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# BREAKING THE SOUND OF SILENCE

The Role of the Teacher, Educator and Therapist in the Early  
Identification of Selective Mutism and Subsequent Intervention

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## ABSTRACT

The primary objective of this thesis is to enhance understanding and awareness of Selective Mutism (SM) and explore how educational professionals and therapists perceive their roles in identifying SM and implementing interventions. It also examines the differentiation between SM and shyness, as well as the potential use of Virtual Reality (VR) technology in therapy and inclusive classroom interventions. The study addresses three main questions: (1) What is the role of teachers, educators and therapists in the early identification of SM and subsequent intervention? (2) How do teachers, educators and therapists perceive the distinction between shyness and SM? (3) Do teachers, educators and therapists envision the future use of VR technology in therapy and intervention? The participants, recruited through purposive sampling, included individual interviews with therapists and a focus group of six educators and teachers in school settings. The participants collectively possessed professional experience ranging from 3 to 26 years, with work experience in the Middle East (Jordan and the United Arab Emirates) and Europe (the United Kingdom and Ireland). This qualitative thesis employs a Reflexive Thematic Analysis (RTA) approach, which allows for the identification and analysis of patterns and themes within the dataset. Through semi-structured interviews, participants shared their professional and personal experiences, offering insights into various aspects of SM. The findings highlight that SM can often go unnoticed, be misdiagnosed, or undiagnosed due to various factors. Additionally, there is a growing interest among teachers, educators and therapists in raising awareness about SM. The results affirm that the role of teachers, educators and therapists is crucial in addressing SM, encompassing aspects such as awareness creation, early detection, diagnosis, and implementation of effective intervention plans. Furthermore, the thesis explores VR as a potential intervention method for SM children and individuals with social anxiety, as well as a classroom tool to enhance inclusivity, communication and participation. In conclusion, there is a need for increased awareness and early identification of SM, with a focus on striking a balance between traditional therapies and innovative approaches like VR.

Keywords: Selective Mutism, anxiety, social anxiety, communication disorders, shyness, classroom intervention, therapy alternatives, Virtual Reality.

## PREFACE

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*I have a dragon inside of me  
He jumps in my mouth when I want to be free.  
He grabs at my throat when I want to speak  
He makes me so scared that I feel very weak.*

*You can't see my dragon coz he's deep down inside  
But he makes me so nervous, all I want to do is hide.  
I wish that I could speak to you – I wish I had the choice  
But the dragon inside of me has snatched away my voice.*

*My teachers ask a question, and we raise a hand  
When she calls my name and makes me stand.  
I simply can't answer – my throat's too tight  
Coz my dragon says "BOO" and I jump with fright.*

*It really makes me sad; all I want to do is cry  
Coz I'd love to be your friend if I wasn't so shy.  
So, if my face doesn't smile when you ask me to play  
It's because this pesky dragon just won't go away.*

*Author Unknown*

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## TABLE OF CONTENTS

<b>ABSTRACT</b> .....	<b>iii</b>
<b>PREFACE</b> .....	<b>iv</b>
<b>TABLE OF CONTENTS</b> .....	<b>vi</b>
<b>LIST OF FIGURES</b> .....	<b>viii</b>
<b>LIST OF ABBREVIATIONS</b> .....	<b>ix</b>
<b>CHAPTER 1</b> .....	<b>1</b>
<b>1.0 INTRODUCTION</b> .....	<b>1</b>
1.1 Personal Background .....	1
1.2 Reflexivity and Positionality .....	2
1.3 Contextual Background .....	4
1.4 Research Aims and Questions .....	6
1.4.1 Defining the Participants.....	7
1.5 Thesis Outline .....	7
<b>CHAPTER 2</b> .....	<b>9</b>
<b>2.0 LITERATURE REVIEW</b> .....	<b>9</b>
<b>PART I: Selective Mutism</b> .....	<b>9</b>
2.1 Brief History and Introduction.....	9
2.2 Diagnosis of Selective Mutism.....	11
2.3 The Thin Line Between Shyness and Selective Mutism .....	12
2.4 Characteristics and Causes of Selective Mutism .....	13
2.5 Current Therapy and Intervention for Selective Mutism.....	18
2.6 Teachers' Role in the Classroom.....	20
2.7 Bronfenbrenner's Theory of Human Development.....	22
2.8 Summary of Selective Mutism .....	23
<b>PART II: Virtual Reality</b> .....	<b>24</b>
2.9 Brief History And Introduction .....	24
2.10 How Virtual Reality is Used in Therapy .....	25
2.10.1 Virtual Reality Exposure Therapy (VRET).....	27
2.10.2 Avatar-Based Virtual Reality Therapy.....	28
2.11 What Are The Potentials of Virtual Reality in Therapy? .....	28
2.11.1 Advantages.....	28
2.11.2 Disadvantages.....	31
2.12 Virtual Reality in the Classroom .....	31
2.13 Summary of Virtual Reality.....	34

<b>CHAPTER 3</b> .....	<b>36</b>
<b>3.0 METHODOLOGY</b> .....	<b>36</b>
3.1 Research Design .....	36
3.2 Ethical Aspects.....	36
3.3 Participants .....	38
3.4 Procedures and Data Collection.....	39
3.4.1 Data Analysis .....	40
<b>CHAPTER 4</b> .....	<b>45</b>
<b>4.0 RESULTS</b> .....	<b>45</b>
4.1 Theme 1: Breaking the Sound of Silence .....	45
4.2 Theme 2: Shyness and Beyond.....	48
4.3 Theme 3: The Gateway.....	50
4.4 Theme 4: Building Bridges from VR Back to Reality .....	54
4.5 Additional Findings with VR Implications.....	56
<b>CHAPTER 5</b> .....	<b>58</b>
<b>5.0 DISCUSSION</b> .....	<b>58</b>
5.1 Addressing Research Question 1 .....	58
5.2 Addressing Research Question 2.....	61
5.3 Addressing Research Question 3 .....	62
5.4 Limitations .....	63
5.5 Conclusion .....	64
5.6 Recommendations for Research and Practice.....	65
5.7 Final Reflections.....	66
<b>REFERENCES</b> .....	<b>68</b>
<b>APPENDICES</b> .....	<b>83</b>
Appendix 1 SIKT Evaluation .....	83
Appendix 2 Participants Consent Letter .....	84
Appendix 3 Interview Questions .....	87
Appendix 4 Coding Process.....	89
Appendix 5 Code Book Sample .....	90
Appendix 6 Collating the Codes.....	91
Appendix 7 Thematic Maps.....	92

Word count: 25,175

## LIST OF FIGURES

Figure 1	Shifts in the understanding of SM over time.....	9
Figure 2	Bronfenbrenner’s Ecological System.....	23
Figure 3	Final Thematic Mind Map .....	43



## LIST OF ABBREVIATIONS

2D	Two Dimensional
3D	Three Dimensional
AAC	Augmented and Alternative Communication
AI	Artificial Intelligence
APA	American Psychiatric Association
AR	Augmented Reality
ASD	Autism Spectrum Disorder
CBT	Cognitive Behavioural Therapy
CNT- NAP2	Contactin Associated Protein 2
DBT	Dialectical Behaviour Therapy
DSM-III	Diagnostic and Statistical Manual of Mental Disorders, 3 <sup>rd</sup> Edition
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, 4 <sup>th</sup> Edition
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders, 4 <sup>th</sup> Edition, Text Revision
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5 <sup>th</sup> Edition
FG2	Focus Group 2
G1	Group 1
HMD	Head-Mounted Display
OCD	Obsessive-Compulsive Disorder
IoT	The Internet of Things
PD	Panic Disorder
PTSD	Posttraumatic Stress Disorder
RTA	Reflexive Thematic Analysis
SAD	Social Anxiety Disorder
SiO	University of Oslo Student's Association
SM	Selective Mutism
SMIRA	Selective Mutism Information and Research Association
SMQ	Selective Mutism Questionnaire
SSQ	School Speech Questionnaire
UiO	Universitetet i Oslo
VR	Virtual Reality
VRET	Virtual Reality Exposure Therapy
WHO	World Health Organization

# CHAPTER 1

## 1.0 INTRODUCTION

### 1.1 Personal Background

Listening to one of the professors discussing learners with special needs, the topic of Selective Mutism (SM) was briefly mentioned, but the words seemed to leap out of the PowerPoint slides and capture my attention. It made me pause and reflect: Could this be what I experienced in my childhood? Does it explain why I did not speak for three years during grades 1 to 3? Is this the reason behind my social anxiety and panic attacks during presentations and public speaking? Could it be connected to my occasional low self-esteem? These questions flooded my mind, leaving me deep in thought. It was a true ‘Eureka!’ moment.

Only recently have I come to realize that I might have experienced SM during my early childhood. Back then, I had never heard of it, and it remained undetected in my case. Given its personal significance, I now have a strong interest in understanding the reasons for my silence and a passionate drive to explore interventions that can support children with SM. Furthermore, I want to gain insights into how SM impacts individuals and what the future holds in terms of support for those affected, whether as teachers, therapists, or parents. Before embarking on my thesis, I took time to reflect on my childhood experiences and my feelings as an adult. This process led me to question whether I had SM, borderline SM, or simply extreme shyness. I am struck by this ‘discovery’ and cannot help but wish I had received the necessary assistance at that time.

