example, one participant shared how experiencing heightened emotions impacted her effectiveness: ". . . *because I'm so anxious and because I'm feeling all these things I'm definitely like, messing up where I'm not supposed to be messing up"* [21 y/o, F, EFL, multilingual]. Another participant described the impact of anxiety on communication effectiveness by identifying the worry as distracting: *"I couldn't stay focused on what I have to say, I was more worried, like, that I was gonna mess up"* [22 y/o, F, ESL, multilingual]. These findings appear to be consistent with previous literature indicating that performance may be aided by increased arousal (i.e., stress, anxiety), up to a certain point (e.g., Eysenck, 1989). However, if arousal increases beyond that point, performance and effectiveness become

negatively impacted (Eysenck, 1989). In other words, experiencing some degree of anxiety or discomfort while completing a public speaking task may not only be normative, but also beneficial to performance.

Eight participants described experiencing behavioural manifestations or indicators of state anxiety during the public speaking task, which included avoiding eye contact with audience members, sweating, changes to their voice (e.g., stuttering, vocal shakiness), and fidgeting. Nearly half of the participants reported rambling, use of filler words, or "getting lost" while engaging in the public speaking task. For instance, one participant described both rambling and use of filler words: *"... I think I strayed away from some of my main points, and then it started to like ramble because I, like using a lot of filler words 'cause I didn't know how to like, connect my points"* [19 y/o, F, EFL, monolingual]. Another participant shared, *". . . the thoughts were all just getting jumbled in my head"* [20 y/o, F, EFL, multilingual]. In general, the public speaking task in the current study elicited anxiety in many participants, although there was considerable variability in the intensity and behavioural manifestation of this anxiety, as well as the self-assessed impact of this anxiety on communication effectiveness.

"I Was Really On the Spot": Task-Specific Drivers of Anxiety. Some participants identified that particular aspects of the public speaking task contributed to state anxiety. For example, eleven participants identified feeling as though the amount of time provided to prepare for the public speaking task (i.e., 2 minutes) was inadequate, and contributed to increased discomfort and decreased communication effectiveness during the task. For instance, one participant shared, *"I was scared because I didn't have enough time to get ready"* [27 y/o, F, ESL, multilingual]. Another participant shared, *"I didn't really have much time to prepare"* [20 y/o, F, ESL, multilingual]. A third participant indicated that the allotted preparation time in the

current study was insufficient, and identified that preparation typically serves as an effective strategy in managing anxiety in advance of and during a public speaking task.

> *. . . something I do to kind of ease my anxiety about that is, like, preparing, and I didn't have a lot of time to prepare. I like to know exactly what I'm gonna say, that just gives me, it calms me down if I know I'm prepared, and I know what I'm gonna say. And I just didn't know what I was gonna say at all, so I was really stressed*. [19 y/o, F, EFL, monolingual]

Preparation is a commonly used tool to manage anticipatory anxiety related to public speaking, although can become maladaptive when an individual is preparing beyond a reasonable point. It is not clear from the above participant's comment how much preparation would have been required to manage anxiety. Another participant shared how advance knowledge of the presentation topic would have been of benefit.

> *I feel like if I like got told that that was the topic before I would have like been a lot better . . . even if I just had like an hour, then it probably – I feel like, like, and like when I did the thing, like it would be a lot, a lot easier to like figure out the flow . . .* [19 y/o, F, EFL, monolingual]

Of note, it is not uncommon for those with anxiety to manage this anxiety through attempts to increase control. Advance knowledge of the speech topic and increased preparation time can both be understood as ways to increase feelings of control around an anxiety provoking situation (i.e., public speaking). Two participants identified the insufficient preparation time as contributing to disorganized or ineffective preparation. For example, one participant shared a lack of organization in their preparation for the public speaking task.

> *. . . but being that I was so nervous and being that I may not have written everything*

> *down or like, I couldn't see everything I wrote, that I didn't get it in such an orderly way, like I got everything out but not in an orderly fashion, where I would have, I would have if I just, or-, um, organized myself more.* [20 y/o, F, EFL, monolingual]

Participants also identified more specific aspects of the public speaking task that contributed to feelings of discomfort. This included the requirement to stand (e.g., *"so then having to stand up . . . that threw me off too"* [19 y/o, F, EFL, monolingual]), the video format of the task (e.g., *"I'm really self-conscious when I see myself, like, on the screen, so it would have been better if I don't see myself"* [22 y/o, F, ESL, multilingual]), and the speech topic provided (e.g., *"[the topic] triggered some things that I would not wanna like, um, I'm trying to forget. Um, so like, I just got very nervous"* [22 y/o, F, ESL, multilingual]). Six participants identified the length of the task (i.e., three minutes) as contributing to discomfort. Of these participants, two participants indicated heightened anxiety when prompted by the primary investigator to continue (i.e., when they had stopped speaking before three minutes had elapsed). For example, one participant identified the moment the prompt was provided by the primary investigator as being a particularly anxiety provoking point in the speech.

> *I started to really freak out when you told me I had to keep talking when I had no more points left to make. I feel like, um, I could have been more calm, 'cause immediately my brain went into like, almost fight or flight mode when you told me I had to talk more* [22 y/o, F, EFL, multilingual].

In addition, eight participants indicated certain characteristics of the audience (i.e., the primary investigator and two research assistants) that contributed to feelings of anxiety or discomfort during the public speaking task. For example, one participant shared how a lack of familiarity with the audience members contributed to discomfort during task completion: "*I was*

nervous, tense, anxious too, just especially 'cause I don't know the audience as well" [20 y/o, F, EFL, multilingual]. These participants also indicated that certain behaviours of the audience members contributed to discomfort. For example, one participant identified a lack of non-verbal reinforcement from audience members in the current study and compared this to non-verbal behaviours indicative of support that might typically be observed while public speaking.

> *I noticed that like you kept a straight face – which I know you, you're – I think at least – you're supposed to do . . . but I think that would be uh, uh, the main thing that I noticed 'cause a lot of times when you do public speaking or you do in class presentation, you'll have your friends nodding along or the professor will smile at you if you say something like good or right or something, you know what I mean?* [20 y/o, F, EFL, monolingual]

Another participant indicated that intermittent eye contact by audience members increased discomfort and insecurity.

> *When people look away, so because I was looking at, at the three of you and I saw that sometimes like, you guys were looking away and I'm like, oh, that makes me feel like more insecure about, about me talking.* [27 y/o, F, ESL, multilingual]

In general, completion of the public speaking task in the current study was related to feelings of anxiety and discomfort in many participants. A general dislike of public speaking and a lack of recent experience public speaking, as well as specific parameters of the public speaking task in the current study (e.g., preparation time, speech topic, requirement to stand, length of the task, behaviour of audience members) can be understood as unique factors contributing to a participant's anxiety throughout task completion (i.e., state anxiety).

Theme 3: "It Added On The Original Stress": The Impact of Language Proficiency

Those participants who spoke English as a second language shared the unique impact of

language proficiency on the completion of the public speaking task. For instance, one participant shared how degree of English proficiency increased feelings of worry: ". . . *because I'm a second, like my language, like, I don't speak good English, like, I don't speak fluently, so I was a bit worried with like, just speaking in general"* [22 y/o, F, ESL, multilingual]. Another participant shared this sentiment, explaining how English proficiency increased feelings of stress and negatively impacted self-perceived communication effectiveness.

> *Language is like, a big, a big ah, a big thing for me, 'cause like, when I talk in Arabic or my first language, I'm easily like, I'm easily speaking in my first language. But, in my second language, like I'm lost at what words should I say right now, or is this word right, is the grammar right? And it makes me just so stressed on the, like, it's like another factor that stresses me out than the public speaking.* [19 y/o, F, ESL, multilingual]

Two participants identified concerns specifically related to accent. For instance, one participant shared experiencing concerns related to intelligibility during the public speaking task and how this had been influenced by previous experiences interacting with English speakers.

> *I'm worried that people are not gonna understand what I'm trying to deliver, I guess. And it's, I think it dates itself from how other students, like my friends, have reacted when I spoke, like broken English, and I think in a way, that I'm kind of scared after that, I'm scared like, I'm gonna say something and they wouldn't understand and I'm gonna have to deal with that awkward face of theirs . . .* [22 y/o, F, ESL, multilingual]

A second participant shared similar concerns related to intelligibility during the public speaking task and the impact of previous experience: "*When I talk in English, I focus on like, my accent . . . because some people have told me that when I get nervous, they don't understand what I'm saying"* [27 y/o, F, ESL, multilingual]. Of the participants who identified that English

was not their first language, three participants described delay or additional difficulty as a result of language switching. For instance, one participant shared, *"Sometimes I tend to think in a different language"* [22 y/o, F, ESL, multilingual]. Another participant shared, *"When I speak English, my tongue gets tied and then I end up stuttering or I have to, I have to really think about the word…"* [21 y/o, F, EFL, multilingual]. A third participant identified delayed word recall as a result of engaging in a public speaking task in the English language: *"I had some moments where I, I can't get the right word in. I think, yeah about language because it was like, like, I was lost at words . . . stressed about finding words made me, made me stressed"* [19 y/o, F, ESL, multilingual]. In general, for those with concerns related to English language proficiency, these concerns represented an additional stressor when completing the public speaking task. These concerns included making grammatical errors, not being understood by audience members, or delays due to language switching or word finding.

Participants who spoke English as a second language were also asked to reflect on if completing the same public speaking task in their first language may have been a different experience. Three of these participants indicated completion of the public speaking task in their first language would have been easier and associated with decreased discomfort. For example, one participant shared how completing the task in their first language would have decreased, although not eliminated, the discomfort experienced: "*I would get nervous, but I wouldn't feel insecure about like talking because I know they, they are going to understand what I'm saying no matter if I'm like, lost, they are going to understand like, what I'm saying"* [27 y/o, F, ESL, multilingual]. Another participant shared how completing the public speaking task in their first language would have been associated with an increased sense of ease: "*I feel like it would have been just a little bit different, just because I feel like I wouldn't be thinking about it as much. It*

would just flow" [21 y/o, F, EFL, multilingual].

On the other hand, three participants who spoke English as a second language indicated that completion of the public speaking task in their first language would have been more challenging. One participant attributed this anticipated increase in difficulty, in part, to challenges translating particular words or concepts from English into their first language.

> *It's really hard to . . . I find it hard to express myself in my first language. Um, and I don't know where I would even start talking about mental health in my first language because that's not really something we talk about. So I wouldn't even know how to translate it in my language. Some words do not exist in my other language*. [20 y/o, F, ESL, multilingual]

One participant reported feeling as though completion of the public speaking task in their first language would have been *"similar"* [22 y/o, F, ESL, multilingual]. This variation in participant response illustrates the importance of utilizing dimensional descriptors of language (e.g., degree of language proficiency) as opposed to categorical descriptors of language (e.g., English first language, English second language). For instance, as described above, some participants identified that although English was their second language, they would feel more comfortable completing a public speaking task in English and no longer felt adequately proficient in their first language. This further emphasizes that first language identification is not, in and of itself, an adequate indicator of language proficiency or comfortability.

Theme 4: "It Was Both Helping and Hindering": The Role of Self-Talk in Managing or Exacerbating Anxiety

Participants reported having a wide range of self-talk over the course of the public speaking task and many described the associated impact of this self-talk on their experience

completing the task. Of note, five participants reported experiencing both helpful and hindering self-talk, wherein experience of self-talk did not fall neatly into one category or the other. In fact, some participants shared the experience of managing multiple, competing types of self-talk simultaneously. For example, one participant described this as like having, *"two cheer teams"* [21 y/o, M, EFL, multilingual]. Another participant described this experience of managing different types of self-talk during the public speaking task.

> *I think it is kind of like a battle of the brain because one is anxiety inducing and one is anxiety reducing, right? So when I'm, when you're kind of on the spot like that, I think it kind of quiets the other voice down a little bit more, because I can't really think about that right now, I'm giving a presentation.* [20 y/o, F, EFL, monolingual]

Two sub-themes related to self-talk during the public speaking task were identified and are described in detail below.

"This is Going to be a Disaster": Exacerbation of Anxiety through Self-Talk.

Thirteen participants reported self-talk that was anxious in nature. Examples of anxious self-talk, as reported by participants, include: *"Is this speech good?"* [19 y/o, F, ESL, multilingual], *"Are they laughing?"* [27 y/o, F, ESL, multilingual], *"Am I actually getting a message across?*" [21 y/o, F, EFL, multilingual], *"Oh no, what else do I talk about?"* [20 y/o, F, EFL, monolingual], and *"I don't have anything. I'm screwed"* [22 y/o, F, EFL, multilingual]. Another participant identified the role of anxious self-talk in exacerbating anxiety during the public speaking task: "*Um, the negative self-talk made me more nervous and more anxious of like, 'okay, I have to think of something to say right now or unless I'm gonna look weird' or something"* [24 y/o, F, EFL, monolingual].

Eight participants reported self-talk that was critical in nature. Examples of self-critical

self-talk, as reported by participants, include: *"I'm not doing a good job"* [20 y/o, F, EFL, multilingual], *"This is going to be a disaster"* [27 y/o, F, ESL, multilingual], *"This isn't going well"* [19 y/o, F, EFL, monolingual], *"I'm gonna mess up"* [21 y/o, F, EFL, monolingual], and *"That was stupid what you said"* [21 y/o, NB, EFL, multilingual]. Some participants spoke to the impact of this critical self-talk on their experience during the public speaking task. For instance, one participant shared, "*Every time I was about to mess up, I would say, 'I'm gonna mess up' or 'I'm gonna run out of something to say' and then I would run out of something to say"* [21 y/o, F, EFL, monolingual]. Another participant shared how self-critical self-talk made completion of the public speaking task more challenging, sharing, ". . . *the negative thoughts of saying, you know, 'you're doing a bad job' was like, it just made it probably like a little more challenging because it's like okay, you're trying to do something good and here you go . . ."* [24 y/o, F, EFL, monolingual].

Of note, much of the above anxious and critical self-talk reported by participants during the interview could be understood as examples of cognitive distortion (e.g., catastrophizing, overgeneralization, mind reading) through a cognitive-behavioural lens.

"You Got This": Management of Anxiety through Self-Talk. Six participants reported self-talk that was supportive in nature. Supportive self-talk shared by separate participants engaging in the public speaking task include: *"It's okay, just finish it"* [21 y/o, M, EFL, multilingual], *"You've got this"* [20 y/o, F, EFL, monolingual], and *"You're okay, it's just a speech… it will be done soon"* [21 y/o, F, EFL, multilingual]. Some participants indicated utilizing self-talk in a conscious effort to manage anxiety during the public speaking task. For example, one participant described use of self-talk as a coping strategy.