Moreover, as a special needs coordinator, I lacked awareness and knowledge about SM. I had not knowingly encountered any children who might have had SM as a disorder. The school and special needs department were primarily focused on creating awareness for conditions such as autism, ADHD (attention deficit hyperactivity disorder), dyslexia, and other more well-known challenges. However, upon reflection, I vividly remember a few students who struggled with speaking in school, displayed severe shyness and exhibited social awkwardness. The school and parents regarded it as a passing phase that would eventually fade away. Even psychologists’ reports did not suggest SM or anxiety disorders. If the school had been aware of SM, perhaps these children could have received more appropriate help.

Through addressing SM in my thesis, I aim to connect with teachers, educators and therapists, specifically seeking their perspectives and experiences regarding the identification and treatment of SM. Based on my extensive reading and knowledge, I have come to realize that there is still limited awareness about SM among professionals, and those who are aware often fail to address it accurately, mistaking it for mere shyness. Moreover, while there are several effective methods for treating SM, they may require considerable time (Kos, 2020), financial resources, and support (White & Bond, 2022). I believe there is a promising future ahead of us. As technology continues to advance and makes its presence felt (David et al., 2013; Yount, n.d.), I envision a progressive approach to treating SM and other anxiety disorders, utilizing Virtual Reality (VR) as a platform and assistive tool for therapy. VR could also be integrated into classrooms as a teaching tool (Araiza-Alba et al., 2022).

## **1.2 Reflexivity and Positionality**

According to Olmos-Vegas et al. (2023), reflexivity refers to the ongoing, interactive and diverse practices that researchers employ to critically examine and assess how their context and subjectivity affect the research process. In writing this thesis, I have relied on personal reflexivity, which includes considering my prior experiences and motivations that may impact project decisions. Interpersonal reflexivity has also played a role, as I have considered how the relationships and connections surrounding the research process can affect the research setting, participants and outcomes. Lastly, methodological reflexivity has guided me in critically evaluating the implications and effects of my methodological choices (Olmos-Vegas et al., 2023).

Positionality, as described by Darwin Holmes (2020), refers to an individual's worldview and the position they take on a research topic, including its social and political impact. Essentially, positionality reflects the researcher's chosen stance within a given research study and influences how the research is conducted, as well as its implications and results (Darwin Holmes, 2020). Furthermore, positionality is influenced by reflexivity. There are three key ways to identify and develop a researcher's positionality. First, researchers must examine their personal viewpoints and acknowledge how these viewpoints may impact the investigation. Second, researchers should consider how they perceive themselves and how others perceive them in relation to the participants. Finally, researchers should situate themselves in relation to the research environment and process (Darwin Holmes, 2020).

Personally, I have been affected in various ways by what I believe to be my undiagnosed SM. I still struggle with self-esteem, self-confidence, social awkwardness in large gatherings, extreme shyness and anxiety in many situations. However, as an adult, I have developed coping strategies to overcome my possible SM. My case includes experiencing cultural shock when I moved from an Arab country to Europe at a young age. At home, I did not speak due to a strict and controlling father, and at school, I remained silent for three years. I remember being punished by teachers for not speaking, and it was only in the second year that I spoke to a friend for the first time, secretly, under the table. I also recall experiencing verbal and emotional abuse from both my father and teachers, being called ‘stupid’, a ‘failure’, and ‘good for nothing’. Even to this day, I often choose to remain silent in large group gatherings to avoid sounding ignorant, unknowledgeable, or incompetent. It is evident that general education, special needs education, and inclusion have evolved significantly since then.

When I contemplated writing this thesis, numerous questions arose in my mind, and I began to imagine how things could have been different if I had received the necessary help or the opportunity to engage in various interventions and therapy sessions. Consider a child with SM who is unable to participate in class due to their condition, becoming forgotten and invisible at the back of the classroom. Now, envision the possibilities that VR technology, for example, could provide for this child as a tool utilized by teachers in the classroom to teach a subject. The teacher poses a question, but the child with SM remains quiet, unable to move from their chair. The most the child can manage is a nod, eyes cast downward. With a lump in their throat and a racing heart, the child simply wants to fade into the chair and become even more invisible. Picture now giving that child the opportunity to put on ‘funky’ goggles, create an avatar, and enter a colourful world where they can confidently answer the teacher’s questions and actively participate alongside their peers. This is what true inclusivity means. It is a powerful boost to self-esteem and confidence. Could this be the key to breaking the sound of silence?

Throughout the research process, I immersed myself in the data. I personally handled all aspects of data collection, from developing interview questions and scheduling interviews to conducting them online and transcribing them. This hands-on approach allowed me to interact effectively with the participants, establish rapport and go through their stories. Transcribing the interviews was particularly insightful as it allowed me to closely examine the participants’ words and engage with the data in a meaningful way. Through this process,

I became more aware of details that had previously escaped my attention, such as the effects of the pandemic on children and cultural aspects, such as shyness being considered a ‘normal’ characteristic for girls in certain cultures. As I was coding, the emergence of related codes led to the development of potential themes and subthemes. I utilized thematic maps to organize my thoughts and refined them as my understanding of the data deepened, ultimately arriving at a final mind map with four major themes.

During the interviews, I encountered a sense of being both an insider and an outsider. As an outsider, I served as the interviewer, asking questions and driving the project forward in search of answers to my research questions. However, I also positioned myself as an insider, as I believed I had experienced SM during my own childhood and had worked as a special needs coordinator. Consequently, I could relate to certain stories shared by the participants, and I experienced ‘Aha’ moments when they discussed topics, such as teacher and parent collaboration, or the lack thereof. Being an insider, I felt empathy towards their stories, and some participants were interested in hearing about my own experiences and how I felt then and now as an adult. This rapport made me feel validated as if my story was being truly heard for the first time. I believe that the academic and personal aims of this thesis are intertwined, and my motivation to write it stems from a desire to find answers to both my research questions and the reasons behind my childhood silence. In this process, participants confirmed my assumptions and echoed what is reported in the literature: there is limited awareness of SM, and much more can be done to support this group of children and adults who live in silence. I believe I have made a positive contribution and sparked curiosity by raising awareness and increasing knowledge about SM and the potential use of VR. I hope that my participants will take this newfound awareness back to their schools and clinics, creating a snowball effect in addressing this issue.

### **1.3 Contextual Background**

The development of social skills is crucial to nurture in children as early as possible, as it prepares them to deal with various social situations and interact effectively with others (Rusmayadi & Herman, 2019). By acquiring good social skills, children can adapt to social norms, choose appropriate communication methods, form relationships and express appreciation for others (Rusmayadi & Herman, 2019). The Bercow Report (2018) emphasizes that communication is the most fundamental life skill for children, as it directly impacts their ability to learn, build friendships, and lead successful lives. Unfortunately, there

is a lack of awareness and understanding regarding speech, language, and communication needs among children, resulting in insufficient and unequal support, which can negatively affect their academic performance, employability and mental health (Bercow Report, 2018). Children with SM face challenges in their ability to communicate from an early age. They may also experience speech or communication difficulties along with other anxiety diagnoses (Smith-Schrandt & Ellington, 2018). Despite the impact of SM on children, there is limited awareness of the condition (Hammer & Oerbeck, 2014) and the long-term effects of SM are not well understood (Ma & Monga, 2020). More research is needed to determine the prevalence of SM and its implications. Consequently, there is a significant opportunity for teachers, educators and therapists to support individuals with SM, help them gain confidence and improve their communication skills.

In the Norwegian context, a diagnosis of SM makes children eligible for special assistance in schools and/or kindergartens. In 2009, a multidisciplinary research team led by child psychiatrist, Hanne Kristensen, developed guidelines for school professionals addressing SM assessment and treatment (Hammer & Oerbeck, 2014). However, there are currently no known national guidelines in place. It is considered essential to conduct a thorough evaluation of the child before initiating treatment. Studies have shown that treatment can have a significant impact, with ongoing improvements in speaking behaviours observed even a year after treatment (Hammer & Oerbeck, 2014). Nevertheless, the knowledge and awareness of teachers and therapists who work with children with SM remain crucial factors in providing effective treatment in Norway.

A full definition of SM is addressed in the next chapter, however, in the global context, SM is recognized as an anxiety condition by the American Psychiatric Association (APA, 2013) and the World Health Organization (WHO, 2020). Nevertheless, the exact nature of the connection between anxiety and SM is not fully understood. Researchers' accounts of anxiety levels in children with SM vary, making it challenging to establish a consistent understanding of the disorder. It is essential to have accurate conceptualizations of SM to ensure effective interventions and avoid those that may worsen or perpetuate SM (Hipolito & Johnson, 2021). SM can be a crippling condition and educators often witness children being imprisoned by fear, feeling powerless to help them due to a lack of information and guidance (O'Neill, 2005).