I found that once I was able to let myself know, 'Okay, we're going to do the best that we

> *can in two minutes and we're not gonna worry about it afterwards', so, when I was able to do that, it helped to calm me. And I find that usually that's what I do if I feel a little anxious, I'll talk myself through it and then that usually helps to calm me down.* [21 y/o, F, EFL, multilingual]

Another participant shared the impact of supportive self-talk on anxiety experienced during the public speaking task: *"I think in some ways [self-talk] did help to reduce anxiety – being able to say, 'okay, it's almost done, just keep going'"* [24 y/o, F, EFL, monolingual].

In general, participants described engaging in a variety of self-talk during the public speaking task, including anxious self-talk, critical self-talk, and supportive self-talk. Consistent with the literature, those participants who engaged in "negative" self-talk tended to indicate associated increases in discomfort. On the other hand, those participants who engaged in supportive self-talk described associated decreases in discomfort.

Theme 5: "Focus on Getting it Done": Attempts at Problem-Focused Coping

Twelve participants described attempts to engage in problem-focused coping and self-regulation, largely through concentrating on what they needed to do to complete the public speaking task, although the degree of success participants had in managing the task in this way was variable. Content focused self-talk shared by separate participants engaging in the public speaking task included, "*What else could I bring up?*" [20 y/o, F, EFL, multilingual], "*Get back on track*" [19 y/o, F, ESL, multilingual], "*I have to… link this point to this point*" [20 y/o, F, EFL, monolingual], and "*Oh, you could say this*" [19 y/o, F, EFL, monolingual]. One participant described having neutral self-talk that was focused on completing the public speaking task.

> *I think it's like the type of self-talk and anxiety that kicks in when you're about to be graded on something, so if you're doing a test, you're gonna have anxiety and self-talk*

> *while doing the test, but your brain is more focused on like, getting it done and doing the best you can within that time limit. So, it wasn't positive or negative self-talk at all, it was self-talk about how to get this done in the most efficient way possible so I can move on to the next task.* [19 y/o, F, EFL, multilingual]

Another participant shared focusing on what they would say next during the public speaking task.

> *. . . Almost as if I have multiple tabs open in my head, is where I'm like closing my tabs and I'm like going to the next, and I'm going to the next. But there's always like a web of thinking, right? So, I kind of have to talk myself through what I'm trying to explain. So, I think, throughout my presentation, I was constantly like, talking to myself about what is next.* [20 y/o, F, EFL, monolingual]

A third participant described content-focused self-talk during completion of the task as almost automatic.

> *A lot of the um, uh, questionnaire points were kind of like, um, like congratulating yourself or like putting yourself down or something, if you did something right or wrong – I didn't really experience that. It was more just like, um, almost like, um, when you're driving and you have the voice telling you which way to turn and stuff, it was kind of like that – like, oh, you need to get to this point next and then you need to go to this one.* [20 y/o, F, EFL, monolingual]

In addition to identifying and describing content-focused self-talk, participants also shared the perceived impact of this self-talk on the effectiveness of their communication. For instance, one participant shared how content-focused self-talk supported a more structured speech.

"*It helped, um… because I was able to rearrange things like, step by step what to do, what to talk about, instead of it being just jumbled and it not making any sense, you know what I mean? Like, I was able to just be like just one topic and then the next topic, and then the next topic.*" [21 y/o, F, EFL, multilingual]

In contrast, another participant shared how content-focused self-talk reduced communication effectiveness during the public speaking task, leading to repetition.

"You're not really thinking about what you just said, because you're always thinking about what's coming next. So, uh, I might have repeated things a couple times, or you know, strayed that way. [20 y/o, F, EFL, monolingual]

In general, participants who spontaneously reported concentrating on what to say next during the public speaking task or focusing more generally on task completion were potentially engaging in problem-focused coping. The results of this coping on anxiety management and the impact on communication effectiveness was variable.

Summary of Inductive Thematic Analysis

In summary, five themes were identified to capture participant experience during the public speaking task, as shared by participants through semi-structured interview. These five themes were: (1) Self-Assessment of Task Competence, (2) "I Did Not Like That": Experience and Drivers of Public Speaking Anxiety, (3) "It Added On The Original Stress": The Impact of Language Proficiency, (4) "It Was Both Helping and Hindering": The Role of Self-Talk in Managing and Exacerbating Anxiety, and (5) "Focus On Getting It Done": Attempts at Problem-Focused Coping. See Table 16 for a summary of Phase 2 preliminary correlational analysis linking Phase 1 and Phase 2 data, and the primary qualitative findings from Phase 2.

Table 16

Summary of Correlational Analysis and Primary Qualitative Findings (Phase 2)

Research Question	Key Findings
Preliminary Correlation Analysis	• Positive correlation between total public speaking anxiety and the following variables: total self-talk (at Time 1 and Time 2) and state anxiety (at Time 3). • Positive correlation between self-talk measured at Time 1 and self-talk measured at Time 2. • Positive correlation between state anxiety as measured at Time 1 and state anxiety as measured at Time 2.
Research Question 4 How is use of self-talk related to the experience of participants during the public speaking task?	• Participants reported engaging in a range of self-talk during the public speaking task (e.g., anxious, critical, supportive). • Self-talk was described by participants as both helping to manage anxiety and exacerbating anxiety.
Research Question 5 How are concerns of language proficiency related to participants' experiences during the public speaking task for those whose first language is not English?	• Participants reported concerns related to English proficiency that influenced self-reported anxiety and communication effectiveness. • Concerns included intelligibility, negative judgement from audience members, and delayed word recall.

CHAPTER IV

Discussion

The primary purpose of the current, mixed methods study was to determine the influence of particular domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing) on domains of public speaking anxiety (i.e., behavioural, cognitive, physiological). A secondary purpose was to determine the influence of English language proficiency on the use of self-talk, level of public speaking anxiety, and degree of foreign language anxiety. The current study utilized a convergent design using a parallel approach, with a contiguous approach to data integration occurring at the interpretation and reporting level (Fetters et al., 2013). Results of the current study largely supported the relation between self-talk and public speaking anxiety. Contrary to expectation, degree of English language proficiency as assessed quantitatively in the current study did not predict total public speaking anxiety. Results of an inductive thematic analysis indicated five themes, illustrating participant experience while completing a public speaking task and the unique influences of self-talk and English language proficiency on participants' experiences. All findings are discussed in more detail below, beginning with a discussion of the quantitative findings.

Quantitative Findings

Self-Talk and Public Speaking Anxiety

Quantitative results largely supported that domains of self-talk predicted public speaking anxiety, after controlling for age, gender, previous experience, English language proficiency, and impression management. More specifically, self-critical self-talk and self-reinforcing self-talk predicted all domains of public speaking anxiety (i.e., total, behavioural, cognitive, physiological), and social-assessing self-talk predicted behavioural and cognitive domains of

public speaking anxiety. Self-managing self-talk did not predict any domains of public speaking anxiety (i.e., total, behavioural, cognitive, physiological). Previous research suggests that when in social situations, anxious individuals tend to focus excessively inward and thus are less aware of external evidence that might disconfirm beliefs about oneself (e.g., Clark & Wells, 1995). Notably, much of the self-talk assessed in the current study, aside from the social-assessing self-talk subscale, is concerned about the self and reflects inward focus.

Self-critical self-talk predicted higher levels of public speaking anxiety across domains (i.e., total, behavioural, cognitive, physiological). This type of self-talk involves talking to oneself when feeling discouraged about something one has said or done (Brinthaupt et al., 2009) and this finding is consistent with existing literature (e.g., Shahar et al., 2012; Shi et al., 2015; Shi et al., 2017); it is well understood that explicitly negative self-talk directed towards oneself increases anxiety when engaging in a public speaking task. This finding is also consistent with cognitive theory, in that negative beliefs about oneself can contribute to emotional distress (Beck, 2011). Although previous studies have examined public speaking anxiety, these studies have often utilized briefer measures that provided a single composite score for public speaking anxiety (e.g., Shi et al., 2015; Shi et al., 2017), which may obscure the different anxieties people experience. The current study contributes to the literature by examining different subtypes of public speaking anxiety (e.g., behavioural, cognitive, physiological), which allows for a better understanding of the unique relationships that may exist between self-talk and public speaking anxiety.

Self-reinforcing self-talk predicted lower levels of behavioural, physiological, and total public speaking anxiety. In contrast, self-reinforcing self-talk predicted higher levels of cognitive public speaking anxiety. This type of self-talk involves talking to oneself when feeling pride

related to a positive occurrence (Brinthaupt et al., 2009). Previous research has identified conflicting results, with some studies finding self-reinforcing self-talk predictive of lower levels of public speaking anxiety (e.g., Shi et al., 2015) and others finding no relation (e.g., Shi et al., 2017). This relation makes sense, particularly through a cognitive theory lens; that is, self-talk that is more positive and adaptive in nature can support alleviating emotional distress (Beck, 2011). The increased specificity afforded through use of domains of public speaking anxiety may help to explain conflicting results in the literature. For instance, it is possible that conflicting findings are explained, in part, by the degree to which individuals believe in or accept the self-reinforcing self-talk they are engaging in. For instance, Brandrick and colleagues (2021) found that engaging in brief cognitive diffusion (i.e., a word repetition task) significantly reduced anxiety after a public speaking task in a sample of university students, while engaging in positive self-affirmation did not. Brandrick and colleagues (2021) identified the need to explore cognitive modification in future research and differentiate this from positive affirmations. Indeed, modifying thoughts to be more adaptive but still believable to the individual (e.g., "I can get through it") may be more helpful than simply inserting positive self-talk or affirmations that are not believed (e.g., "I'm going to do a great job"). It is possible that lack of belief in various self-reinforcing statements may explain why self-reinforcing self-talk predicted higher levels of cognitive public speaking anxiety in the current study. That is, utilizing self-talk that is not accepted or believed in could allow for rumination or anxious thoughts to maintain. In summary, perhaps in addition to determining frequency of self-reinforcing self-talk, measuring the degree of belief in that self-talk would also be of benefit. The relation between self-reinforcing self-talk and cognitive public speaking anxiety needs additional clarification and thus warrants further study.

Social-assessing self-talk predicted higher levels of behavioural and cognitive public speaking anxiety. This type of self-talk involves talking to oneself when examining the response of others to something one has said or done, or when experiencing a desire to redo something one has said (Brinthaupt et al., 2009). It is likely that some degree of audience assessment is of benefit during a public speaking task (e.g., determining audience reaction to influence direction, monitoring for positive reinforcement from audience members). For example, Shi and colleagues (2017) reported that social-assessing self-talk was associated with enhanced performance during a public speaking task, as rated by three public speaking course instructors. However, being overly focused on attempting to interpret the reaction of others or determine what others may be thinking is associated with increased anxiety while public speaking. Of note, social-assessing self-talk may include a number of thought distortions, including inaccurate or unhelpful thoughts about what audience members are thinking or feeling (i.e., mind-reading; Beck, 2011). It is not clear why social-assessing self-talk predicts behavioural and cognitive manifestations of anxiety but not physiological manifestations. It is possible that a noticeable physiological reaction may indicate a more intense anxiety response than noticeable cognitive or behavioural indicators of anxiety would, although this finding warrants further study.

Self-managing self-talk did not predict any domains of public speaking anxiety in the current study. This type of self-talk involves talking to oneself when determining what to say or do (Brinthaupt et al., 2009). It was expected that increased self-managing self-talk would predict decreased public speaking anxiety, as self-managing self-talk could function as a form of problem-focused coping, keeping the individual concentrated on what needs to be said or done next as opposed to the emotional experience. Of note, the current results are consistent with Shi and colleagues (2015), who found that self-managing self-talk was not significantly associated

with public speaking anxiety, despite being associated with public speaking performance quality. Thus, it may be that self-managing self-talk is beneficial when engaging in a public speaking task by increasing performance quality, but does not directly influence degree of anxiety. Another consideration may be the degree of association between self-managing self-talk and behaviour; compared to the other three subscales, the self-managing self-talk subscale is the most directly related to action or behaviour. For example, talking to oneself when figuring out what to do or say next, or when exploring a course of action, is clearly related to a behaviour (i.e., doing or saying that thing next, enacting that course of action). This is in contrast to the other subscales that are less directly related to action. For example, talking to oneself when feeling proud of something you've accomplished (i.e., self-reinforcing self-talk) or talking to oneself when feeling embarrassed about something you've done or said (i.e., self-critical self-talk) are not clearly linked to a behavioural response. For this reason, it is possible that self-managing self-talk and performance quality are related because they are more behavioural in nature, compared to the internal experience of anxiety. Further study on the concept of self-managing self-talk and the specific self-managing self-talk subscale utilized in the current study would be of benefit.

English Language Proficiency and Public Speaking Anxiety

Results indicated that although English language proficiency predicted total public speaking anxiety before controlling for covariates, it was no longer a significant predictor after covariates were included in the regression model. This finding illustrates that other factors (i.e., being older, identifying as female, having more previous experience public speaking) may be more important in understanding experiences of public speaking anxiety than English language proficiency alone. For instance, an individual may have lower levels of English proficiency, but have considerable experience engaging in public speaking or identify as female and thus,

experience lower levels of public speaking anxiety than might be expected by considering language proficiency alone.

Predictors of Participation in Phase 2

Results indicated that participant gender significantly predicted willingness to participate in Phase 2 of the current study; however, this was not in the expected direction. Although it was hypothesized that participants identifying as female would be less willing to participate, results indicated that participants identifying as male were significantly less willing to participate. Past research has indicated that females typically report higher levels of public speaking anxiety compared to males (e.g., Behnke & Sawyer, 2000; Marinho et al., 2017) and thus, might be more likely to avoid situations that involve public speaking. Other results of the current study are consistent with this; for instance, being female was correlated with higher levels of public speaking anxiety. However, as stated previously, there was a relatively small sample size of men in the current study and as such, these results should be interpreted with caution.

Total public speaking anxiety, English language proficiency and previous experience did not predict willingness to participate in Phase 2. It is likely that willingness to participate in Phase 2 was an inaccurate proxy for avoidance of public speaking, and that a more direct measure of anxious avoidance might have rendered different results. Therefore, it is possible that public speaking anxiety, English proficiency, and previous experience public speaking are all predictors of avoidance behaviour related to public speaking, but not as it was measured in the current study. Furthermore, although foreign language anxiety has been associated with a reduced willingness to communicate (e.g., Wu & Lin, 2014), degree of English language proficiency is not synonymous with or necessarily indicative of communication apprehension.

Qualitative Findings

Five themes were identified through an inductive thematic analysis: (1) Self-Assessment of Task Competence, (2) "I Did Not Like That": Experience and Drivers of Public Speaking Anxiety, (3) "It Added On The Original Stress": The Impact of Language Proficiency, (4) "It Was Both Helping and Hindering": The Role of Self-Talk in Managing and Exacerbating Anxiety, and (5) "Focus On Getting It Done": Attempts at Problem-Focused Coping.

These themes are largely reflective of existing literature on public speaking anxiety and self-talk. For instance, Theme 2 ("I Did Not Like That": Experience and Drivers of Public Speaking Anxiety) captures that for many participants, completion of the live public speaking task was associated with feelings of discomfort and anxiety, which is consistent with literature suggesting the high prevalence rate of public speaking anxiety in the general population (e.g., Tillfors & Furmark, 2006).

Self-Talk and Public Speaking Anxiety

The qualitative analysis illustrated the relation between self-talk and public speaking anxiety, and demonstrated the range of influence self-talk can have on the management of public speaking anxiety. Having completed the Self-Talk Scale twice before the qualitative interview was conducted, participants had already been asked to reflect on their self-talk during the public speaking task as they were engaging in questionnaire completion. This was likely of benefit as "thinking about thinking", taking time to notice and reflect on our thoughts, is not always typically engaged in. In fact, simply noticing thoughts is often the first step in the process of cognitive modification (Beck, 2011).

In general, the current study illustrated how powerful self-talk can be, particularly during heightened periods of arousal. Many participants reported engaging in critical or anxious self-

talk, and reflected on the influence of this on both discomfort during the public speaking task and communication effectiveness. This qualitative finding is consistent with quantitative findings in Phase 1 (i.e., Hypothesis 1), wherein self-critical self-talk significantly predicted higher levels of public speaking anxiety across domains. This qualitative finding is also consistent with the understanding of cognition through cognitive-behavioural theory, such that engaging in cognitions that are untrue or unhelpful can negatively influence how one feels and how one behaves (Beck, 2011).

On the other hand, a number of participants shared engaging in supportive self-talk throughout the public speaking task, some in a conscious effort to cope with the discomfort associated with public speaking. This qualitative finding is also consistent with cognitive-behavioural theory, such that engaging in coping statements or positive self-talk can influence the intensity of an emotional experience (Beck, 2011). Of note, many participants reported engaging in both positive (i.e., supportive) self-talk and negative (i.e., anxious, critical) self-talk. It is possible that this represents efforts to engage in cognitive modification, wherein participants feeling anxious or overwhelmed by the task were having negative automatic thoughts that were critical or anxious in nature, and were engaging in supportive self-talk in a conscious effort to change the way they were feeling.

Of note, many participants' report of self-talk during the public speaking task would, within a CBT framework, be recognized as cognitive distortions. In a course of therapeutic intervention, the client would be encouraged to identify these thoughts and the impact of these thoughts on behaviour and emotion. Subsequently, the client would be coached to identify the particular cognitive distortion, consider the validity and utility of this thought, and replace this thought with a more realistic thought (i.e., cognitive modification; Beck, 2011). As previously

stated, “thinking about thinking” is often the first step in a course of cognitive-behavioural intervention; participants in the current study, similar to clients presenting for treatment, likely had varying degrees of insight into the content and subsequent impact of their self-talk. For instance, it is possible that those participants in the Phase 2 interview who reported no engagement or minimal engagement in self-talk over the course of the public speaking task had less awareness of their own self-talk. Similarly, there are likely varying degrees of insight related to different manifestations of anxiety (i.e., behavioural, cognitive, physiological) and for some participants, the experience of anxiety or discomfort might be a more general feeling that they had not previously broken down into individual manifestations or components. In addition to self-talk, the current study explored the role of language proficiency in public speaking anxiety, discussed further below.

Language Proficiency and Public Speaking Anxiety

The qualitative analysis illustrated the relation between concerns of language proficiency and completion of the public speaking task for those participants whose first language was not English. Participants in Phase 2 who identified speaking English as a second language (n = 5) communicated the unique impact of language proficiency during completion of the public speaking task. Reported concerns related to language included intelligibility during the public speaking task and concerns about not being understood by the audience members. These findings are consistent with previous qualitative studies exploring the influence of language proficiency on public speaking anxiety, wherein students reported fears specific to fluency, including fears they would not speak fluently (LeFebvre et al., 2018) or would use inadequate vocabulary (Dansieh et al., 2021). In general, concerns related to language proficiency can be understood as an additional stressor requiring management during a public speaking task, as those with varying

degrees of English language proficiency may experience both general public speaking anxieties as well as language specific concerns.

In addition, the analysis emphasized the complex relation of public speaking anxiety and language. For example, a few participants shared that although English may not be their first language, there would actually be increased comfortability completing a public speaking task in English than there would be in their first language. Thus, identification of first language is an inadequate explanation for anxiety experienced during a public speaking task.

Points of Convergence and Divergence across Quantitative and Qualitative Findings

The mixed-methods design of the current study allowed for identification of points of convergence and divergence across quantitative and qualitative findings. One of the major points of divergence across quantitative and qualitative findings involved the relation between English language proficiency and public speaking anxiety. The qualitative finding illustrates the impact of language proficiency on public speaking anxiety (i.e., Theme 3: "It Added On The Original Stress": The Impact of Language Proficiency); a number of participants shared the influence of language proficiency (e.g., accent, word finding) on completion of the public speaking task. However, this is in contrast to quantitative findings, in which language proficiency was not a significant predictor of total public speaking anxiety after controlling for covariates (e.g., age, gender, previous experience). One explanation for this divergence may be methodology; previous research identifying foreign language anxiety as contributing to public speaking anxiety has been largely qualitative in methodology (e.g., Dansieh et al., 2021; LeFebvre et al., 2018), which may suggest that this discrepancy is explained by methodological differences. A second explanation for this divergence may be demographic variables of the Phase 2 sample. For instance, covariates included in the quantitative analysis suggested that certain variables may be

more important in understanding public speaking anxiety than English language proficiency alone; more specifically, being older, identifying as female, and having more previous experience public speaking predicted lower levels of public speaking anxiety. It may be that particular demographics of the Phase 2 sample made English language proficiency more impactful than it might have been in a different sample. For instance, although the participants in the Phase 2 sample were largely female, they were fairly young (22 years old on average), and it is possible that being younger influenced the degree to which language proficiency impacted their experience. Future research might utilize a mixed-methods approach with a larger sample to help clarify this discrepancy.

One major point of convergence across quantitative and qualitative findings in the current study involved the relation between self-talk and public speaking anxiety. The qualitative finding illustrates how self-talk can influence discomfort while completing a public speaking task (i.e., Theme 4: "It Was Helping and Hindering": The Role of Self-Talk in Managing or Exacerbating Anxiety); in general, participants indicated that self-talk of an anxious or critical nature was associated with higher levels of discomfort, while self-talk of a supportive nature was associated with lower levels of discomfort. The quantitative findings indicated that different types of self-talk predict levels of public speaking anxiety; higher frequency of self-critical and social-assessing self-talk predicted higher levels of public speaking anxiety, while higher frequency of self-reinforcing self-talk predicted lower levels of public speaking anxiety. Additionally, both the quantitative and qualitative findings demonstrated that many individuals engage in multiple types of self-talk, often both helping and hindering. In general, both quantitative and qualitative results of the current study provide strong support for the association between self-talk and public speaking anxiety.

Of note, points of both divergence and convergence across quantitative and qualitative findings in the current study provided valuable information related to key variables and validated the benefit of the mixed-methods study design.

Study Limitations and Recommendations for Future Research

There are a number of limitations of the current study. To begin, although the sample was demographically diverse, the number of male-identifying participants in both Phase 1 and Phase 2 was limited (10.7% and 4.5%, respectively). For this reason, it is unclear to what extent results are generalizable to men or reflective of the male experience. Future studies would benefit from a larger sample of men. Relatedly, the current study was also limited in the number of individuals reporting lower levels of English language proficiency. Although the current sample is closely representative of the Canadian and university population with respect to linguistic diversity, future research of language proficiency, foreign language anxiety, and public speaking anxiety would likely benefit from a more targeted sampling of those with lower levels of English language proficiency, perhaps even at different points of their learning of the English language.

Secondly, although the current study measured levels of public speaking anxiety during the public speaking task in Phase 2, it is also possible that participants experienced more generalized anxiety in addition to public speaking anxiety. For instance, the impromptu nature of the task may have elicited generalized anxiety; in other words, the task did not necessarily need to involve public speaking to elicit anxiety. Generalized anxiety was not measured in Phase 2 and thus, it is not possible to identify the amount of anxiety uniquely explained by public speaking. Beyond generalized anxiety, it is possible that different types of anxiety (e.g., phobia, social anxiety) influenced engagement in the public speaking task in unique or interesting ways. Future research might consider measuring different facets of anxiety (e.g., generalized) quantitatively or

exploring different sources of anxiety qualitatively, to distinguish between public speaking anxiety and other sources of anxiety. A related limitation involves the virtual nature of the public speaking task; more specifically, it is possible that participants utilized a Zoom feature called "Hide Self View", wherein users are able to hide the view of themselves. However, use of this feature was not confirmed with participants and therefore, it cannot be assumed that all participants were able to see themselves on video. Future research utilizing virtual public speaking tasks might consider standardizing this component of the protocol used in the current study.

Additionally, the current study consisted entirely of participant self-report, as opposed to more objective physiological (e.g., skin conductance) or behavioural (e.g., avoidance) measures of public speaking anxiety. A common concern when utilizing self-report measures is social desirability bias (Nederhof, 1985; Van de Mortel, 2008). To mitigate this, a measure of impression management was completed (i.e., BIDR; Paulhus, 1991) and included in all analyses for which it was significantly correlated with the dependent variable. In addition, although results of the current study are consistent with previous research indicating that women are more likely to report higher levels of anxiety (e.g., APA, 2022), including public speaking anxiety (e.g., Behnke & Sawyer, 2000; Hwa & Peck, 2017; Marinho et al., 2017), it is important to consider to what extent societal pressures and expectations on boys and men may influence the reporting of anxiety. These considerations include, but are not limited to, the exploration of traditional gender roles (e.g., masculinity, femininity; Carey et al., 1988) and gender differences in social development (Bem, 1981). In other words, men may be less likely to self-report feeling anxious despite actually experiencing anxiety.

In addition to limitations regarding sample demographics, the number of participants in Phase 2 of the current study was far fewer than originally planned and limited the quantitative analyses that were possible. There were a number of reasons for difficulty with Phase 2 recruitment (e.g., time constraints, low engagement in the university participant pool), which resulted in the inability to compare quantitative data collected in Phase 1 and Phase 2 beyond correlational analyses (and even these analyses may need to be interpreted with caution due to sample size). A larger sample for the public speaking task and utilization of purposive sampling to ensure adequate gender and linguistic representation would be of benefit in future research. As language is only one component of an individual's cultural identity, future research might also consider exploring additional components of an individual's culture in the study of public speaking anxiety, such as identification within a high or low context culture (Pryor et al., 2005).

Another limitation of the current study is the way in which willingness to participate in Phase 2 was conceptualized as a proxy for avoidance behaviour. Participants indicated willingness to participate in Phase 2 at the end of Phase 1 questionnaire completion, wherein they were prompted to provide an e-mail address if willing to be contacted by the primary investigator for Phase 2 of the study. Although proposed as a proxy for avoidance behaviour (i.e., those demonstrating avoidance of public speaking would be less likely to indicate willingness to participate in Phase 2), it is recognized that a number of confounding variables exist that make indicated willingness to participate in Phase 2 an inadequate measure of avoidance. For instance, participants were not aware at the time of indicating willingness that Phase 2 would include a live public speaking task. Even at the time of signing up to participate for Phase 2, participants were only aware that Phase 2 would involve a "social task". Although a public speaking requirement may have been suspected given the study name and description,

participant understanding of Phase 2 was not assessed and therefore cannot be assumed. Additionally, participants' may have been unwilling to participate in Phase 2 for reasons unrelated to anxiety or public speaking (e.g., time constraints, disinterest, already having acquired all possible bonus points through the participant pool). Future research might assess avoidance of public speaking more directly through the use of an experimental design.

In the multiple regression analyses predicting total PSA (Table 6) and cognitive PSA (Table 8), the strength or direction of relation between some covariates and the dependent variable changes following addition of independent variables into the model. Future research may consider the interrelation of covariates when further refining the models and examine the possibility of suppression.

The correlational nature of all findings in the current study point to the need for additional research that explores possible casual relations by using an experimental design. Causal relations between language proficiency and public speaking anxiety could be explored using a longitudinal design, which would allow for the identification of potential changes in the degree of public speaking anxiety as language proficiency develops. Future research might also consider a direct comparison of speech completion in first and second languages.

Future Research Directions

There are a number of additional future directions that could be explored. First, the current study was conducted with a sample of undergraduate students and although these participants were asked to identify any mental health conditions, diagnosis was self-reported and not assessed for or confirmed by the primary investigator. Future research might consider replication of the current study with a clinical population (e.g., individuals formally diagnosed with social anxiety disorder). Utilization of a clinical sample would also allow for more direct

integration with cognitive-behavioural models of social anxiety disorder. Furthermore, dichotomous conceptualization of the self-talk variable, as either internally focused or externally focused, may provide additional insight into social anxiety specific cognitive processes e.g., Clark & Wells, 1995).

Second, as previously identified, conflicting results of the current study related to self-reinforcing self-talk highlighted the need for future research to consider measurement of belief in self-talk; for self-talk to be effective in managing distress, it is important that the individual believe what they are telling themselves. Hierarchically addressing believability through small shifts in cognition might be considered. Third, literature review conducted as part of the current project identified the role of virtual reality in the therapeutic treatment of public speaking anxiety (e.g., Anderson et al., 2005; Lindner et al., 2019; Safir et al., 2012). Future research might consider utilizing virtual reality in an experimental capacity, wherein variables of the public speaking environment (e.g., audience size, degree of nonverbal audience feedback) could be more easily modified and standardized.

Fourth, the ability to speak on a particular topic was one factor identified by participants as a means of determining comfortability speaking in a particular language. For instance, multiple participants identified that particular concepts (e.g., mental health) do not have an appropriate translation in their first language and thus, despite feeling generally more comfortable speaking in their first language, the topic of mental health would be more easily expressed and communicated in English. Future research might consider topic-specific language comfortability in studies of public speaking anxiety, foreign language anxiety, and self-talk.