In recent years, there has been an increased focus on special needs and children's mental health, recognizing the importance of educational settings in promoting social and emotional well-being (White et al., 2022). Unfortunately, children with SM are often mislabelled as being quiet, shy or even oppositional, primarily due to a lack of knowledge amongst teachers. As a result, parents and caregivers struggle to access the support they need. Early detection of SM is crucial for effective intervention and to prevent long-term impacts on children's lives (White et al., 2022). Failure to address SM early on can lead to its persistence into adolescence and adulthood, accompanied by detrimental effects such as depression, social anxiety disorder and even suicidal tendencies (White et al., 2022). It is evident that children with anxiety disorders, like SM, have largely gone unnoticed (Camposano, 2011) and overlooked (White et al., 2022).

The main goals of therapeutic and educational activities for children with SM are to reduce anxiety and restore verbal communication (Kos, 2020). The therapeutic process for SM typically requires a significant amount of time, with an average of 72 hours of therapy needed, assuming no other pre-existing disorders are present. However, improvements in speaking behaviours can often be observed within two weeks of therapeutic work. In contrast, the use of VR as a therapy tool has shown promising results in reducing symptoms of anxiety and other mental disorders, with efficacy comparable to traditional exposure therapy (Maria et al., 2021). VR offers the advantage of rapid symptom reduction and the potential for designing virtual environments for training, assessment, therapy and social skills development (Asiain et al., 2022). Therefore, integrating VR into the treatment of SM justifies further research and exploration. More on why VR should also be used in the SM context is addressed in chapter two.

## **1.4 Research Aims and Questions**

Based on the above, the main goal of this thesis is to enhance understanding and awareness of SM by examining the perspectives of teachers, educators and therapists regarding their roles in identifying SM and implementing appropriate interventions. Additionally, it aims to explore the differentiation between SM and shyness, which can sometimes lead to misdiagnosis and investigate the potential use of technologies like VR in therapy and inclusive classroom interventions. The overall objective is to increase understanding of SM among school professionals and therapists while exploring innovative

possibilities for intervention. To achieve these objectives, the thesis will address the following main research questions:

1. What is the role of teachers, educators and therapists in the early identification of SM and subsequent intervention?
2. How do teachers, educators and therapists perceive the distinction between shyness and SM?
3. Do teachers, educators and therapists envision the future use of VR technology in therapy and intervention?

#### ***1.4.1 Defining the Participants***

In this thesis, teachers are defined as individuals fulfilling primary or secondary teaching roles in formal and informal educational settings, including special needs teachers. Educators, on the other hand, are defined as professionals who hold combined administrative and teaching roles, such as special needs coordinators, heads of departments and subject coordinators. Therapists are defined as professionals with expertise in specific therapeutic approaches, such as speech and language therapy, family-based therapy, play therapy or child development specialists.

### **1.5 Thesis Outline**

This thesis comprises 5 chapters. Chapter 1 sets the stage for the thesis, providing background and contextual information, personal reflections and an overview of the topics and themes that will be explored in the subsequent chapters. Chapter 2 is divided into two sub-chapters. The first part presents an extensive review of the relevant literature on SM, organized into six sections. It begins with an introduction and definition of SM, along with a brief historical overview. The chapter then explores the topic of diagnosing SM, including discussions on appropriate diagnostic criteria and the distinction between shyness and SM. It further examines four key factors that may influence SM, as well as different theories and approaches associated with SM and anxiety. Current treatments and interventions for SM are also discussed, concluding with an exploration of the role of teachers in the classroom when working with a child with SM. The summary of this part provides a recap of the main points covered and suggests the potential use of VR therapy as a treatment option for SM, which is further explored in the following sub-chapter.



The second part of Chapter 2 offers a comprehensive review of existing literature on VR, organized into four sections. The introduction highlights the innovative and technological advancements of VR in mental health, providing a brief historical overview and a basic explanation of what VR entails. The subsequent section discusses the psychotherapeutic approaches of Virtual Reality Exposure Therapy (VRET) and Avatar-based VR Therapy, expanding on their applications and benefits. The chapter also discusses the advantages and disadvantages associated with VR therapy, including considerations related to the use of VR equipment. Furthermore, it explores the potential use of VR in educational settings and the possibilities it offers. The summary of this part synthesizes the main ideas presented, envisioning a future where VR is integrated into classrooms and used as an assistive tool in therapy.

Chapter 3 explains the methodology employed in this thesis, covering aspects such as the interview design, methodological quality, ethical considerations, sampling methods, data collection and analysis techniques. Chapter 4 presents the primary results of the study, including individual interviews with Group 1 (therapists) and a Focus Group 2 (teachers and educators), organized according to the four themes developed from the interviews. Additionally, a section at the end of Chapter 4 highlights additional findings with implications for VR. Chapter 5 discusses the results in relation to the research questions, outlines the limitations of the study, provides an overall conclusion, offers recommendations for future research and practice and concludes with personal reflections.

## CHAPTER 2

### 2.0 LITERATURE REVIEW

#### PART I: Selective Mutism

#### 2.1 Brief History and Introduction

Selective Mutism (SM) was initially considered an oppositional behavioural problem (Muris & Ollendick, 2021b). In 1877, Adolph Kussmaul, a German physician, diagnosed and named SM as *aphasia voluntaria*, meaning ‘voluntary lack of speech’ (Kocovska, 2020, p.1). Kussmaul observed individuals who did not freely speak in public or in specific situations (Hua & Major, 2016). His research on speech disorders included clinical accounts of ‘absence of speech without disruption of speech’, which he associated with hysteria and other neuroses (Driessen et al., 2020, p.330). In 1934, Moritz Tramer, a Swiss psychiatrist, renamed the condition elective mutism, highlighting its global occurrence but limited medical research (Driessen et al., 2020). Tramer emphasized that children with this diagnosis were not aphasic but chose to remain silent (Tramer, 1934 as cited in Driessen et al., 2020). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, APA, 1994) officially renamed the disorder selective mutism in 1994, designating it as an anxiety disorder (Muris & Ollendick, 2021b). The term selective indicates that children’s silence occurs only in specific situations, and the current understanding acknowledges the objective reasons behind children’s behaviour (Muris & Ollendick, 2021a). Kocovska (2020) describes SM as a ‘puzzling and unexpected pattern of behaviour recognized as a real phenomenon, not a child’s voluntary stubbornness or rudeness’ (p.1).

1877	1934	1994	2013
Neurologist	Child psychiatrist	DSM-IV:	DSM-5:
Adolph Kussmaul: <i>Aphasia voluntaria</i>	Moritz Tramer: <i>Elective mutism</i>	<i>Selective mutism</i> classified among disorders first diagnosed in infancy, childhood, or adolescence	<i>Selective mutism</i> classified as an anxiety disorder

Figure 1: Shifts in the understanding of SM over time (Oerbeck et al., 2019)

Research on the origins of SM has been limited, primarily relying on single-case studies with limited information on individuals’ experiences, relationships and lives. However, with the reclassification in the DSM-5 (APA, 2013; Kolvin et al., 1997), there has been a recent

surge of interest in addressing this topic (Kolvin et al., 1997). The DSM-5 (APA, 2013) now classifies SM as an anxiety disorder, defining it as a childhood condition characterized by an inability to communicate in specific situations. Specifically, it is marked by a persistent failure to speak in social settings where speaking is expected (APA, 2013). Oerbeck et al. (2018) define SM as a consistent lack of speech in particular social circumstances where speaking is anticipated, such as in school, despite speaking in other situations, like at home. Shipon-Blum (n.d.a) characterizes SM as a severe and debilitating anxiety disorder in which a person is unable to talk in specific social contexts, such as among classmates at school or with distant relatives. Typically starting in childhood, if left untreated, it can persist into adulthood. However, there is limited research on adult SM (Omdal, 2007). Further investigation involving adults who have recovered from SM or continue to experience it may aid in understanding the condition and support teachers, educators, and therapists in facilitating recovery (Omdal, 2007).

According to Oerbeck et al. (2018), SM is considered relatively uncommon compared to other social anxiety disorders such as panic disorder (PD), agoraphobia or specific phobias (Muris & Ollendick, 2015; Wong, 2010). It has an average prevalence of around 1% in children and is more frequently observed in girls and bilingual individuals. The onset of SM typically occurs before the age of five. However, more recent articles like the one by Muris & Ollendick (2021) report a point prevalence ranging from 0.03% to 1.9% in several countries. Similarly, Rodrigues et al. (2021) identified a limited number of articles and studies (281 articles and 91 studies) examining the assessment and treatment of children with SM. This suggests that SM was and still is relatively unknown. Nevertheless, the recent study by Rodrigues et al. (2021) claims that current prevalence rates, ranging from 0.7% to 2%, indicate that SM is not as uncommon as previously thought. The wide range of prevalence estimates may be attributed to differences in diagnostic methods, sample characteristics such as age range or immigrant status or sampling strategies such as the inclusion of clinical or community samples (Rodrigues et al., 2021).