Fifth, although the current study focused on the use of self-talk to regulate anxiety during a public speaking task, future research might consider exploring additional coping strategies or

styles of coping. For instance, the qualitative analysis identified that some participants appeared to be engaging in problem-focused coping (Theme 5: "Focus on Getting it Done": Attempts at Problem-Focused Coping), by focusing self-talk on what to say next within their speech. However, it is not clear through the questioning of the current study whether this self-talk was engaged in in an effortful attempt to manage distress. Future research might consider exploring students' use of problem-focused and emotion-focused coping strategies (Lazarus & Folkman, 1984) to manage anxiety elicited during a public speaking task.

With respect to methodology, the current study utilized a concurrent mixed methods design, wherein quantitative and qualitative data were collected during the same period of time and integrated after data collection. This design was chosen, in part, to support the timeline of the dissertation. However, future research might benefit from use of a sequential design, wherein quantitative data is collected, analysed, and used to inform the qualitative inquiry.

Finally, the current study asked participants to deliver a speech in front of a small audience consisting of the primary researcher and two research assistants, all of whom the participants confirmed they did not know. If understood through the lens of the Bivalent Model of Social Anxiety (Weeks & Howell, 2012), the methodology in the current study could be considered lower stakes with respect to audience characteristics. For instance, because the participants did not know the audience members, subsequent impact to social hierarchy as a result of either positive or negative evaluation of performance would be lessened. Future research might consider changing audience characteristics (e.g., classroom peers) to increase potential impact of social hierarchy and related fears.

Implications

The purpose of the current study was to examine young adults' use of self-talk and public speaking anxiety. Additionally, this study aimed to determine what role language proficiency has in these experiences for students who speak English as a second language. Finally, the addition of qualitative analysis allowed for participants to share their experiences with public speaking, self-talk, and foreign language anxiety in greater detail than a purely quantitative analysis would have allowed.

The current study makes a number of contributions to the existing literature. For instance, the examination of specific domains of self-talk (i.e., self-critical, self-reinforcing, self-managing, social-assessing) and how each predicts specific manifestations of public speaking anxiety (i.e., behavioural, cognitive, physiological) fills a gap in the literature and allows for increased specificity in our understanding of this relation. For instance, the current finding that self-reinforcing self-talk predicted greater cognitive public speaking anxiety, despite predicting lower behavioural, physiological, and total public speaking anxiety, may contribute to a clarification of conflicting previous findings (e.g., Shi et al., 2015; Shi et al., 2017). Additionally, the thematic analysis component extends existing literature on qualitative exploration of public speaking anxieties and the influence of self-talk and language proficiency.

Findings of the current study have a number of practical implications, including implications for therapy provision. Although past research has identified cognitive-behavioural therapy as an efficacious treatment for public speaking anxiety (Anderson et al., 2005; Ebrahimi et al., 2019), the current study extends this understanding by identifying particular types of self-talk (i.e., self-critical self-talk, self-reinforcing self-talk, social-assessing self-talk) that are predictive of public speaking anxiety and others (i.e., self-managing self-talk) that are not. Thus,

rather than simply modifying maladaptive thoughts with adaptive responses in a client who presents with public speaking anxiety, therapists may be able to help target particular types of self-talk (e.g., self-critical self-talk) and foster other types of self-talk (e.g., self-reinforcing self-talk) with increased specificity, as well as explicitly discuss these different types of self-talk and relevant research. Additionally, the current study highlights the importance of considering cultural and linguistic diversity when addressing public speaking anxiety in patients who speak English as a second language. Consistent with other cultural factors in the therapeutic process, discussion of these differences should be facilitated by the therapist without assumption of particular importance. In some cases, thought modification specific to linguistic concerns (e.g., accent, delayed word recall) may be of benefit. In addition to more formal therapy provision, the results of the current study may also be used by university counselling centres to provide informal support. For instance, depending on the intensity of public speaking anxiety and degree of functional interference, not all students will require a formal course of therapy. In these instances, it is possible that psychoeducational material on strategies to manage public speaking anxiety (e.g., self-talk) made available to students would provide sufficient support. Furthermore, individuals reporting moderate levels of public speaking anxiety may benefit from a public speaking workshop, an intervention that is less therapeutic and more skills-based. This workshop might involve teaching strategies to be an effective public speaking, including how to manage public speaking anxiety through use of helpful self-talk. Thus, results of the current study could inform a range of interventions to address varying degrees of public speaking anxiety.

There are also implications for education. These findings may help to inform educators about ways to manage their own public speaking anxiety (particularly those still completing their training), as well as support their students in managing public speaking anxiety. While there are

a number of factors to consider in supporting a student engaging in public speaking tasks, the present study identified particular types of self-talk to be particularly relevant. Education staff may consider modeling or practicing self-reinforcing self-talk with students prior to class presentations to provide practical support related to public speaking, which past research has indicated is needed (e.g., Grieve at al., 2021). Furthermore, conceptualizing public speaking as a skill that requires direct instruction, ongoing practice, and constructive feedback to build may help to support students in managing discomfort. To facilitate this learning, educators might consider structuring public speaking tasks hierarchically over the course of the year or academic semester, wherein students engage in public speaking tasks that are typically less distressing and lower stakes (e.g., small group discussion) before undertaking public speaking tasks that are generally more distressing and higher stakes (e.g., graded, individual oral presentation). The findings may also help to inform educators when working with a student who speaks English as a second language; while English second language status does not accurately determine a student's experience of public speaking anxiety, degree of English language proficiency alone as a predictor of public speaking anxiety is likely also inadequate. However, it is possible that some students with lower levels of English language proficiency may experience additional concerns when engaging in public speaking related to accent, delayed word recall, and being understood and accepted by an English speaking audience.

Conclusion

To conclude, quantitative results of the current study identified that particular domains of self-talk (self-critical, self-reinforcing, social-assessing) predicted domains of public speaking anxiety (i.e., total, behavioural, cognitive, physiological). Non-significant results are also valuable in understanding the role of English proficiency, as degree of English language

proficiency did not predict public speaking anxiety after controlling for appropriate covariates (e.g., age, previous experience). Qualitative results of the current study supported and complemented the quantitative findings, demonstrating the influence of self-talk on public speaking anxiety and communication effectiveness, as well as the additional considerations and stressors reported by those participants who spoke English as a second language. These results have practical implications for clinicians working therapeutically with individuals experiencing public speaking anxiety and for educators managing discomfort with or avoidance of public speaking in the classroom. These results validate the use of cognitive-behavioural theory in understanding public speaking anxiety and have implications for future research in the areas of public speaking anxiety and foreign language anxiety.

REFERENCES

Alden, L. E., & Wallace, S. T. (1995). Social phobia and social appraisal in successful and unsuccessful social interactions. *Behaviour Research and Therapy, 33*(5), 497-506. https://doi.org/10.1016/0005-7967(94)00088-2

American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787

American Sociological Association. (2020). *Culture*. https://www.asanet.org/topics/ culture

Anderson, J. A., Mak, L., Keyvani Chahi, A. K., & Bialystok, E. (2017). The language and social background questionnaire: Assessing degree of bilingualism in a diverse population. *Behavior Research Methods*, 50, 1-14. https://doi.org/10.3758/s13428-017-0867-9

Anderson, P. L., Price, M., Edwards, S. M., Obasaju, M. A., Schmertz, S. K., Zimand, E., & Calamaras, M. R. (2013). Virtual reality exposure therapy for social anxiety disorder: A randomized controlled trial. *Journal of Consultation and Clinical Psychology, 81*(5), 751-760. https://doi.org/10.1037/a0033559

Anderson, P. L., Zimand, E., Hodges, L. F., & Rothbaum, B. O. (2005). Cognitive behavioral therapy for public-speaking anxiety using virtual reality for exposure. *Depression and Anxiety, 22*(3), 156-158. https://doi.org/10.1002/da.20090

Bartholomay, E. M., & Houlihan, D. D. (2016). Public speaking anxiety scale: Preliminary psychometric data and scale validation. *Personality and Individual Differences, 94*, 211-215. https://doi.org/10.1016/j.paid.2016.01.026

Beatty, M. J. (2009). Communication apprehension as a determinant of avoidance, withdrawal and performance anxiety. *Communication Quarterly, 35*(2), 202-217. https://doi.org/10.1080/01463378709369681

Beck, A. D. (1964). Thinking and depression: II. Theory and therapy. *Archives of General Psychiatry, 10,* 561-571. https://doi.org/10.1001/archpsyc.1964.01720240015003

Beck, A. D. (1971). Cognition, affect, and psychopathology. *Archives of General Psychiatry, 24,* 495-500. https://doi.org/10.1001/archpsyc.1971.01750120011002

Beck, J. D. (2011). *Cognitive behaviour therapy: Basics and beyond* (2nd Ed.). The Guilford Press. https://doi.org/10.1111/dar.12006

Behnke, R. R., & Sawyer, C. R. (1999). Milestones of anticipatory public speaking anxiety. *Communication Education, 48*(2), 165-172. https://doi.org/10.1080/03634529909379164

Behnke, R. R., & Sawyer, C. R. (2000). Anticipatory anxiety patterns for male and female public speakers. *Communication Education, 49*(2), 187-195. https://doi.org/10.1080/03634520009379205

Beidel, D. C., & Turner, S. M. (2007). *Shy children, phobic adults: Nature and treatment of social anxiety disorder* (2nd ed.). American Psychological Association. https://doi.org/10.1037/11533-000

Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review, 88*(4), 354-364. https://doi.org/0033-295X/81/8804-0354$00.75

Berk, L. E. (1992). 'Children's private speech: An overview of theory and the status of research'. In R. M. Diaz & L. E. Berk (Eds.). *Private speech: From social interaction to self regulation.* Lawrence Erlbaum Associates. https://doi.org/10.4324/9781315807270

Berk, L. E. & Landau, S. (1993). Private speech of learning disabled and normally achieving children in classroom and laboratory contexts. *Child Development, 64*(2), 556-571.

https://doi.org/10.1111/j.1467-8624.1993.tb02928.x

Bivens, J. A., & Berk, L. E. (1990). A longitudinal study of the development of elementary school children's private speech. *Merrill Palmer Quarterly, 36*(4), 443-463.

Bodie, G. D. (2010). A racing heart, rattling knees, and ruminative thoughts: Defining, explaining, and treating public speaking anxiety. *Communication Education, 59*(1), 70-105. https://doi.org/10.1080/03634520903443849

Bogels, S. M., Wijts, P., Oort, F. J., & Sallaerts, S. J. M. (2014). Psychodynamic psychotherapy versus cognitive behavior therapy for social anxiety disorder: An efficacy and partial effectiveness trial. *Depression and Anxiety, 31*(5), 363-373. https://doi.org/10.1002/da.22246

Boromisza-Habashi, D., Hughes, J. M. F., & Malkowski, J. A. (2015). Public speaking as cultural ideal: Internationalizing the public speaking curriculum. *Journal of International and Intercultural Communication, 9*(1), 20-34. https://doi.org/10.1080/17513057.2016.1120847

Botella, C., Gallego, M. J., Garcia-Palacios, A., Guillen, V., Banos, R. M., Quero, S., & Alcaniz, M. (2010). An internet-based self-help treatment for fear of public speaking: A controlled trial. *Cyberpsychology, Behavior, and Social Networking, 13*(4), 407-421. https://doi.org/10.1089/cyber.2009/0224

Brandrick, C., Hooper, N., Roche, B., Kanter, J., & Tyndall, I. (2021). A comparison of ultra-brief cognitive defusion and positive affirmation interventions on the reduction of public speaking anxiety. *The Psychological Record, 71*, 109-117. http://doi.org/10.1007/s40732-020-00432-z

Braun, V. & Clarke, V. (2022). Thematic analysis: A practical guide. Sage Publications.

Brinthaupt, T. M., Hein, M. B., & Kramer, T. E. (2009). The Self-Talk Scale: Development, factor analysis, and validation. *Journal of Personality Assessment, 91*(1), 82-92. https://doi.org/10.1080/00223890802484498

Campbell-Sills, L., & Barlow, D. H. (2007). Incorporating emotion regulation into conceptualizations and treatments of anxiety and mood disorders. In J. J. Gross (Ed.), *Handbook of Emotion Regulation* (pp. 542-559). The Guilford Press.

Carey, M. P., Dusek, J. B., & Spector, I. P. (1988). Sex roles, gender, and fears: A brief report. *Phobia Practice and Research Journal, 1,* 114-120.

Carrillo, E., Moya-Albiol, L., Gonzalez-Bono, E., Salvador, A., Ricarte, J., & Gomez-Amor, J. (2001). Gender differences in cardiovascular and electrodermal responses to public speaking task: The role of anxiety and mood states. *International Journal of Psychophysiology, 42*(3), 253-264. https://doi.org/10.1016/S0167-8760(01)00147-7

Clarke, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment* (pp. 69-93). The Guildford Press.

Clements, K., & Turpin, G. (1996). Physiological effects of public speaking assessed using a measure of palmar sweat. *Journal of Psychophysiology, 10*(4), 283-290. Retrieved from https://www-lib-uwo-ca.proxy1.lib.uwo.ca/cgi-bin/expauthn.cgi?url=http://search.proquest.com.proxy1.lib.uwo.ca/docview/619369441?accountid=15115

Compas, B. E., Jaser, S. S., Dunbar, J. P., Watson, K. H., Bettis, A. H., Gruhn, M. A., Williams, E. K. (2014). Coping and emotion regulation from childhood to early adulthood: Points of convergence and divergence. *Australian Journal of Psychology, 66*(2), 71-81. https://doi.org/10.1111/ajpy.12043

Cook, R. D., & Weisberg, S. (1982). *Residuals and influence in regression.* New York: Chapman & Hall.

Costello, E. J., Egger, H. L., & Angold, A. (2005). The development epidemiology of anxiety disorders: Phenomenology, prevalence, and comorbidity. *Child and Adolescent Psychiatric Clinics, 14*(4), 631-648. https://doi.org/10.1016/j.chc.2005 .06.003

Craske, M. G., Treanor, M., Conway, C. C., Zbozinek, T., & Vervliet, B. (2014). Maximizing exposure therapy: An inhibitory learning approach. *Behaviour Research and Therapy, 58*(1), 10-23. https://doi.org/10.1016/j.brat.2014.04.006

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.

Croucher, S. M., Sommier, M., Rahmani, D., & Appenrodt, J. (2015). A cross-cultural analysis of communication apprehension: A comparison of three European nations. *Journal of Intercultural Communication, 38.* Retrieved from https://www.immi.se/ Intercultural/nr38/croucher.html

Daly, J. A., McCroskey, J. C., Ayres, J., Hopf, T., & Ayres, D. M. (1997). *Avoiding communication: Shyness, reticence, and communication apprehension* (2nd ed.). Hampton Press.

Dansieh, S. A., Owusu, E., & Seidu, G. A. (2021). Glossophobia: The fear of public speaking in ESL students in Ghana. *Language Teaching, 1*(1). https://doi.org/10.30560/lt.v1n1p22

Davies, C. D., Niles, A. N., Pittig, A., Arch, J. J., Craske, M. G. (2015). Physiological and behavioral indices of emotion dysregulation as predictors of outcome from cognitive behavioral therapy and acceptance and commitment therapy for anxiety. *Journal of Behavior*

Therapy and Experimental Psychiatry, 46, 35-43. https://doi.org/10.1016/j.jbtep.2014.08.002

Depape, A. M. R., Hakim-Larson, J., Voelker, S., Page, S., Jackson, D. L. (2006). Self-talk and emotional intelligence in university students. *Canadian Journal of Behavioural Science, 38*(3), 250-260. https://doi.org/10.1037/cjbs2006012

Dewaele, J. M. (2007). The effect of multilingualism, sociobiographical, and situational factors on communicative anxiety and foreign language anxiety of mature language learners. *International Journal of Bilingualism, 11*(4), 391-409. https://doi.org/10.1177/13670069070110040301

Diaz, R. J., Glass, C. R., Arnkoff, D. B., & Tanofsky-Kraff, M. (2001). Cognition, anxiety, and prediction of performance in 1st-year law students. *Journal of Educational Psychology, 93*(2), 420-429. https://doi.org/10.1037/0022-0663. 93.2.420

Ebrahimi, O. V., Pallesen, S., Kenter, R. M. F., & Nordgreen, T. (2019). Psychological interventions for the fear of public speaking: A meta-analysis. *Frontiers in Psychology, 10*, 488. https://doi.org/10.3389/fpsyg.2019.00488

England, E. L., Herbert, J. D., Forman, E. M., Rabin, S. J., Juarascio, A., & Goldstein, S. P. (2012). Acceptance-based exposure therapy for public speaking anxiety. *Journal of Contextual Behavioural Science, 1*(1-2), 66-72. https://doi.org/10.1016/j.jcbs. 2012.07.001

Essau, C. A., Sasagawa, S., Chen, J., & Sakano, Y. (2012). Taijin kyofusho and social phobia symptoms in young adults in England and in Japan. *Journal of Cross-Cultural Psychology, 43*(2), 219-232. https://doi.org/10.1177/00220022110386372

Eysenck, H. J. (1959). Learning theory and behaviour therapy. *Journal of Mental Science, 105*(438), 61-75. https://doi.org/10.1192/bjp.105.438.61

Eysenck, M. W. (1989). Anxiety and cognition. Theory and research. In T. Archer & L. G. Nilsson (Eds.), *Aversion, avoidance, and anxiety: Perspectives on aversively motivated behaviour* (pp. 437-465). Hillsdale, NJ: Erlbaum.

Faul, F., Erdfelder, E., Lang, A., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175-191. https://doi.org/10.3758/BF03193146

Feldmen, P. J., Cohen, S., Hamrick, N., & Lepore, S. J. (2004). Psychological stress, appraisal, emotion, and cardiovascular response in a public speaking task. *Psychology & Health, 19*(3), 353-368. https://doi.org/10.1080/0887044042000 193497

Fetters, M. D., Curry, L. A., Creswell, J. W. (2013). Achieving integration in mixed methods designs – principles and practices. *Health Services Research, 48*(6), 2134-56. https://doi.org/10.1111/1475-6773.12117

Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). Sage Publications Ltd.

Finn, A. N., Sawyer, C. R., & Schrodt, P. (2009). Examining the effect of exposure therapy on public speaking state anxiety. *Communication Education, 58*(1), 92-109. https://doi.org/10.1080/03634520802450549

Fydrich, T., Chambless, D. L., Perry, K. J., Buergener, F., & Beazley, M. B. (1998). Behavioural assessment of social performance: A rating system for social phobia. *Behaviour Research and Therapy, 36*(10), 995-1010. https://doi.org/1016/S0005-7967(98)00069-2

Grieve, R., Woodley, J., Hunt, S. E., & McKay, A. (2021). Student fears of oral presentations and public speaking in higher education: A qualitative survey. *Journal of Further and Higher Education, 45*(9), 1281-1293. https://doi.org/10.1080/ 0309877X.2021.1948509

Gross, J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*(2), 348-362. https://doi.org/10.1037/0022-3514.85.2.348

Grzybowski, J. & Brinthaupt, T. M. (2022). Trait mindfulness, self-compassion, and self-talk: A correlational analysis of young adults. *Behavioural Science, 12,* 300. https://doi.org/10.3390/bs12090300

Hall, E. T. (1976) *Beyond culture*. Anchor Press.

Harb, G. C., Eng, W., Zaider, T., & Heimberg, R. G. (2003). Behavioral assessment of public-speaking anxiety using a modified version of the social performance rating scale. *Behaviour Research and Therapy, 41*(11), 1373-1380. https://doi.org/10.1016/ S0005-7967(03)00158-X

Hardy, J. (2006). Speaking clearly: A critical review of the self-talk literature. *Psychology of Sport and Exercise, 7*(1), 81-97. https://doi.org/10.1016/j.psychsport. 2005.04.002

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behaviour Research and Therapy, 44*, 1-25. https://doi.org/10.1016/j.brat.2005.06.006

Hayes, S. C., & Wilson, K. G. (1994). Acceptance and commitment therapy: Altering the verbal support for experiential avoidance. *The Behavior Analyst, 17*(2), 289-303. https://doi.org/10.1007/BF03392677

Helbig-Lang, S., Rusch, S., Rief, W., & Lincoln, T. M. (2015). The strategy does not matter: Effects of acceptance, reappraisal, and distraction on the course of anticipatory anxiety in social anxiety disorder. *Psychology and Psychotherapy: Theory, Research, and Practice, 88*(4), 366-377. https://doi.org/10.1111/papt.12053

Hinch, C, & Ngai, N. (2023). Inductive thematic analysis . Unpublished codebook.

Hoehn-Saric, R., & McLeod, D. R. (2000). Anxiety and arousal: Physiological changes and their perception. *Journal of Affective Disorders, 61*(3), 217-224. https://doi.org/10.1016/S0165-0327(00)00339-6

Hofmann, S. G., Asmundson, G. J. G., & Beck, A. T. (2013). The science of cognitive therapy. *Behaviour Therapy, 44*, 119-212. https://doi.org/10.1016/j.beth.2009.01.007

Hofmann, S. G., Asnaani, A., & Hinton, D. E. (2010). Cultural aspects in social anxiety and social anxiety disorder. *Depression and Anxiety, 27*, 1117-1127. https://doi.org/10.1002/da.20759

Hofmann, S. G., Asnaani, A., Vonk, I. J. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioural therapy: A review of meta-analyses. *Cognitive Therapy and Research, 36*, 427-440. https://doi.org/10.1007/s10608-012-9476-1

Hofmann, S. G., & DiBartolo, P. M. (2000). An instrument to assess self-statements during public speaking: Scale development and preliminary psychometric properties. *Behaviour Therapy, 31*(3), 499-515. https://doi.org/10.1016/S0005-7894(00)80027-1

Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal, 70*(2), 125-132. https://doi.org/10.1111/j.1540-4781.1986.tb05256.x

Hwa, S. P., & Peck, W. K. (2017). Gender differences in speaking anxiety among English as a second language learners in a Malaysian tertiary context. *International Journal for Studies on Children, Women, Elderly and Disabled, 2*, 108-117.

Jones, C. R., Fazio, R. H., & Vasey, M. W. (2012). Attentional control buffers the effect of public speaking anxiety on performance. *Social Psychological and Personality Science, 3*(5), 556-561. https://doi.org/10.1177/1948550611430166

Kim, D., Pan, Y., & Park, H. S. (1998). High-versus low-context culture: A comparison of Chinese, Korean, and American cultures. *Psychology & Marketing, 15*(6), 507-521. https://doi.org/10.1002/(SICI)1520-6793(199809)15:5<507::AID-MAR2>3.0.CO;2-A

King, P. E., & Finn, A. N. (2017). A test of attention control theory in public speaking: Cognitive load influences the relationship between state anxiety and verbal production. *Communication Education, 66*(2), 168-182. https://doi.org/10.1080/03634523.2016.1272128

Kittani, S. R. & Brinthaupt, T. M. (2023). Exploring self-talk in response to disruptive and emotional events. *Journal of Constructivist Psychology.* https://doi.org/10.1080/10720537.2023.2194691

Kross, E., Bruehlman-Senecal, E., Park, J., Burson, A., Dougerty, A., Shablack, H., Bremner, R., Moster, J., & Ayduck, O. (2014). Self-talk as a regulatory mechanism: How you do it matters. *Journal of Personality and Social Psychology, 106*(2), 304-324. https://doi.org/10.1037/a0035173

Kuru, E., Safak, Y., Ozedmir, I., Tulaci, R. G., Ozdel, K., Ozkula, N. G., & Orsel, S. (2018). Cognitive distortions in patients with social anxiety disorder: Comparson of a clinical group

and healthy controls. *The European Journal of Psychiatry, 32*(2), 97-104. https://doi.org/10.1016/j.ejpsy.2017.08.004

Lang, P. J. (1971). The application of psychophysiological methods to the study of psychotherapy and behaviour modification. In A. E. Bergin, & S. L. Garfield (Eds.), *Handbook of psychotherapy and behaviour change* (pp. 75-125). Wiley.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Lee, H. & Kleinsmith, A. (2019). Public speaking anxiety in a real classroom: Towards developing a reflection system. *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computer Systems*. 1-6. https://doi.org/10.1145/3290607.3312875

Lee, J., Jeong, H. J., & Kim, S. (2021). Stress, anxiety, and depression among undergraduate students during the COVID-19 pandemic and their use of mental health services. *Innovative Higher Education, 46*(5), 519-538. https://doi.org/10.1007/s10755-021-09552-y

LeFebvre, L., LeFebvre, L., & Allen, M. (2018). Training the butterflies to fly in formation: Cataloguing student fears about public speaking. *Communication Education, 67*(3), 348-362. https://doi.org/10.1080/03634523.2018.1468915

Li, A. & Bagger, J. (2007). The Balanced Inventory of Desirable Responding (BIDR): A reliability generalization study. *Educational and Psychological Measurement, 67*(3), 525-544. https://doi.org/10.1177/0013164406292087

Li, C., Lu, J., Bernstein, B., & Bang, N. M. (2018). Counseling self-efficacy of international counseling students in the U.S.: The impact of foreign language anxiety and acculturation. *International Journal for the Advancement of Counseling, 40*(3), 267-278. https://doi.org/10.1007/s10447-018-9325-3

Lindner, P., Miloff, A., Fagernas, S., Anderson, J., Sigeman, M., Andersson, G., Furmark, T., &

Carlbring, P. (2019). Therapist-led and self-led one-session virtual reality exposure therapy for public speaking anxiety with consumer hardware and software: A randomized controlled trial. *Journal of Anxiety Disorders, 61*, 45-54. https://doi.org/10.1016/j.janxdis.2018.07.003

MacIntyre, P. D., & Gardner, R. C. (1994). The subtle effects of language anxiety on cognitive processing in the second language. *Language Learning, 44*(2), 283-305. https://doi.org/10.1111/j.1467-1770.1994.tb01103.x

MacIntyre, P. D., Noels, K. A., & Clement, R. (1997). Biases in self-ratings of second language proficiency: The role of language anxiety. *Language Learning, 47*(2), 265-287. https://doi.org/10.1111/0023-8333.81997008

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Resources, 26*(13), 1753-1760. https://doi.org/10.1177/1049732315617444

Marinho, A. C. F., de Medeiros, A. M., Gama, A. C. C., & Teixeira, L. C. (2017). Fear of public speaking: Perception of college students and correlates. *Journal of Voice, 31*(1), 7-11. https://doi.org/10.1016/j.jvoice.2015.12.012

Mayo-Wilson, E., Dias, S., Mavranezouli, I., Kew, K., Clark, D. M., Ades, A. E., & Pilling, S. (2014). *The Lancet: Psychiatry, 1*(5), 368-376. https://doi.org/10.1016/S2215-0366(14)70329-3

McCroskey, J. C. (1977). Oral communication apprehension: A summary of recent theory and research. *Human Communication Research, 4*(1), 78-96. https://doi.org/10.1111/j.1468-2958.1977.tb00599.x

McCroskey, J. C. (1984). The communication apprehension perspective. In J. A. Daly, & J. C. McCroskey (Eds.), *Avoiding communication: Shyness, reticence, and communication*

apprehension (pp. 13-38). Sage.

McCroskey, J. C., Daly, J. A., & Sorensen, G. A. (1976). Personality correlates of communication apprehension: A research note. *Human Communication Research, 2*(4), 376-380. https://doi.org/10.1111/j.1468-2958.1976.tb00498.x

McKay, M., Davis, M., & Fanning, P. (2011). *Thoughts and feelings: Taking control of your moods and your life* (4th ed.). New Harbinger Publications.

Millon, T., Krueger, R. F., & Simonsen, E. (Eds.). (2010). *Contemporary directions in psychopathology: Scientific foundations of the DSM-5 and ICD-11*. The Guilford Press. https://doi.org/10.1192/bjp.bp.110.082602

Mills, S. (2006). Gender and performance anxiety at academic conferences. In J. Baxter (Ed.), *Speaking Out: The Female Voice in Public Contexts* (pp. 61-80). Palgrave Macmillan.

Morreale, S. P., & Pearson, J. C. (2008). Why communication education is important: The centrality of the discipline in the 21st century. *Communication Education, 57*(2), 224-240. https://doi.org/10.1080/03634520701861713

Mesri, B., Niles, A. N., Pittig, A., LeBeau, R. T., Haik, E., & Craske, M. G. (2017). Public speaking avoidance as a treatment moderator for social anxiety disorder. *Journal of Behavior Therapy and Experimental Psychiatry, 55*, 66-72. https://doi.org/10.1016/j.jbtep.2016/11/010

Mulac, A., & Sherman, A. R. (1975). Conceptual foundations of the behavioural assessment of speech anxiety. *Western Journal of Communication, 39*(4), 176-180.

Nederhof, A. J. (1985). Methods of coping with social desirability bias: A review. *European Journal of Social Psychology, 15*, 263-280. https://doi.org/10.1002/ ejsp.2420150303

Niles, A. N., & Craske, M. G. (2018). Incidental emotion regulation deficits in public speaking

anxiety. *Cognitive Therapy and Research, 43,* 419-426. https://doi.org/10. 1007/s10608-018-9954-1

Oswalt, S. B., Lederer, A. M., Chestnut-Steich, K., Day, C., Halbritter, A., & Ortiz, D. (2020). Trends in college students' mental health diagnoses and utilization of services, 2009-2015. *Journal of American College Health, 68*(1), 41-51. https://doi.org/10.1080/07448481.2018.1515748

Paulhus, D. L. (1991). Measurement and control of responses bias. In J.P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), Measures of personality and social psychological attitudes (pp. 17-59). Academic Press.