Furthermore, since children with SM often hesitate to communicate with therapists, a unique approach that ensures early involvement of the child's school and family is essential (Oerbeck et al., 2018). Few research studies have explored the relationship between teachers and children affected by SM. While all children with SM communicate with family members and specific friends, not all are able to communicate with their teachers (Longobardi et al.,

2019). Given the significance of early detection, identification, and intervention in the process of inclusion and integration in the classroom, providing immediate and special attention to children with SM is crucial for teachers (Longobardi et al., 2019). According to findings from Longobardi et al. (2019), the quality of the student-teacher relationship plays a vital role in the development of socio-emotional skills, effort and academic achievement, classroom adaptation and the integration of students with disabilities in preschool and school-age children. Although non-diagnosed and therefore non-referred children with SM may experience some natural recovery or progress, meaning they may outgrow the symptoms, they are likely to continue experiencing SM symptoms in the absence of appropriate therapy (Bergman et al., 2002).

## **2.2 Diagnosis of Selective Mutism**

To diagnose SM, specific criteria must be met. The individual should exhibit persistent failure to speak, lack of language proficiency, including comprehension, extreme shyness and interference with academic, professional and social functioning for at least one month. The diagnosis also requires classifying the individual as having an anxiety disorder (Hua & Major, 2016; Wong, 2010). However, it is important to differentiate SM from other conditions or circumstances that can cause a child's failure to talk. For example, if the lack of speech is due to a lack of understanding or confidence in the spoken language required in the social environment, SM should not be diagnosed. This consideration is particularly relevant for immigrant children who are entering a new school system in a different country. According to the DSM-5 (APA, 2013), SM should not be diagnosed if the disturbance is better explained by embarrassment associated with a communication disorder (e.g., stuttering) or if it occurs exclusively during a pervasive developmental disorder, schizophrenia or any other psychotic disorder (Krysanski, 2003). Moreover, when diagnosing, one must be cautious not to confuse it with another type of disability or even trait, such as shyness. Wong (2010) states that the DSM-IV-TR (4<sup>th</sup> ed., text rev; APA, 2000) underlines that the following conditions must be ruled out: language and speech impairment, a communication issue such as stuttering and pervasive developmental disorders such as schizophrenia or other psychotic disorders, where language and speech impairment may be common. Children with SM typically appear their age and do not have associated mental or physical problems or disorders (Wong, 2010).

Children with SM often resort to non-verbal communication methods, such as gestures, nodding, pulling, pushing or using monosyllabic words instead of speaking (Dow et al., 1995). In addition to the lack of speech, other characteristics associated with SM include excessive shyness, fear of social embarrassment, social isolation and withdrawal, clinging, obsessive traits, negativism, temper tantrums and oppositional behaviour (Dow et al., 1995). While SM is often linked to anxiety disorders, particularly social phobia, it can also co-occur with communication disorders or general medical conditions, such as speech delay, hearing problems or neurological injuries and delays (Dow et al., 1995). The classification of SM has been a topic of debate for numerous years. Some experts consider it an anxiety spectrum condition and a developmental anxiety disorder primarily caused by social anxiety (Dow et al., 1995; Schwartz et al., 2006). However, a small percentage of children may have both SM and another disorder as a dual diagnosis.

In terms of prevalence, females appear to experience SM slightly more often than males, but due to misdiagnoses and undiagnosed cases the true prevalence in the population remains unknown (Krysanski, 2003). SM typically emerges before the age of five but often goes unnoticed until the child starts school, as most children with SM communicate freely with their parents at home, and the inhibition only appears in unfamiliar situations with unknown individuals (Krysanski, 2003). The duration of SM varies, with some children experiencing symptoms for a few months and others for a few years. Children with SM generally appear like typical children, as they do not have major physical or mental disorders (Krysanski, 2003). In a study by Kumpulainen et al. (1998) involving second graders in an elementary school in Finland, more females (61%) than males (39%) were reported to have SM, with the majority of affected children being eight years old. Some stressful events, such as the loss of a significant person, alcoholism at home or a change in school, were cited by some children with SM (Kumpulainen et al., 1998).

### **2.3 The Thin Line Between Shyness and Selective Mutism**

SM is often confused with shyness, which is typically seen as a personality trait rather than a disorder. However, when children with SM do not receive appropriate educational support, it can lead to more severe difficulties such as logophobia (an irrational fear of words) and mutism (Podgórska-Jachnik, 2020). While there is some overlap between SM and shyness, it is important to differentiate between the two and provide suitable support techniques. Understanding a child's behaviour and needs is usually enough for dealing with

shyness, which is often empathic in nature (Cameron, 2009). However, when it comes to treating children with SM, specialized knowledge is required. Cameron (2009) goes on to explain that to minimize the negative impact of anxiety labelled as shyness in a particular culture, efforts can be made to reduce shyness, encourage a child's active participation in home and school life, and provide parents and teachers with appropriate awareness so that early warning signs can be recognized and addressed.

While many children struggle with shyness, the majority of them are able to overcome it with the regular support they receive from parents and teachers. Even highly anxious young children often improve on their own. Most children gradually overcome their shyness as they repeatedly experience the importance of speaking up in front of others, the benefits of expressing themselves, and the drawbacks of remaining quiet and isolated. Regular interactions with peers, teachers and other adults help alleviate their worries and anxieties (Stein & Walker, 2009).

However, the thin line between shyness and SM can become blurred when teachers frequently dismiss a child's behaviour as mere shyness or suggest that they will outgrow SM. Unfortunately, this lack of understanding is problematic because only a few people truly grasp the nature of SM (Shipon-Blum, n.d.a,b). Parents often wait and hope that their child will outgrow SM, but without the proper diagnosis and support, most of these children continue to struggle with SM throughout their lives, lacking typical social interactions and adequate social skills (Shipon-Blum, n.d.a,b). The prevailing misunderstanding of SM among professionals often stems from identifying it with extreme shyness, which does not have the same negative impact on academic and social communication as SM (Shipon-Blum, n.d.b). Extreme shyness is typically not the cause of a child being mute for an extended period. As Wallis (2015) duly states in her article titled *Beyond Shyness*, 'That boy who never speaks in class? Chances are he has an anxiety disorder called selective mutism that demands the one thing he dreads the most: attention' (p.50).

#### **2.4 Characteristics and Causes of Selective Mutism**

According to Wong (2010), four factors appear to influence SM: genetic, temperamental, environmental and developmental factors. Additional factors that can contribute to SM include speech or language impairments, poor family relations and a family history of anxiety disorders.

There has been limited genetic research conducted on SM; however, a study from 2011 involving 106 affected children offers some insight into the genetic factors underlying the disorder. Murray Stein, a psychiatrist at the University of California, San Diego, and his colleagues found preliminary evidence suggesting that a variation in the CNT-NAP2 (Contactin Associated Protein 2) gene increases the risk of SM. The same gene variation was also associated with social anxiety symptoms in a group of 1,028 young adults (Wallis, 2015). The CNT-NAP2 gene is responsible for producing a protein expressed in the developing cortex of the brain and is involved in brain cell connectivity. It is noteworthy that variants of this gene have been linked to autism and specific language impairments, suggesting its potential role in various social and communication disorders. Furthermore, research has indicated that certain neurodevelopmental disorders in the amygdala, a region of the brain, exhibit low excitability tolerance (Cheriyedath, 2019b; Shipon-Blum, n.d.b; Wiederhold & Bouchard, 2014). This means that due to ion fluxes across the plasma membrane, the excitability of a cell allows it to rapidly alter its membrane potential in response to stimuli (He et al., 2023). According to Cheriyedath (2019b), this explains a significant portion of the behavioural issues observed in children with SM, as the amygdala is involved in emotional regulation (Wiederhold & Bouchard, 2014). Cheriyedath (2019b) further explains that the sympathetic nervous system sends signals to the amygdala, which processes these signals to detect potential danger. When confronted with fear, a cascade of events is triggered in the brain to facilitate self-defence. Children with the disorder perceive situations such as school, parties and social gatherings as threatening scenarios, causing their amygdala to perceive these situations as ‘dangerous’ and triggering their anxiety.

Temperament and environment are two crucial factors associated with SM, and they are interconnected. Temperament refers to an individual’s behavioural style, wherein they experience fear or apprehension towards unexpected events, leading them to avoid such situations. Individuals with SM often exhibit characteristics such as severe shyness, awkwardness, anxiety and stress during social interactions. On the other hand, environmental factors, including immigration and the need to speak a second language, may contribute to the development of SM. The acquisition of a second language and having a different primary language spoken at home can be significant factors in the emergence of SM (Viana et al., 2009). Studies have shown that children from multilingual families are more likely to develop SM. An interesting study (Pamba, 2018) suggests that SM is three times more prevalent in multilingual or bilingual children compared to those who only speak one language or children

from migrant households. SM is more commonly observed in ethnic, linguistic minority and migrant populations. However, it is important to note that misdiagnoses may occur when children are going through a transitional period and are not yet familiar with the language of the newly adopted country (Pamba, 2018). Additionally, being bilingual does not always lead to SM. For some children with an anxious temperament, being required to use an unfamiliar language can be distressing. Certain multilingual children may become mute when asked to speak in their second language, while others may develop such a fear of speaking that they refuse to communicate even in their first language. Hence, careful evaluation is necessary when assessing children who speak a second language. If a child's difficulty in communication is primarily due to challenges in understanding or using a second language, a diagnosis of SM should not be made (Child Mind Institute Inc, 2022).

Numerous developmental disorders have been found to be more prevalent in children with SM (Hua & Major, 2016). In a study involving 54 children with SM, 68.5% of them met the criteria for a diagnosis of developmental disorder or delay, while only 13.0% of the control group had similar diagnoses. Cognitive testing revealed that children with SM had lower mean performance intelligence quotients, higher rates of motor delays and higher rates of elimination disorders. Additionally, several studies have indicated that speech and language deficits are contributing factors to SM in these children. Around half of the children with SM met the criteria for one or more communication disorders (Hua & Major, 2016). Furthermore, Hua & Major (2016) suggest that apart from language disorders, other neurodevelopmental factors have been proposed to contribute to the development of SM. In the same study, abnormal efferent auditory pathways were observed in 71% of children with SM compared to only 16% of control children, indicating that the perception of one's own voice in children with SM might be influenced by abnormal auditory processing function.

According to researchers, there are several theories regarding the causes of SM. These theories include the psychodynamic theory, behavioural theory, associations with social phobia and social anxiety, the family systems perspective, dissociative identity disorder and the response to trauma (Wong, 2010). Within these theories, the psychodynamic approach has been considered a plausible explanation, as it historically suggested that SM results from unresolved inner conflicts or traumatic experiences in early childhood (Camposano, 2011). Psychodynamic theorists propose that SM is a protective strategy employed by children to avoid expressing their feelings, often directed towards their parents, particularly the mother



(Camposano, 2011). In this view, SM is seen as a coping mechanism for the child's anger and anxiety, and as a means of assigning blame to the parents (Wong, 2010). The primary goal of the therapist following the psychodynamic approach is to thoroughly understand the underlying cause of the mutism rather than directly addressing it. This is accomplished through a careful examination of the child's early psychosexual development and the mother-child relationship, followed by addressing the concerns directly with the child (Camposano, 2011). However, it is worth noting that the psychodynamic theory is gradually losing credibility due to a lack of supporting evidence (Wong, 2010).

According to Wong (2010), behavioural theory offers an alternative explanation for SM, utilizing negatively rewarded learning. In this theory, the failure to speak is seen as a learned skill for managing one's environment in response to various social cues. Several behavioural scientists suggest that SM is an adaptive rather than a negative reaction in children, where they appear frozen and motionless due to behavioural constraints. SM is considered a protective mechanism, or an unconscious form of behavioural repression based on language (Wong, 2010). In recent times, SM has been examined in the context of social phobia. Many individuals with SM do not understand why they cannot speak, which aligns with the lack of cognitive thought patterns typically found in phobias. This inability to explain their reaction, which they have no control over, is consistent with the characteristics of social phobia (Hipolito & Johnson, 2021). Researchers suggest that SM is a type of social anxiety disorder characterized by severe social anxiety (Hipolito & Johnson, 2021). This belief is supported by studies showing high rates of SM in families with social phobia, and similarities in avoidance behaviours between adults with social anxiety and children with SM (Hipolito & Johnson, 2021). In this approach, persistent reluctance to communicate is seen as a manifestation of anxiety.

The family systems model, as explained by Koskela et al. (2020), offers another perspective on SM. This approach suggests that many children develop 'neurotic' attachments to their parents, primarily the mother. Parents often exhibit a strong desire to control their children, which is accompanied by feelings of dependency and uncertainty. Consequently, children form unhealthy emotional attachments characterized by intense interdependence, fear and suspicion of the outside world, fear of strangers, difficulties with language and assimilation and suppression of speech. Moreover, other researchers have found that when both parents have a mental illness, the likelihood of having a child with SM

significantly increases. Parents of children with SM have higher rates of various types of mental illnesses, with mothers often having a wider range of diagnoses compared to fathers. It appears that SM in children is associated with several parental psychological issues, suggesting a shared aetiology among mental disorders (Koskela et al., 2020).

Dissociative identity disorder is another potential explanation for SM, as mentioned by Wong (2010). This disorder is a persistent post-traumatic syndrome associated with ongoing negative childhood experiences such as child abuse and neglect (Sar, 2016). Clinically, it is characterized by significant disruptions in identity caused by distinct alternate personality states that irregularly take control of an individual (Sar, 2016). Some researchers argue that having multiple identities prevented a 15-year-old child with SM from communicating with others due to fear of being noticed and revealing information about witnessed killings while assuming other identities (Wong, 2010). This particular case was unique in that the individual had experienced SM for several years and was older than the typical onset age, which is usually before the age of five (Wong, 2010).

Furthermore, SM has been associated with posttraumatic stress disorder (PTSD), which may arise from dissociative symptoms. Although it is an uncommon explanation, there have been cases of children who have suffered extreme abuse and trauma that fit the criteria for SM. Intrusive thoughts, distressing play, trauma-related dreams and flashbacks are common indicators of PTSD in children. In such cases, avoidance symptoms, including avoiding thoughts or sensations associated with the trauma, can result in selective amnesia, decreased interest in activities and loss of previously acquired developmental skills, such as bowel and bladder control and communication abilities (Wong, 2010).

In addition, Wong (2010) highlights a different developmental psychopathology approach that suggests a combination of environmental circumstances and potential anxious genetic traits in children with SM, resulting in a comprehensive hypothesis for SM. According to this theory, children with early speech or language difficulties, who were previously unaware of their impairments, may face teasing from other children who possess adequate language skills. This teasing initiates a cycle of avoidance, ultimately leading to mutism in children with neurotic traits (Wong, 2010).

## 2.5 Current Therapy and Intervention for Selective Mutism

The two main treatment approaches for SM are non-medicated and medicated treatments, as discussed by Wong (2010). Non-medicated treatments often involve psychotherapy, such as psychodynamic therapy, behavioural therapy and family therapy. Medication-based treatments, specifically selective inhibitors, have also shown effectiveness in helping with mutism and anxiety. It is important to note that due to the rarity of the disorder and limited data based mostly on case reports, generalizing treatment research for SM is challenging. Currently, no studies have compared the outcomes of different medications, but progress is being made in this area (Wong, 2010).

Behaviour therapy is a commonly used approach that considers the child's environment and symptoms. It employs various specific strategies that have demonstrated substantial effectiveness, including reinforcement, stimulus fading, token procedures, shaping or prompting, behaviour modification, self-modelling and response initiation. It is crucial to address the verbal and non-verbal negative reinforcement that sustains SM's behaviour at the beginning of treatment. An example of negative reinforcement is when teachers withdraw opportunities for children to speak, which may encourage SM (Wong, 2010). As SM tends to worsen with age and individuals develop a habit of avoiding situations that require communication, older children and teenagers may require more intensive behavioural treatment (Cheriyedath, 2019a). Self-modelling has been recognized as a highly beneficial and cost-effective intervention for children with SM (Cohan et al., 2006). This strategy involves watching edited videotapes in which the child observes themselves engaging in correct behaviour. The child sees themselves being rewarded for speaking clearly and loudly in front of the class, which serves as motivation. Receiving rewards for excellent speaking behaviour is an example of self-reinforcement, gradually reducing anxiety-inducing stimuli. To gradually increase communication, new peers can be introduced in situations where the individual is likely to speak. The spacing effect, which involves spacing out content rather than providing a single new stimulus, is used to improve context-specific communication (Wong, 2010).

Family therapy is another therapeutic approach that holds significant importance when familial factors contribute to the development and persistence of SM, as mentioned by Wong (2010). Involving the child's family in the counselling process is highly valuable for their recovery. Cooperation and understanding among parents and siblings can help the child

overcome anxiety and avoidance behaviours (Wong, 2010). Since SM is typically diagnosed when a child enters school age, collaboration with school professionals is also crucial in the healing process. Teachers and guidance counsellors should receive training on SM as they play a critical role in preventing negative reinforcement behaviours (Wong, 2010).

Some psycho-dynamic case studies have been conducted on the treatment of children with SM (Cohan et al., 2006). These perspectives suggest that SM is a symptom of unresolved intra-psychic conflicts, such as delayed sadness, parental hostility, stranger fear, poor interactions and gender anxiety. Treatment approaches may involve procedures aimed at understanding the significance of the child's mutism and its roots in the subconscious mind (Cohan et al., 2006). The goal of psycho-dynamic therapy is to empower children to discuss their underlying difficulties so that they no longer feel compelled to remain silent. Play therapy is often utilized, which involves the unstructured use of games and toys to help the child explore and express their feelings. Similarly, art therapy involves utilizing various art materials to create visual representations of a child's thoughts and emotions. In psycho-dynamic treatment, the therapist does not directly address the symptoms of SM but focuses on how the child uses play materials to convey the symbolic meaning of mutism (Cohan et al., 2006).

The Selective Mutism Questionnaire (SMQ) and the School Speech Questionnaire (SSQ) are widely used standardized assessment tools for evaluating SM symptoms. They were developed to provide a quantitative evaluation of the severity, degree, and impairment of SM. The SMQ is used by parents and contains subscales for assessing speech in three different contexts: school, home, and public. On the other hand, school psychologists use the SSQ, which specifically measures speech in the school context. Research supports the use of these questionnaires in identifying children with SM and assessing the severity of their condition and treatment outcomes (Oerbeck et al., 2020).