Pavlov, I. P. (1902). *The work of the digestive glands*. Griffin.

Philips, S. U. (2010). Semantic and interactional indirectness in Tongan lexical honorification. *Journal of Pragmatics, 42*(2), 317-336. https://doi.org/10.1016/j. Pragma.2009.06.005

Pryor, B., Butler, J., & Boehringer, K. (2005). Communication apprehension and cultural context: A comparison of communication apprehension in Japanese and American students. *North American Journal of Psychology, 7*(2), 247-252.

Rapee, R. M., & Abbott, M. J. (2007). Modelling relationships between cognitive variables during and following public speaking in participants with social phobia. *Behaviour Research and Therapy, 45*(12), 2977-2989. https://doi.org/10.1016/j.brat. 2007.08.008

Rapee, R. M., & Heimberg, R. G. (1997). A cognitive-behavioural model of anxiety in social phobia. *Behaviour Research and Therapy, 35*(8), 741-756. https://doi.org/ 10.1016/S0005-7967(97)00022-3

Richmond, V. P., & McCroskey, J. C. (1987). Willingness to communicate. In J. A. Daly, & J.

C. McCroskey (Eds.), *Avoiding communication: Shyness, reticence, and communication apprehension* (pp. 129-155). Sage.

Roberts, J. B., Sawyer, C. R., & Behnke, R. R. (2004). A neurological representation of speech state anxiety: Mapping salivary cortisol levels of public speakers. *Western Journal of Communication, 68*(2), 219-231. https://doi.org/10.1080/105703104093 74797

Salkovskis, P. M. (1991). The importance of behaviour in the maintenance of anxiety and panic: A cognitive account. *Behavioural Psychotherapy, 19*(1), 6-19. https://doi.org/10.1017/ S0141347300011472

Safir, M. P., Wallach, H. S., & Bar-Zvi, M. (2012). Virtual reality cognitive-behavior therapy for public speaking anxiety: One-year follow-up. *Behavior Modification, 36*(2), 235-246. https://doi.org/10.1177/0145445511429999

Scoboria, A., Freund, S., Jones, G., Sisic, M., & Chung-Yan, G. (Eds.). (2013). *Psychology participant pool: Researcher manual.* Department of Psychology, University of Windsor.

Shahar, B., Carlin, E. R., Engle, D. E., Hegde, J., Szepsenwol, O., & Arkowitz, H. (2012). A pilot investigation of emotion-focused two-chair dialogue intervention for self-criticism. *Clinical Psychology and Psychotherapy, 6,* 496-507. https://doi.org/10.1002/cpp.762

Shi, X., Brinthaupt, T. M., & McCree, M. (2015). The relationship of self-talk frequency to communication apprehension and public speaking anxiety. *Personality and Individual Differences, 75,* 125-129. https://doi.org/10.1016/j.paid.2014.11.023

Shi, X., Brinthaupt, T., & McCree, M. (2017). Understanding the influence of self-critical, self-managing, and social-assessing self-talk on performance outcomes in a public speaking context. *Imagination, Cognition, and Personality: Consciousness in Theory, Research, and*

Clinical Practice, 36(4), 356-378. https://doi.org/10.1177/027
6236617708740

Skinner, B. F. (1938). *The behavior of organisms: An experimental analysis.* Appleton-Century.

Spielberger, C. D. (1983). *State-Trait Anxiety Inventory for Adults (STAI-AD).*
https://doi.org/10.1037/t06496-000

Statistics Canada. (2017a). Section B – Anxiety Disorders. Retrieved from
http://www.statcan.gc.ca/pub/82-619-m/2012004/sections/sectionb-eng.htm#a3

Statistics Canada. (2017b). Fast Figures on Canada's Official Languages (2016). Retrieved from
https://www.clo-ocol.gc.ca/en/statistics/canada

Stein, M. B., Walker, J. R., & Forde, D. R. (1996). Public-speaking fears in a community sample: Prevalence, impact on functioning, and diagnostic classification. *Archives of General Psychology, 53*(2), 169-174. https://doi.org/10.1001/archpsyc.1996.0183002
0087010

Tabachnick, B. G. & Fidell, L. S. (2016). *Using multivariate statistics* (6th ed.). Pearson.

Tavakol, M. & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2,* 53-55. https://doi.org/10.5116/ijme.4dfb.8dfd

Thoma, N., Pilecki, B., & McKay, D. (2015). Contemporary cognitive behaviour therapy: A review of theory, history, and evidence. *Psychodynamic Psychiatry, 43*(3), 423-462.
https://doi.org/10.1521/pdps.2015.43.3.423

Tillfors, M., & Furmark, T. (2006). Social phobia in Swedish university students: Prevalence, subgroups and avoidance behavior. *Social Psychiatry and Psychiatric Epidemiology, 42*(1), 79-86. https://doi.org/10.1007/s00127-006-0143-2

Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Personality*

Processes and Individual Differences, 90(2), 288-307. https://doi.org/10.1037/0022-3514.90.2.288

Tutino, J. S., Ouimet, A. J., & Ferguson, R. J. (2020). Exploring the impact of safety behaviour use on cognitive, psychophysiological, emotional and behavioural responses during a speech task. *Behavioural and Cognitive Psychotherapy, 48*, 557-571. https://doi.org/10.1017/S135246582000017X

University of Windsor. (n.d.). *Fast Facts*. http://www.uwindsor.ca/45/fast-fact

Van Ameringen, M., Mancini, C., & Farvolden, P. (2003). The impact of anxiety disorders on educational achievement. *Journal of Anxiety Disorders, 17*(5), 561-571. https//doi.org/10.1016/s0887-6185(02)00228-1

Van de Mortel, T. F. (2008). Faking it: Social desirability response bias in self-report research. *Australian Journal of Advanced Nursing, 25*(4), 40-48.

Van Dis, E. A., van Veen, S. C., Hagenaars, M. A., Batelaan, N. M., Bockting, C. L. H., van den Heuvel, R. M., Cuijpers, P., & Engelhard, I. M. (2020). Long-term outcomes of cognitive-behavioural therapy for anxiety-related disorders: A systematic review and meta-analysis. *JAMA Psychiatry, 77*(3), 265-273. doi:10.1001/jamapsychiatry. 2019.3986

Vocate, D. R. (1994). Self-talk and inner speech: Understanding the uniquely human aspects of intrapersonal communication. In D. R. Vocate (Ed.), *Intrapersonal communication, Different voices, different minds* (pp. 3-31). Lawrence Erlbaum. https://doi.org/10.4324/9780203357804

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Harvard University Press. https://doi.org/10.2307/j.ctvj9vz4

Weeks, J. W., & Howell, A. N. (2012). The bivalent fear of evaluation model of social anxiety:

Further integrating findings on fears of positive and negative evaluation. *Cognitive Behaviour Therapy, 41,* 83-95. https://doi.org/10.1080/16506073.2012.661452

Werner, K. H., Goldin, P. R., Ball, T. M., Heimberg, R. G., & Gross, J. J. (2011). Assessing emotion regulation in social anxiety disorder: The emotion regulation interview. *Journal of Psychopathology and Behavioural Assessment, 33*(3), 346-354. https://doi.org/10.1007/s10862-011-9225-x

Wilson, J. K., & Rapee, R. M. (2005). The interpretation of negative social events in social phobia with versus without comorbid mood disorder. *Journal of Anxiety Disorders, 19*(3), 245-274. https://doi.org/10.1016/j.janxdis.2004.03.003

Wittchen, H. U., & Fehm, L. (2003). Epidemiology and natural course of social fears and social phobia. *Acta Psychiatrica Scandinavica, 108*(417), 4-18. https://doi.org/10.10 34/j.1600-0447.108.s417.1.x

Witt, P. L., & Behnke, R. R. (2006). Anticipatory speech anxiety as a function of public speaking assignment type. *Communication Education, 55*(2), 167-177. https://doi.org/10.1080/03634520600566074

Witt, P. L., Brown, K. C., Roberts, J. B., Weisel, J., Sawyer, C. R., & Behnke, R. R. (2006). Somatic anxiety patterns before, during, and after giving a public speech. *Southern Communication Journal, 71*(1), 87-100. https://doi.org/10.1080/104179405 00503555

Wolpe, J. Psychotherapy by reciprocal inhibition. *Conditional Reflex, 3,* 234-240. http://doi.org.10.1007/BF03000093

Woodrow, L. (2006). Anxiety and speaking English as a second language. *RELC Journal, 37*(3), 308-328. https://doi.org/10.1177/0033688206071315

Wu, C., & Lin, H. (2014). Anxiety about speaking a foreign language as a mediator of the

relation between motivation and willingness to communicate. *Perceptual & Motor Skills: Learning & Memory, 119*(3), 785-798. https://doi.org/10.2466/22.PMS.119

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APPENDICES

Appendix A

Consent Form – Phase 1

Title of Study: The Role of Self-Talk in Regulating Public Speaking Anxiety in Ethnically Diverse Young Adults in Canada – Phase 1

You are asked to participate in a research study conducted by Clare Hinch and Dr. Julie Hakim-Larson from the Department of Psychology at the University of Windsor. If you have any questions or concerns about the research, please feel free to contact the primary investigators; Clare Hinch at hinchc@uwindsor.ca and Dr. Julie Hakim-Larson at hakim@uwindsor.ca or 519-253-3000, ext. 2241.

PURPOSE OF THE STUDY

The purpose of this study is to examine young adults' use of self-talk and reaction to common social experiences. Another purpose is to examine the role that language plays in these experiences for students who speak English as a second language.

PROCEDURES

If you volunteer to participate in Phase 1 of this project, you will be asked to complete five questionnaires intended to measure several behaviours and reactions. It is anticipated that the entire study will take 60 minutes. You will be asked to continue your participation in Phase 2 of this study, but this continued participation is absolutely voluntary.

POTENTIAL RISKS AND DISCOMFORTS

There are no foreseeable risks or discomforts.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

You may not directly benefit from participating in this study, but information obtained may provide benefits to society as a whole, which include a better understanding of reaction to and regulation during a common social task.

COMPENSATION FOR PARTICIPATION

You will be compensated with one participant pool credit for your participation in this study. If you do not complete the entire study, you will still earn these credits.

CONFIDENTIALITY

Any information that is obtained with this study and that can be identified with you will remain confidential and will only be disclosed with your permission. To ensure confidentiality, all data will be kept in a locked cabinet and retained for a duration of two years.

PARTICIPATION AND WITHDRAWAL

Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions, or withdraw from the study at any time with no consequences. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS
Research findings for this study will be available to participants and will be posted on the University of Windsor REB website: https://scholar.uwindsor.ca/research-result-summaries. Expected date when results are available: August 2021.

SUBSEQUENT USE OF DATA
These data may be used in subsequent studies, in publications and presentations. Direct quotations may also be used in data analysis. However, no personal identifying information will be included.

RIGHT OF RESEARCH PARTICIPANTS
If you have any questions regarding your rights as a research participant, please contact the Research Ethics Board Coordinator, University of Windsor, Windsor, ON, N9B 3P4; Telephone: 519-253-3000 ext. 3948; email: ethnics @ uwindsor.ca.

SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE
I understand the information provided for the study "The Role of Self-Talk in Regulating Public Speaking Anxiety in Ethnically Diverse Young Adults in Canada – Phase 1", as described herein. My questions have been answered to my satisfaction and I agree to participate in this study. I have been given a copy of this form.

_____

Name of Participant

_____ _____

Signature of Participant Date

SIGNATURE OF INVESTIGATOR
These are the terms under which I will conduct research.

_____ _____

Signature of Investigator Date

Appendix B

Consent Form – Phase 2

Title of Study: The Role of Self-Talk in Regulating Public Speaking Anxiety in Ethnically Diverse Young Adults in Canada – Phase 2

You are asked to participate in a research study conducted by Clare Hinch and Dr. Julie Hakim-Larson from the Department of Psychology at the University of Windsor. If you have any questions or concerns about the research, please feel free to contact the primary investigators; Clare Hinch at hinchc@uwindsor.ca and Dr. Julie Hakim-Larson at hakim@uwindsor.ca or 519-253-3000, ext. 2241.

PURPOSE OF THE STUDY

The purpose of this study is to examine young adults' use of self-talk and reaction to common social experiences. Another purpose is to examine the role that language plays in these experiences for students who speak English as a second language.

PROCEDURES

If you volunteer to participate in this study, you will be asked to complete a number of questionnaires intended to measure how you are feeling in the moment. You will also be asked to complete a brief social task and respond to questions about your personal experience during the task. This portion of the study will be video-recorded and direct quotations may be used in data analysis. It is anticipated that the entire study will take 60 minutes. This study will be conducted virtually through Zoom.

You may be contacted by the primary investigator after completing the study to request your participation in member checking. Member checking would involve you reviewing a copy of your interview transcript to ensure that it is an accurate reflection of your experiences during the study. Your participation in the member checking component of this study is completely voluntary and choosing not to do so will not impact your compensation for participation.

POTENTIAL RISKS AND DISCOMFORTS

The possible risks and discomforts to you include a brief increase in anxiety. There is also risk to using a virtual platform. Although the primary investigator will do all that they can to secure the video platform (i.e., create a password protected meeting, "lock" the meeting as soon as it begins), the primary investigator does not have ultimate control over this and there is always the possibility that it can be hacked.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

You may not directly benefit from participating in this study, but information gathered may provide benefits to society as a whole which include a better understanding of reaction to and regulation during a common social task.

COMPENSATION FOR PARTICIPATION
You will be compensated with one and a half participant pool credits for your participation in this study. If you do not complete the entire study, you will still earn these credits.

CONFIDENTIALITY
Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will only be disclosed with your permission. To ensure confidentiality, all data will be kept in a password protected document and flash drive and retained for a duration of two years. The only individuals who will have access to the data, including both physical and videotaped data, will be the primary researcher, their advisor, and trained research assistants. The videotapes will not be used for educational purposes and will be erased after a duration of two years. Please note that by law, there are limits of confidentiality that would require the researcher to break confidentiality and report to appropriate authority figures. These limits include suspicion of child abuse or neglect, imminent risk of harm to self or others, and medical malpractice. These limits of confidentiality will apply if you disclose information associated with these incidents at any point throughout the study. If the researcher is required to break confidentiality, you will be made aware of this by the primary investigator during the study and will have the opportunity to ask any questions you may have about the process.