Many children with SM have shown resistance to therapy, such as being unable to speak to or face the therapist, which has led to SM being seen as a problematic condition (Krysanski, 2003). This resistance may be partly attributed to the fact that children with SM often face rejection when attempting to communicate, which serves as negative reinforcement for their behaviour (Krysanski, 2003). For instance, when a teacher asks a child to read aloud or answer a question and the child does not respond, the teacher may perceive it as stubbornness, rudeness or unwillingness to participate, inadvertently reinforcing the child's

mutism (Krysanski, 2003). Simultaneously, these children are often praised for their nonverbal communication abilities. For example, if a child nods in response to a question or writes down their answer instead of speaking, the teacher provides positive feedback, further reinforcing the child's silence (Krysanski, 2003). It appears that the longer mutism persists, the stronger it becomes and the more challenging it is to overcome (Krysanski, 2003), making treatment more difficult as SM persists (Pamba, 2018).

Another common misconception is the assumption that children will naturally outgrow SM, leading to underreporting of the condition. The majority of children with SM referred to primary care do not receive proper diagnosis or treatment recommendations (Cohan et al., 2006). Generally, SM has been identified as particularly resistant to intervention, partially due to factors such as parents adjusting their expectations regarding verbal communication and peers advocating for children with SM. SM is a relatively rare disorder, affecting only 1-2% of the population, which has made extensive research and evaluation of therapies challenging (Zakszeski & DuPaul, 2017).

## **2.6 Teachers' Role in the Classroom**

Teachers in the classroom play a crucial role in the early identification and treatment of students with SM. It is important for teachers to educate themselves about the challenges associated with this anxiety-based disorder in order to effectively identify students and collaborate with professionals (Welsh, 2017). When teachers are unaware of the signs, symptoms, available treatments and proactive classroom-based interventions, students with SM may go unnoticed. In fact, without a thorough understanding of SM, teachers may unknowingly reinforce mutism in the classroom. Therefore, teachers should be equipped with knowledge about SM to connect students and families with appropriate resources (Welsh, 2017). Teachers who are aware of the behaviours associated with SM are more likely to intervene and support their students early on (Welsh, 2017). For instance, they should be alert to signs such as refusal to speak when called upon in class, inconsistency in communication with adults and peers and avoidance of speaking in group settings (Welsh, 2017).

According to Kovac and Furr (2019), teachers play an essential role in identifying children exhibiting symptoms of SM, which allows for appropriate referrals to be made. The appearance and severity of symptoms in children with SM may vary, but they often exhibit silent behaviour when they are uncomfortable, particularly in the classroom. It is important not to dismiss these children as simply being shy. Early detection of symptoms in children

and referral to qualified professionals for treatment can significantly improve outcomes (Kovac & Furr, 2019). Teachers can also integrate evidence-based treatment and support strategies within the classroom. They can utilize behavioural strategies that have been proven effective in reducing SM behaviours and anxiety in children and adolescents. Teachers are instrumental in a child's overall success and play a vital role in helping children overcome their periods of silence (Kovac & Furr, 2019).

Teachers play a crucial role in the assessment and intervention of children with SM, considering that the classroom environment is where this disorder becomes more prominent and severe (Martinez et al., 2015). However, despite the importance of involving teachers in SM assessment, there is currently a lack of teacher-reported measures specific to SM (Martinez et al., 2015). Assessment of SM primarily relies on measures reported by parents, as well as observations and interviews conducted by clinicians. Providing teachers with opportunities for professional development and involving them in the identification and assessment of SM can lead to earlier interventions and treatment for students with SM (Martinez et al., 2015). It is crucial to train teachers, share information with staff and clearly define their roles in identifying SM within a collaborative multi-modal approach (White & Bond, 2022).

In a case study by Kirkby (1995), a school-based behavioural intervention was implemented for a child with SM, involving collaboration between the teacher, parents and the child's counsellor. The study demonstrated how a skilled teacher could use appropriate strategies to modify established behaviour and promote student participation in the curriculum. The success of the intervention was attributed to the teacher's skills, dedication to behavioural change and the involvement and support of the parents. This study highlighted the significant roles of adults in the child's life, particularly the teacher (Kirkby, 1995). Both parents and teachers play important roles in a child's learning. A collaborative, multi-modal approach that emphasizes the involvement of parents, teachers, therapists, psychologists and clinicians is needed to plan appropriate interventions (White & Bond, 2022).

Thus, effective home-school communication is crucial for success in the classroom (White et al., 2022). Parents often have the most exposure to the child's verbal communication, and their insights can provide valuable information on what might encourage the child to communicate verbally in settings outside of the home. Ongoing efforts should focus on developing, enhancing and evaluating treatment plans for SM, particularly school-based

interventions that effectively address speech and anxiety, leading to improved adaptive development and academic performance for children with SM (Zaleski & DuPaul, 2017).

## **2.7 Bronfenbrenner's Theory of Human Development**

According to Bronfenbrenner and Morris (2006), the development and socialization of children are influenced by various environments and systems surrounding them. The Ecological Systems Theory proposes different levels of influence, starting with the microsystem, which includes the child's immediate family, school and peer groups. This level is considered the most influential and immediate environmental setting (Bronfenbrenner & Morris, 2006). The mesosystem is closely connected to the microsystem and involves relationships that extend beyond the school, such as interactions with teachers, family friends, club members and participation in various activities. Two additional systems, the exosystem and the macrosystem, encompass cultural traditions, socio-economic status, services, neighbours and society at large. The chronosystem represents the dimension of time and how it influences an individual's development and growth.

To implement Bronfenbrenner's theory in classroom approaches, it is important to consider the five systems and implement their underlying principles. Firstly, teachers and parents should maintain open and effective communication and collaborate for the benefit of the child. Teachers should demonstrate understanding of the child's background and acceptance of differences, fostering a positive classroom environment that extends to all students. Positive relationships between teachers, parents and the child can positively impact the child's development, whereas negative relationships can have harmful effects. Additionally, the child also bears responsibility by actively engaging in learning, collaborating with peers, feeling welcomed and creating meaningful experiences together (Evans, 2020).

Applying Bronfenbrenner's ecological model (1979) to SM, we recognize the influence of the microsystem, mesosystem, exosystem and macrosystem. This model highlights the correlation between these systems and the impact of ecological transitions on an individual's role (Kovac, 2018). When identifying signs of SM, we first examine the individual and explore all possible factors. If no issues are found within the child, we then consider the parents. If difficulties persist and cannot be attributed to the family, we turn our attention to the school, society and environment. It is evident that all these systems are interconnected. Therefore, child development is a complex system influenced by multiple levels of the

environment, ranging from personal family and school settings to broader societal values, laws and norms (Bronfenbrenner & Morris, 2006).

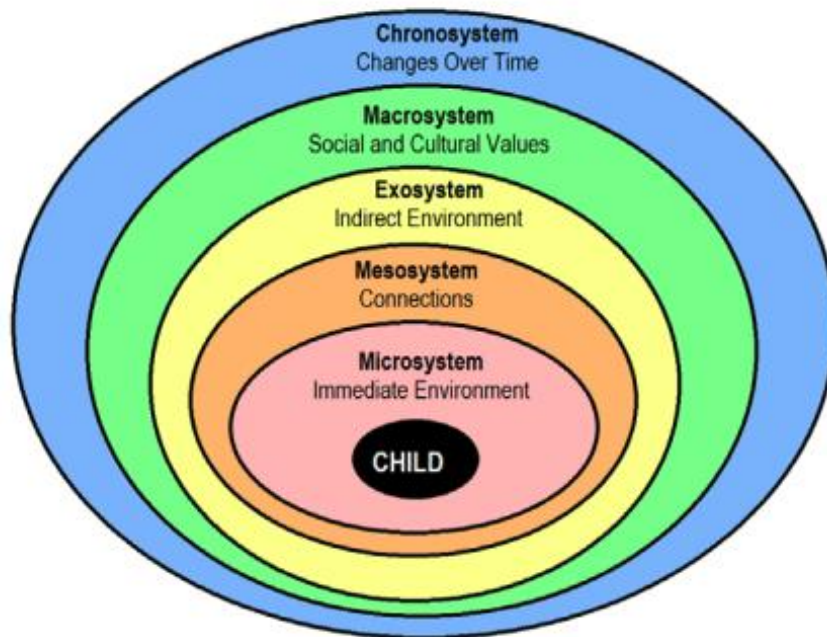


Figure 1: Bronfenbrenner's Ecological System (Watson, 2017)

## 2.8 Summary of Selective Mutism

Researchers and clinicians in psychology have been perplexed by the dramatic symptoms of SM for nearly 150 years (Muris & Ollendick, 2021a). SM is closely connected to anxiety, particularly social anxiety, which led to its recent reclassification as an anxiety disorder. The characteristic non-speaking behaviour of children with SM is now understood to be motivated by fear and apprehension, primarily in specific social situations (Muris & Ollendick, 2021a).