PARTICIPATION AND WITHDRAWAL
Participation in this study is voluntary. You may refuse to participate, refuse to answer any questions, or withdraw from the study at any time without any consequences. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE PARTICIPANTS
Research findings for this study will be available to participants and will be posted on the University of Windsor REB website: https://scholar.uwindsor.ca/research-result-summaries. Expected date when results are available: August 2021.

SUBSEQUENT USE OF DATA
These data (including direct quotations) may be used in subsequent studies, in publications and presentations. However, no personal identifying information will be included.

RIGHTS OF RESEARCH PARTICIPANTS
If you have any questions regarding your rights as a research participant, please contact the Research Ethics Board Coordinator, University of Windsor, Windsor, ON, N9B 3P4; Telephone: 519-253-3000 ext. 3948; email: ethnics @ uwindsor.ca.

SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE
I understand the information provided for the study "The Role of Self-Talk in Regulating Public Speaking Anxiety in Ethnically Diverse Young Adults in Canada – Phase 2" as described herein. My questions have been answered to my satisfaction, and **I agree to participate** in this study, and **I consent to being audio and video recorded for the duration of the study**. I have been given a copy of this form.

_____

Name of Participant

_____ _____
Signature of Participant Date

SIGNATURE OF INVESTIGATOR
These are the terms under which I will conduct research.

_____ _____
Signature of Investigator Date

Appendix C

Demographic Questionnaire – Form A

1. What is your age in years? _____
2. I consider my gender to be: _____
3. I consider my racial or ethnic background to be: _____
4. What is your first language? _____
5. If you are least 50% fluent in any other languages, please indicate those languages and the areas of fluency below. Mark all that apply.

   Language: _____ O Comprehend O Speak O Write

   Language: _____ O Comprehend O Speak O Write

   Language: _____ O Comprehend O Speak O Write

   Language: _____ O Comprehend O Speak O Write

   Language: _____ O Comprehend O Speak O Write
6. What is your major area of study? _____
7. What is your minor area of study? _____
8. What is your overall grade point average (as a percentage)? _____
9. What is your current year in your program of study?

   □ 1

   □ 2

   □ 3

   □ 4

   □ 5

   □ Other – please specify: _____
10. Please list any known, diagnosed mental or physical disorders (e.g., communication disorders, anxiety disorders).

    _____

    _____

    _____

    _____
11. Have you ever completed a public speaking task in the past (e.g., presentation)?

☐ Yes

☐ No

a If yes, please describe your experiences with public speaking:

_____

_____

_____

b If your first language is **not** English, does English language fluency influence your experience with public speaking in English?

_____

_____

_____

12. Check beside any of the following experiences you have had in the past and individually rate the degree of your experience in each domain (1= *no experience,* 3 = *moderate experience,* 5 = *considerable experience*).

- Individual oral presentation **in English**

  1 2 3 4 5
- Group oral presentation **in English**

  1 2 3 4 5
- Public speaking class (e.g., University course, Toastmasters) **in English**

  1 2 3 4 5
- Live artistic performance (e.g., dance, instrumental, theatre) **in English**

  1 2 3 4 5
- Other (**in English**; please indicate): _____

  1 2 3 4 5

13. If your first language in **not** English, check beside any of the following experiences you have had in the past and individually rate the degree of your experience in each domain (1= *no experience,* 3 = *moderate experience,* 5 = *considerable experience*).

- Individual oral presentation **in your First Language**

  1 2 3 4 5
- Group oral presentation **in your First Language**

  1 2 3 4 5

- Public speaking class (e.g., University course, Toastmasters) **in your First Language**

1 2 3 4 5

- Live artistic performance (e.g., dance, instrumental, theatre) **in your First Language**

1 2 3 4 5

- Other (**in your First Language**; please indicate): _____

1 2 3 4 5

14. Have you ever decided against participating in a class or other academic related activity because it involved a performance or presentation component?

□ Yes

□ No

a. Please describe in more detail any or all situations in which you remember having done so and your thoughts before coming to this decision:

_____

_____

_____

15. Have you ever decided against participating in an event or other non-academic related opportunity because it involved a performance or presentation component?

□ Yes

□ No

a. Please describe in more detail any or all situations in which you remember having done so and your thoughts before coming to this decision:

_____

_____

_____

Appendix D

Demographic Questionnaire – Form B

1. What is your age in years? _____
2. I consider my gender to be: _____
3. I consider my racial or ethnic background to be: _____
4. What is your first language? _____
5. What is your major area of study? _____
6. What is your minor area of study? _____
7. Please list any known, diagnosed mental or physical disorders (e.g., communication disorders, anxiety disorders).

_____

_____

_____

_____

Appendix E

Behavioural Observation Checklist

Behaviour	**Frequency**
Nail Biting	
Pacing	
Fidgeting	
Body Rigidity	
Throat Clearing	
Facial Tics	
Other Notable Behaviours:	

Appendix F

Protocol for Engaging Participants in Phase 2

Procedural Steps	Specific Language to Use
Step 1: Researcher greeted the participant in the Zoom room and sent a unique link to the Phase 2 Qualtrics survey to the participant through the chat function.	
Step 2: Researcher reviewed the consent form through the share screen feature and the participant indicated consent both orally and through the Qualtrics questionnaire.	
Step 3: Participant completed (1) the brief demographic form and (2) the State Anxiety Scale from the STAI (Time 1).	
Step 4: Researcher introduced the Public Speaking Task.	*"We would like you to hold a three-minute, impromptu speech. The speech will be delivered in this virtual format, in front of a small audience, and the speech will be evaluated. You will be given a topic and two minutes to prepare."*
Step 5: Participant completed the State Anxiety Scale from the STAI (Time 2).	
Step 6: Researcher provided the topic for the public speaking task. As soon as this topic was provided to the participant, the researcher began timing two minutes, during which the participant prepared.	*"Please conduct a three-minute speech on the impact of COVID-19 on education, as it relates to yourself and/or to others. You will now have two minutes to prepare."*
Step 7: After two minutes, the participant completed the Self-Talk Scale (public speaking version; Time 1).	
Step 8: Researcher invited two research assistants into the Zoom room and introduced them to the participant. The participant was asked to stand.	
Step 9: Researcher began video-recording, and the participant completed the Public Speaking Task. The researcher stopped the participant once three minutes had elapsed.	Note: If the participant stopped speaking before three minutes had elapsed, the researcher provided this prompt <u>once</u>: *"It has not yet been three-minutes. Please try your best to continue."*
Step 10: Research assistants left the Zoom room upon participant's completion of the Public Speaking Task. Participant completed the State Anxiety Scale from the STAI (Time 3), the Public Speaking Anxiety Scale, and the Self-Talk Scale (public speaking version; Time 2)	
Step 10: Researcher conducted the semi-structured interview.	
Step 11: Researcher thanked the participant for their time, debriefed use of deception, and provided the opportunity for the participant to ask questions.	

Appendix G

Permissions for Study Measures

Measure	Permission Obtained From
The Self-Talk Scale (STS)	Scale is in the public domain as confirmed by Dr. Thomas Brinthaupt (email communication; June 30, 2020)
The Public Speaking Anxiety Scale (PSAS)	Scale is in the public domain as confirmed by Emily Bartholomay (email communication; August 22, 2018)
The Foreign Language Classroom Anxiety Scale (FLCAS)	Permission has been requested from Dr. Elaine Horwitz
The Balanced Inventory of Desirable Responding (BIDR)	Permission has been requested from publisher (Multi-Health Systems)
The State-Trait Anxiety Inventory (STAI)	Available for purchase through Mind Garden (https://www.mindgarden.com/145-state-trait-anxiety-inventory-for-adults)

Appendix H

Process of Transcription Checking

Date of Entry	PI or RA	Comments
January 21, 2023	PI	• PI (Primary Investigator) and RA (Research Assistant) met to discuss next steps. • RA to check all transcripts (n = 21) for accuracy and familiarize themselves with the data; transcripts to be removed from OneDrive once check completed. • PI to confirm use of Dedoose. • PI and RA discussed personal bias and experience (e.g., personal experience with public speaking anxiety, first language).
	RA	• RA checked over transcripts of participant 51-61, and suggested changes on 51, 55, 58, and 59.
	PI	• PI made suggested changes to transcripts 51, 55, 58, and 59. Changes were minimal and involved placement of single words. • PI removed participant 51-60 transcripts/video-recordings.
January 22, 2023	RA	• RA checked over transcripts 61-75, and suggested changes on 62, 63, 64, 66, 69, 72, 73, 74, and 75.
January 23, 2023	PI	• PI made suggested changes to transcripts 62, 63, 64, 66, 69, 72, 73, 74, and 75. Changes were minor and involved placement of one or two words. • PI removed participant 61-75 transcripts/video-recordings. • Transcription checking complete.

Appendix I

Process of Qualitative Coding

Date of Entry	Transcript Number	PI or RA	Comments
January 28, 2023	51	PI	• PI and RA met to orient to Dedoose software. • PI and RA to code Transcript 51 independently and meet afterward to discuss.
January 29, 2023	51	PI	• PI and RA met to discuss coding of Transcript 51 and create initial codebook. • PI and RA agreed re: many of the codes, differentiated only by language (e.g., "Bad Experience" vs. "Negative Experience"). • PI and RA discussed how to best distinguish between comments made in reference to the specific public speaking task versus comments made about public speaking experiences more generally (determined this required separate codes - "Negative Experiences during Public Speaking Task" and "General Public Speaking Preferences"). • PI and RA discussed how to best capture self-talk, if potentially of benefit to separate examples of self-talk within quotations from more general discussion of self-talk. Separate codes were created, but the discussion is to be revisited. • PI uploaded Transcript 53 and Transcript 54 to Dedoose at the end of this meeting.
February 4, 2023	53	PI	• PI and RA met to discuss coding of Transcript 53 and Transcript 54, and continue creation of the codebook. • RA reported more challenge coding Transcript 53. • PI changed "Confidence during Task Completion" to "Positive Experience during Task Completion," as suggested by RA; original code felt to be too narrow. • Code "Length of Task" created – both PI and RA identified new code, but above name was agreed on. • PI and RA both created a new code to capture fidgeting/behavioral anxiety – decided to call it "Behavioral Indicators of Anxiety" - RA had originally had this under "Factors Impacting Communication Effectiveness" - discussed benefit of having it as its own code (e.g., if discussing behavioral manifestations of anxiety that are not related to communication effectiveness).

			• RA identified a "Self-Defeating Thoughts" sub-code – changed to "Anxious Thoughts" (as PI had it) to make broader for now. • Discussed new code "Focus/Reliance on Preparation".
	54	PI	• PI and RA added new code - "Speech Topic" (PI) and "Topic" (RA) - decided on "Speech Topic". • Created a new code to encompass negative memories impacting effectiveness of communication - "COVID Memories" (PI) and "Negative Memories" (RA) - decided on "Negative Memories". • Created a new code to identify those who think communication effectiveness was not good - "Not Effective" (PI) and "Poorly" (RA) - decided on "Not Effective". • Discussed benefits of coding or not coding more basic demographic information (e.g., if ESL or not) - decided not to code as this information would be available in demographic questionnaire. • Created a new code - "Thinking in/Translating from Another Language" (PI) and "Language Switching" (RA) - decided on "Language Switching". • Discussed need to add a new code to capture comment on words not existed in other language – RA suggested "Task Completion in Primary Language". • Discussed how this participant often did not directly answer questions that were asked and potential impact that the topic had on her entire experience. • PI uploaded Transcript 55 and Transcript 57 to Dedoose at the end of this meeting.
February 5, 2023	55	PI	• RA shared feeling it was a brief interview; PI agreed – added that some new things came up requiring additional codes. • Talked about whether to add something that was more general into "Positive Experience during Task Completion," if not explicit that participant is talking about that three-minute task. • Discussed the "so-so" category needing to be specific to participant reflection on communication effectiveness, rather than how they felt emotionally during the task. • Added a sub-code - "Audience Feedback" - suggested by RA. • Discussed "I bounced around a bit" - RA felt it was behavioral/physical, PI felt it was related to organization of speech – discussed how both could be

		true – referenced behavioral observation sheets to confirm, as much as is possible – determined it was relating to the organization of the speech. • Some discussion around whether participant's perception of effectiveness of communication was "effective" or "so-so" - determined she felt confident about her effectiveness. • PI noted feeling less in agreement re: codes compared to the previous day; RA agreed. This was a difficult transcript, although only the fourth transcript and some new ideas/codes. • PI proposed adding a new code "Focus on What to Say Next" - and how to distinguish this from "What to Say Next" under the anxiety/worry code – both are related to thinking about what to say next, but distinguished by the identified impact (i.e., thinking about what to say next made me anxious versus thinking about what to say next made me less effective).
57	PI	• Added a new code - "Lack of Recent Experience" (PI) and "Public Speaking Experience" (RA) - "Lack of Public Speaking Experience" - agreed upon code, just discussed name. • Added a new code "Anxiety" under communication effectiveness – when a participant specifically indicates anxiety impacted effectiveness – different than just identifying anxiety during the task more generally. • PI shared feeling weird about a certain code, not sure it is helpful ("Worry/Anxiety During Task") - will continue to monitor and may be added/subsumed by another code at some point. • PI proposed adding a new code "Insufficient Preparation Time" under the communication effectiveness and how to distinguish this from "Insufficient Preparation Time" under negative experiences during task completion – like the discussion with Transcript 55, both are related to insufficient prep time, but distinguished by the identified impact (i.e., not having enough time to prepare made the task more miserable versus not having enough time to prepare made me less effective in my communication). • New code was discussed - "Attempts to Manage Anxiety" (PI) and "Supportive Thoughts" (RA) - decided on "Attempts to Manage Anxiety" because

			described more general attempts to manage anxiety, as opposed to specific instances or examples of self-talk. • Added "Supportive Thoughts" under self-talk after – consistent with other sub-codes under self-talk, used for when participant gives a specific example. • PI reflected that PI and RA are often in agreement re: the sub-code to add, but discussion is required to determine which code to best nest that under. • PI uploaded Transcript 58 and Transcript 59 to Dedoose at the end of this meeting.
	58	PI	• Discussion re: perception of communication effectiveness – differentiating between so-so or not effective. • Discussed changing "Self-Talk During Speech" to include not just quotations, but any comment on self-talk – this rule was originally created by the PI, but is not helpful or capturing what is being shared re: self-talk. • Created a new category under "Self-Talk" - Critical Thoughts – had some discussion re: distinguishing between anxious thoughts and critical thoughts. • PI reflected this was the most consistent/agreed upon transcript yet – good news re: development of the codebook!
February 8, 2023	59	PI	• PI double-coded one instance – RA single-coded – decided to single code after discussion – re: importance. • More discussion re: coding around so-so/effective - decided to do so-so because of participant's language (e.g., *I think* I made *some* points). • PI noted common disagreement on perception of communication effectiveness (e.g., so-so, effective, not effective) - something to keep an eye on. RA leans more positive, PI leans more negative. • Distinguished between "Attempts to Manage Anxiety" versus "Supportive Thoughts" - when coding "Attempts to Manage Anxiety," excerpts should be explicit (i.e., participant identifying the thing they did was to manage/reduce anxiety versus it just so happened to). • RA reflected that this transcript was more challenging to code, in part because the participant did not directly answer questions and was broader in her responses – PI agreed.