When assessing and evaluating a newly referred child with SM, therapists rely on observations of the child's language, social interaction abilities and behaviour during the encounter. It is important to approach and observe a child with SM unobtrusively, as they are likely to be hypersensitive to attempts to observe them or coerce them into speaking (Kersner & Wright, 2012). Therapists need to be adaptable and willing to switch to different delivery methods, although it is important not to make too many changes too quickly. Losing the ability to communicate can have negative effects on both the child and the family. Early intervention by a speech and language therapist should focus on helping the family and child cope with their communication difficulties.



Overall findings by Dieu (2017) indicate that the majority of SM interventions are behavioural or cognitive-behavioural in nature. These approaches currently dominate the field, but there is still room for improvement and exploration of new areas in SM treatment. The effectiveness of interventions may also be influenced by the therapist's relationship with the individual. Future studies should investigate whether enhancing relationships within the family, between students and teachers, and among peers can reduce perceived stress or anxiety and improve SM (Dieu, 2017).

All things considered, managing SM has been challenging, and various treatment methods have been used with some degree of success (Jackson et al., 2005). Ma & Monga (2020) emphasize the need for greater knowledge of the most effective therapeutic approaches and crucial supports to help children with SM improve their functioning gradually. Innovative therapeutic methods that employ new and unconventional techniques have reported fewer negative outcomes (Hoeve, 2022). Hoeve (2022) highlights the increasing popularity of technology in SM treatment, such as mobile applications and VR. The search for more effective treatments presents an opportunity to incorporate alternative therapeutic approaches like VR therapy.

## **PART II: Virtual Reality**

### **2.9 Brief History and Introduction**

Virtual Reality (VR) broadly refers to the creation of artificial digital environments using technology, such as the Internet. It involves a multi-sensory, computer-generated environment that users can experience using various technological devices, such as a head-mounted display (HMD) or an audio-visual system in an automated virtual environment. Depending on the technology utilized, the VR environment can be either two-dimensional (2D) or, more commonly, three-dimensional (3D). Users can interact with the environment using devices like a joystick, haptic device or tracking system, enabling the environment to adapt to their actions (David et al., 2013). VR can be categorized into five types: simulation-based, avatar-image-based, projector-based, desktop-based and true immersive-based VR (Muthu & Vijayakumari, 2009). What sets VR apart from other forms of human-computer interaction is the user's experience of presence and immersion, where the virtual environment is perceived as real and unfiltered, even if the user is aware that it is computer-generated (David et al., 2013).

VR gaming emerged as early as the 1990s with virtuality arcade machines introduced by companies like SEGA, Nintendo, Google, Sony, Samsung and Facebook, among others (Barnard, 2022). By 2016, numerous businesses began developing VR products, leading to wider accessibility for the general public. The entertainment potential of VR is evident, with video games and immersive movies being notable examples. As a result, the entertainment industry has become a multi-billion dollar business, driven by consumer demand for novel experiences. However, VR holds significant value beyond entertainment, finding applications in fields such as architecture, sports, the arts and medicine (Virtual Reality Society, 2017). Creating a virtual environment is a technically complex endeavour that takes into account human perception and cognition, employing a diverse range of technologies to achieve its objectives. It can serve both serious and recreational purposes. Moreover, VR technology is becoming increasingly accessible and affordable. With the vast potential of VR, we can expect to witness further ground-breaking applications in the future, potentially leading to a fundamental transformation in our work and communication practices (Virtual Reality Society, 2017).

## **2.10 How Virtual Reality is Used in Therapy**

Over the past two decades, there has been an increasing interest in utilizing technological advancements in the field of clinical psychology and psychotherapy. Various innovative approaches that incorporate technology, such as computer-assisted treatment, internet-based intervention, cognitive bias modification and Virtual Reality Exposure Therapy (VRET), are being widely adopted (David et al., 2013). While there is a lack of sufficient credible randomized controlled studies specifically evaluating the efficacy of these new interventions for individuals with SM, the situation is rapidly improving (Freeman et al., 2017).

In my search for studies and articles on the use of VR as therapy for SM, I utilized search engines such as Eric, Google Scholar, PubMed, PsychInfo and Scopus. In the Eric database, I was unable to find sources specifically addressing VR as therapy for SM. However, I did come across an article that discussed the potential of VR in counselling, along with studies involving VR used in the context of Autism, trauma, Down Syndrome, Cerebral Palsy, public speaking anxiety, PD, aphasia and selective attention. In Google Scholar, I found three sources that discussed VRET, but the majority of articles focused on mental health, anxiety disorders (excluding SM), public speaking, social phobia and other psychological disorders. According to Maria et al. (2021), six studies from 1992-2019 met the criteria on Google

Scholar for anxiety disorders and VR, but none specifically mentioned SM. In Scopus and PsychInfo, I did not come across any sources discussing VR and SM, while PubMed had only one article referring to VR exposure therapy for SM, with many others addressing medical and psychological disorders. Nevertheless, these findings provide encouragement to explore the potential of using VR therapy for early intervention in children with SM and for the treatment of adults who continue to experience the effects of SM.

VR technology offers patients the opportunity to confront their fears in a realistic simulation, enabling them to develop more adaptive responses to the situations they encounter in their daily lives. By utilizing VR, therapists can gain real-time access to a patient's negative automatic thoughts and irrational core beliefs, which can then be challenged and restructured while the patient is immersed in the virtual world and exposed to phobic stimuli. Researchers have also started exploring the application of VR-based therapies for children with anxiety disorders, although there is still a limited number of studies evaluating its effectiveness in this population (David et al., 2013).

The advancements in VR hardware and software in recent years have been remarkable. VR technology is no longer confined to specialized laboratories but is now making its way into the field of mental health. Through VR and computer-generated interactive environments, individuals can confront challenging situations and learn evidence-based psychological therapy techniques to overcome their issues (Freeman et al., 2017). While traditional cognitive behavioural therapy (CBT) is highly effective for many anxiety disorders, there are patients who do not respond as well to therapy. Additionally, CBT treatments may only provide short-term solutions and may not fully address the underlying root causes of the problem, particularly in cases where individuals refuse or struggle to speak (Segelcke, 2023). According to psychologist Claire Prendergast from the University of Oslo, these methods sometimes fail to address the core issues and only scratch the surface (Segelcke, 2023). Furthermore, individuals with anxiety disorders may feel uncomfortable speaking to therapists or lack self-confidence in communication. Given the limited accessibility and reluctance to engage in traditional treatments, it becomes increasingly important to explore alternative approaches. Integrating VR into psychological treatment plans represents one of the newest and most promising approaches in this regard (David et al., 2013).

### *2.10.1 Virtual Reality Exposure Therapy*

VR also serves as a valuable tool for facilitating the generalization of realistic environments through Virtual Reality Exposure Therapy (VRET). By immersing patients in a lifelike simulation of their feared stimuli, VR technology enables them to develop greater adaptability in their responses to real-life situations they encounter (David et al., 2013). VRET is a psychotherapeutic approach that utilizes virtual situations to treat individuals with anxiety disorders. The VRET system is specifically designed to create simulated settings that provide patients, particularly children, with a virtual experience (Tan et al., 2022). This approach allows for the construction of a virtual environment that acts as an extension of the exposure component in behavioural therapy. In this therapy, patients are digitally exposed to the feared situation as part of the treatment process to overcome their anxiety (Tan et al., 2022). VRET is often employed as an extension of CBT and is an appealing treatment method due to its ability to conveniently incorporate in-session exposure with immediate access to controllable fear stimuli. This is achieved by creating a virtual audience and presenting the feared stimuli to the patient in an animated format (Kahlon et al., 2019).

Exposure therapy is an effective approach for treating anxiety disorders by gradually exposing patients to real-life situations that they find distressing. However, there are challenges associated with visualization during imaging exposure and concerns about losing control during in vivo exposure. VRET can address these challenges. VRET is based on in vivo exposure treatment, where anxiety is addressed in a virtual environment that realistically responds to the user's natural head and body movements (Tan et al., 2022).

In a study conducted in Singapore, VRET was programmed to simulate a school and classroom environment similar to a typical Singapore school, where 24 children with SM faced challenging situations (Tan et al., 2022). The study yielded positive results, with parents reporting that VRET was appropriate, acceptable and effective in addressing their children's concerns. Three-quarters of the parents stated that VRET had benefited their child. The majority of the children found VRET enjoyable, engaging and easy to use, with half expressing a desire to use it again.

VR-based therapy, although not a novel form of treatment, is rapidly evolving technologically, enabling therapists and clinicians to address known processes of change in a more environmentally and cost-effective manner (David et al., 2013). VRET has shown

significant positive effects on patients as an alternative to in vivo therapy and is commonly used as an extension of CBT (Hoeve, 2022).

### ***2.10.2 Avatar-based Virtual Reality Therapy***

Advancements in VR technology present an exciting opportunity to utilize avatars, virtual representations of individuals, as therapeutic tools in the treatment of Social Anxiety Disorders (SAD) (Wiederhold & Bouchard, 2014). Avatar-based therapies, similar to play therapy, offer a creative outlet for expression and serve as a means of communication between the therapist and the client during sessions (Falconer et al., 2019).