			• PI uploaded Transcript 60 and Transcript 61 to Dedoose at the end of this meeting.
February 11, 2023	60	PI	• PI added a new code - "Less Time to Ruminate" - RA had coded this "?" - agreed on sub-code and placement within codebook. • More discussion related to Anxious Thoughts versus Speech Content – when anxious about what to say next or not having anything to say next versus focusing on what they will say next. • RA made a new code - "Confidence" - under Factors Impacting Communication Effectiveness – PI unsure if excerpt is capturing comment of effectiveness versus just experience doing the task – PI and RA to consider adding to codebook.
	61	PI	• Continued discussion of whether an additional subcode "Confidence" is required under "Factors Impacting Communication Effectiveness", or whether this can be appropriately coded under "Anxiety" - decided to add this new code. • Decided to move "Behavioral Indicators of Anxiety" as a subcode under "Worry/Anxiety During Task", as opposed to being its own code. • PI and RA reflected these two transcripts were the most agreed upon/reliable re: coding. • PI uploaded Transcript 62 and Transcript 63 to Dedoose at the end of this meeting.
February 12, 2023	62	PI	• PI and RA discussed a particular excerpt and whether it was a comment on effectiveness or on positive experience. • PI and RA agreed on most codes (and when disagreed on subcode, generally within the same parent code). • No new codes added.
	63	PI	• PI and RA discussed how the individual voice we read self-talk quotes in can influence/determine our codes (e.g., when distinguishing between anxious and critical) - explored recognition of this bias. • No new codes added. • PI and RA agreed PI would code the remainder of transcripts independently, consulting with RA as needed. RA to become involved in later stages (e.g., naming/grouping of themes).
February 20, 2023	64	PI	• PI coded individually
	65	PI	• PI coded individually
	66	PI	• PI coded individually
	69	PI	• PI coded individually

February 24, 2023	70	PI	• PI coded individually
	71	PI	• PI coded individually
	72	PI	• PI coded individually
March 3, 2023	73	PI	• PI coded individually
	74	PI	• PI coded individually
	75	PI	• PI coded individually. • PI concluded the initial coding of all transcripts. Consistent with Braun and Clarke's (2021) guidelines, PI began reviewing all transcripts a second time (individually), in the opposite order. Following this second review, the next step will be developing "candidate themes". • PI reflecting – feeling a bit worried that initial codes are more of a "topic summary" (i.e., a summary of what participants said about a particular topic) - focused on answering specific questions asked in interview, as opposed to broader. Effort will need to be made in the development of candidate codes to ensure that themes are not just clustered around questions asked in interviews.
March 6, 2023	75	PI	• Sub-code "Rambling/Use of Filler Words" feels a bit like a catch-all... not sure if this will require modification at a later stage. • PI reflected on the range of self-talk within this transcript – critical, anxious, focused on speech content.
	74	PI	• Sub-code "Language Switching" is sometimes being used to just more general concerns about language – and sometimes encompasses some sub-sub-codes of "Delayed Word Recall" and "Accents" – perhaps collapsing all three into a more general category of "Language Proficiency" - and sometimes it's not clear that the participant is identifying the impact to communication effectiveness or to anxiety – oftentimes it seems to be more – not sure the coding of these has been consistent – will likely require review.
	73	PI	• Reminder to address remaining "?" codes.
	72	PI	• No comments.
	71	PI	• No comments.
	70	PI	• No comments.
	69	PI	• "Rambling/Use of Filler Words" sub-code used to describe stuttering and being at a loss for words – see above comment on this sub-code.
	66	PI	• "Rambling/Use of Filler Words" sub-code used to describe stuttering – maybe renaming this code

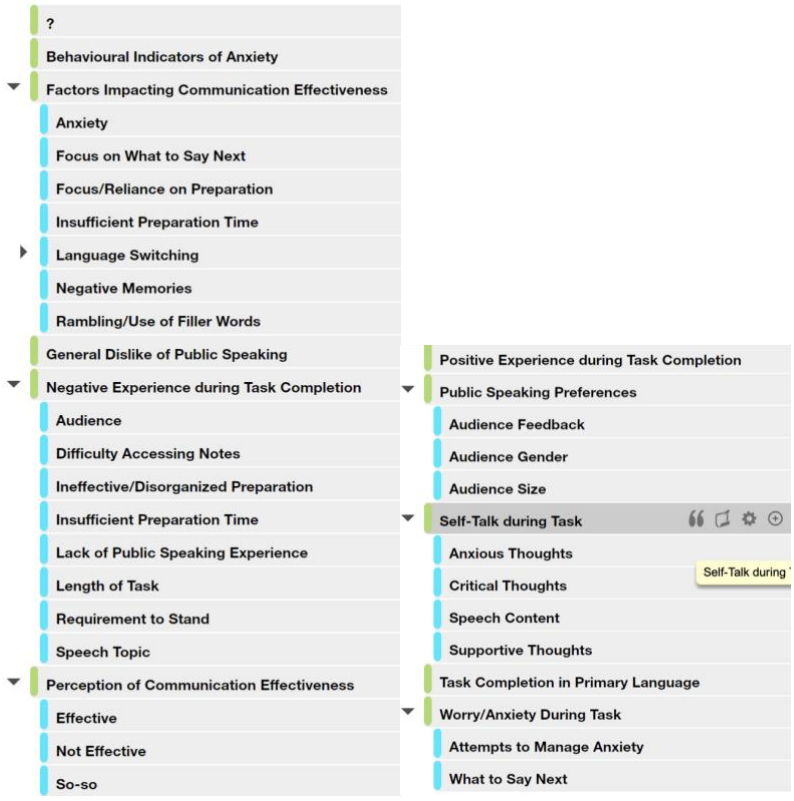
			something broader... like speech quality, or quality of oral communication, or something.
	65	PI	• No comments.
	64	PI	• More clarity may be required re: the "Self-Talk During Task" code – some worry that it is acting as a catch-all for comments made re: self-talk - will need to review the excerpts within this code.
	63	PI	• No comments.
	62	PI	• No comments.
March 7, 2023	61	PI	• No comments
	60	PI	• No comments
	59	PI	• No comments
	58	PI	• No comments
	57	PI	• No comments
	55	PI	• No comments
	54	PI	• No comments
	53	PI	• No comments
	51	PI	• No comments

Appendix J

Process of Codebook Development

Date	Iteration of Codebook
January 29, 2023	
February 4, 2023	

February 8, 2023



February 11, 2023

March 6, 2023

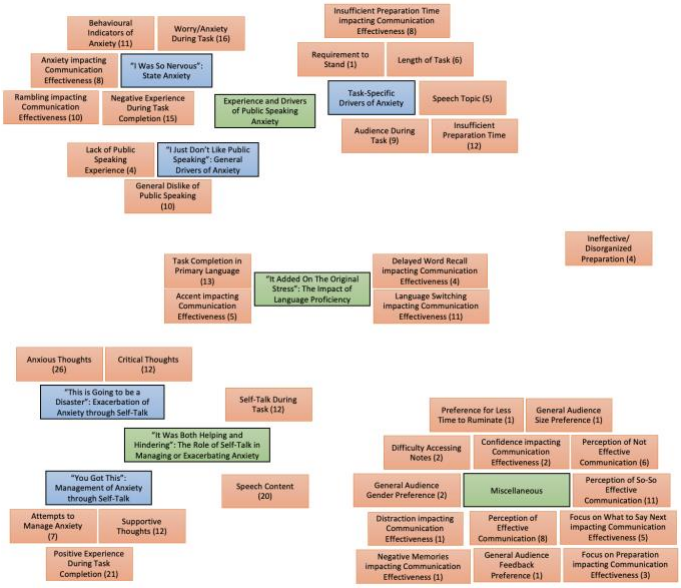

?
Factors Impacting Communication Effe...
Anxiety
Confidence
Distraction
Focus on What to Say Next
Focus/Reliance on Preparation
Insufficient Preparation Time
Language Switching
Accent
Delayed Word Recall
Negative Memories
Rambling/Use of Filler Words
General Dislike of Public Speaking
Negative Experience during Task Comp...
Audience
Difficulty Accessing Notes
Ineffective/Disorganized Preparation
Insufficient Preparation Time
Lack of Public Speaking Experience
Length of Task
Requirement to Stand
Speech Topic
Perception of Communication Effective...
Effective
Not Effective
So-so
Positive Experience during Task Compl...
Public Speaking Preferences
Audience Feedback
Audience Gender
Audience Size
Less Time to Ruminate
Self-Talk during Task
Anxious Thoughts
Critical Thoughts
Speech Content
Supportive Thoughts
Task Completion in Primary Language
Worry/Anxiety During Task
Attempts to Manage Anxiety
Behavioural Indicators of Anxiety
What to Say Next

Appendix K

Process of Theme Development

Date	Iteration of Themes
	
March 7, 2023	Consultation with Dr. Hakim-Larson (March 7, 2023) • Discussed potential broader themes: self-efficacy (degree of belief participants have in their ability to effectively communicate/complete the task, impact of self-talk on self-efficacy) and self-regulation strategies (self-talk, attempts to manage anxiety). Consultation with Dr. Soucie (March 10, 2023) • Include all audit trail charts in the appendix. • Reminder: I am telling one story of many. • Consider themes being: "participant excerpt": my description. • Discussed potential themes and thinking temporally about the story I'm telling: (1) Experience of Anxiety (physiological, task-based; "drivers"), (2) "Othering" or Cultural Piece Driving Discomfort, and (3) The Role of Self-Talk in Managing or Exacerbating Anxiety (types of self-talk; "outcomes"). • Considering presenting theme names to research group to get feedback on theme names. • Next steps – discuss/collaborate with RA to review themes/name themes – bring in Dr. Hakim-Larson if third perspective is needed.

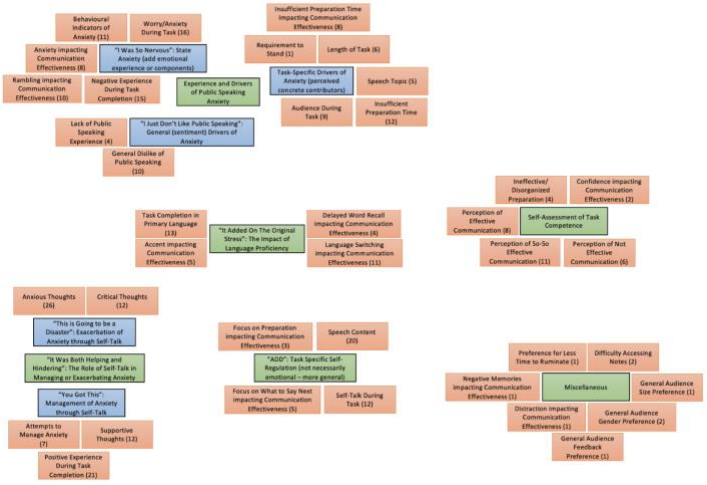
March 12, 2023



Meeting with RA (March 12, 2023)

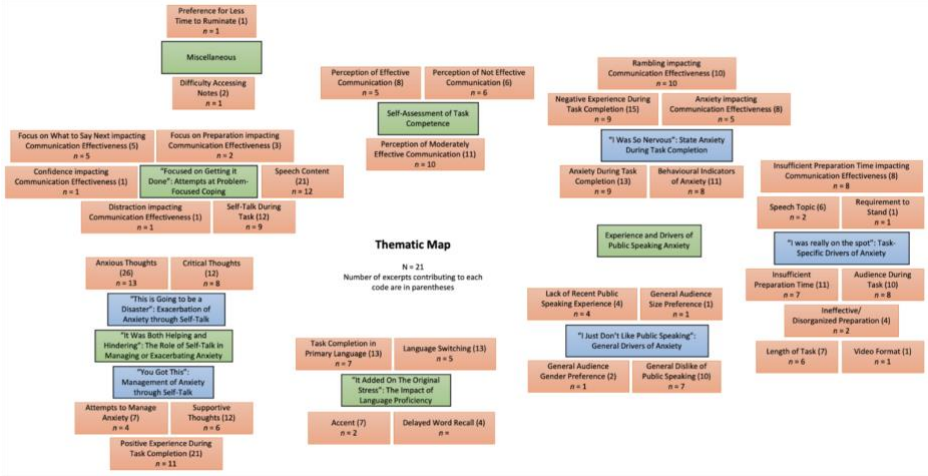
- Met to discuss overall themes and sort codes into themes, referencing Dedoose data/specific excerpts in decision-making.
- RA/PI largely in agreement during this process.
- Ineffective/Disorganized Preparation remains not sorted, but deemed important to include – undetermined whether this is best understood as a manifestation of state anxiety or an effect of the task (i.e., a task-specific driver).

March 14, 2023



Consultation with Dr. Hakim-Larson (March 14, 2023)

- Discussed the introduction of additional themes, to minimize the amount of data being discarded (i.e., within the "Miscellaneous" theme)
- PI to reflect further on themes names/organization and discuss next meeting.

	Consultation with Immigrant Youth Research Group (March 30, 2023) • PI presented qualitative research process and candidate themes/sub-themes to research group (2 faculty, 2 graduate students, 3 students who recently completed undergraduate studies). • The feedback was positive – that the story makes sense, fits with the literature, and appears to fit well with the data. • Consider renaming “Task Specific Self-Regulation" theme name to represent use of problem-focused coping (i.e., make more specific and reflect the use of coping strategies). • Consider including some codes from the “Miscellaneous” theme into other themes – for example, can “Gender of Audience” fit within the anxiety theme? • Consider using the “perception of communication effectiveness” codes descriptively (did people see themselves as being effective, moderately effective, or not effective) - in the future, could even link these descriptors to other codes (e.g., those who perceived themselves as communicating effectively were more likely to use supportive self-talk). • Will return to IYRG research group to present research in advance of progress meeting.
April 4, 2023	

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