A study conducted in the United Kingdom examined an avatar-based program called ProReal, which was tested with adults and secondary school students. ProReal is a highly immersive 3D animated environment that creates engaging scenes reflecting users' emotions and thoughts through simple perspective shifting and advanced camera features. Originally developed as a learning tool, ProReal has also been used to support mental health treatment (ProReal, 2022). The study revealed that participants in both groups appreciated the ability to instill avatars with inner voices and emotions, as well as assume active postures, which facilitated the expression of their feelings and understanding of situations. The use of ProReal allowed participants to rely less on verbal communication compared to traditional therapy sessions. One participant found this particularly valuable, as it allowed him to visualize and convey his experiences without solely relying on verbal expression. Overall, the avatar-based program was deemed accessible and supportive of effective communication (Falconer et al., 2019). Avatar-based tools empower learners to create visual representations of themselves, enabling exploration and manipulation of objects, structures, and metaphorical representations of ideas. These technologies enhance the learning experience by increasing the realism of representation, providing immediate user control, and fostering a sense of presence, ultimately promoting higher levels of active learner engagement (Parvin Begum in ProReal, 2022).

## **2.11 What are the Potentials of Virtual Reality in Therapy?**

### ***2.11.1 Advantages***

New technologies, such as VR, have the potential to enhance the effectiveness and practicality of traditional psychotherapy approaches. They offer opportunities to improve the efficacy of therapies in controlled settings and their applicability in real clinical practice.

Additionally, these technologies can increase the efficiency and accessibility of traditional therapies, making them more practical for a wider range of individuals (David et al., 2013).

One area where VR therapy shows promise is in reducing the cost of psychological therapies while promoting ecological clinical research (David et al., 2013). By manipulating VR, therapists can create environments and tasks that closely resemble real-life situations, enhancing the ecological validity of the therapy. This is particularly important in treating anxiety, as fears are often triggered by everyday activities and environments (Donnelly et al., 2021). Another advantage of VR therapy is that it provides patients with the freedom to explore different treatment options without the fear of provoking further social anxiety, unlike real-life settings where switching therapists may be perceived as socially challenging (Ashton, 2016).

VR offers a unique ability to create a controlled yet natural environment, customized to the specific needs of each patient, providing solutions that would otherwise be costly or ineffective. By combining VR with VRET, these limitations can be overcome by immersing the patient in a virtual world that gradually guides them through real-life challenges. Importantly, the skills learned in the virtual environment can be transferred to real-life situations, making VR a valuable complement to traditional psychotherapy (David et al., 2013).

Social anxiety is a complex and highly individual mental health issue, and developing universally applicable exposure treatments is challenging. However, VR provides the advantage of being able to replicate any situation that triggers social anxiety, allowing for continuous exposure and progression during therapy (Ashton, 2016). Moreover, VR empowers individuals to self-manage their treatment and has the potential to replace traditional therapies that may not have long-lasting effects (Ashton, 2016).

According to Rothbaum (2009), VR is primarily utilized in training and holds significant potential, particularly with children, regardless of their location. As technology continues to advance, VR and related technologies can be implemented and accessed via the Internet, such as through the emerging concept of the Metaverse on platforms like Facebook. The Metaverse refers to the integration of the digital and physical worlds, economies, social life, identities and assets. It encompasses various technologies including high-speed communication networks, the Internet of Things (IoT), augmented reality (AR), VR, cloud

computing, edge computing, blockchain and artificial intelligence (AI) (Bhugaonkar et al., 2022).

VR can overcome barriers for individuals who have difficulties envisioning or visualizing (Society of Clinical Psychology, 2017). Traditional in vivo exposures, which involve directly facing feared objects or situations in real life, can be costly. However, VR techniques offer a more cost-effective approach and allow for exposures that may be impossible to perform in vivo (Maples-Keller et al., 2017). Furthermore, VRET allows for the customization of exposures in ways that would not be feasible in vivo. Therapists can adjust the intensity and specific characteristics of the virtual environment to align with the patient's unique fears and optimize the pace of exposures based on individual needs. During the exposure process, the use of VR maintains confidentiality, which may not guarantee in vivo exposures. The findings indicate that patients generally express satisfaction with VR-based therapy and may find it more acceptable compared to traditional techniques (Maples-Keller et al., 2017).

A study in Germany by Hildebrand et al. (2022), highlighted the challenges of long waiting periods for psychotherapy among patients with SAD. VR can help address this issue by enabling therapists to treat more patients in fewer sessions, resulting in shorter waiting times. The successful use of VR exposure treatment for SAD in this study demonstrated its potential to reduce social anxiety and improve the overall quality of life for patients (Hildebrand et al., 2022). Moreover, VR treatment allows patients to discontinue therapy without the need for ongoing assistance from a psychotherapist. This can lower the barrier for individuals seeking therapeutic help and reduce the organizational efforts and expenses associated with exposure-based therapies. According to Dechsling et al. (2021), the integration of cutting-edge technologies such as VR holds great potential for future interventions due to several reasons; (a) VR can reduce unwelcome treatment variation between organizations and users because VR approaches can be standardized, (b) using VR can add more flexibility for customizing intervention environments and scenarios to meet individual needs, which is a big step toward more personalized and targeted treatments and (c) VR interventions have a significant investment efficiency, can be less resource-demanding than conventional treatments, and are particularly well suited for highly intensive interventions.

### ***2.11.2 Disadvantages***

The disadvantages of VR, although limited, should also be acknowledged. In the past, the technology and associated costs made widespread use of VR in healthcare settings nearly impossible. Setting up VR systems was challenging, expensive and often unreliable, prone to malfunctions and other issues (Maples-Keller et al., 2017). While technology has advanced, reducing the occurrence of malfunctions and improving user-friendliness, the possibility of technological failures remains a potential drawback in clinical practice. Another potential concern is the need for extensive training and practice with VR before its clinical use to effectively troubleshoot difficulties and ensure competent clinical treatment (Maples-Keller et al., 2017).

There are also negative psychological effects of long-term VR use that should be considered. These can include a loss of spatial awareness, dizziness, disorientation and nausea. Poor hand-eye coordination, difficulty focusing and eye strain can affect depth perception (Gov.UK, 2020). Medical studies have shown that prolonged VR gameplay can lead to symptoms of dissociation, isolation, increased social anxiety and addiction. A 2018 experiment conducted by Oxford University researchers found that participants experienced mild but significant increases in dissociative symptoms, such as a sense of time standing still or everything feeling unreal. However, these symptoms did not appear to persist for long periods. Nonetheless, it is concerning that prolonged VR use may worsen dissociation in individuals who are already prone to such experiences (Noone, 2022). Another study by researchers from the University of Bonn suggests that even moderate VR use can lead to minimal dissociative effects (Noone, 2022). While some claims suggest a link between VR and the emergence of violent behaviour, there is limited scientific evidence supporting this claim. According to one study, there is practically no correlation between the medium and violent behaviour (Noone, 2022). Overall, it is evident that VR can be beneficial for therapy, but it should be used with great care by therapists, teachers or users, and implemented for its therapeutic benefits.

### **2.12 Virtual Reality in the Classroom**

There are numerous possibilities for using VR to provide effective therapy for children with SM or anxiety disorders (Repetto & Riva, 2011; Wiederhold & Bouchard, 2014). VR can serve as an intervention program or a tool for teachers to incorporate technology in the classroom and teach various subjects (Utami et al., 2021; Akgün & Atici, 2022; Gungor et al.,



2022). Through this approach, children with SM can participate as avatars in the virtual platform and experience full inclusion. A reputable school that welcomes students with special needs should create an ideal learning environment and nurturing surroundings, and ensure the well-being of all students, both in the classroom and throughout the school (Johnsen, 2014). Research has shown the potential benefits of using online virtual worlds and video games as learning tools for children. The game mechanics employed in these technologies enhance user engagement and can foster behavioural change, problem-solving skills and conceptual learning (Araiza-Alba et al., 2022).

Over the past decade, VR, among other computer technologies, has gained popularity in schools. VR technology is now being introduced into classrooms in the United States and other developed countries (Yount, n.d.). It creates an active learning environment where students can build knowledge through active participation, collaboration, exploration and enjoyable learning experiences, leading to increased engagement and attention during the learning process (Araiza-Alba et al., 2022). However, it is evident that teacher training is crucial for VR to be an effective tool in the classroom. Teachers need to assess how new technologies like VR influence and can be influenced by their pedagogical and content knowledge before integrating them into the classroom. Based on their understanding of technologically mediated pedagogical content, they require support and training to identify effective practices (Trust et al., 2021).

In a study by Trust et al. (2021), teachers participated in a survey as part of augmented reality (AR), VR, and 3-Dimensional courses in education. Interestingly, their findings revealed that 80% of the teachers wanted to learn about these new technologies, 78% aimed to broaden their professional knowledge and 75% were interested in acquiring new teaching strategies. Similarly, 72% of the teachers wanted to enhance the student learning experience. Trust et al. (2021) highlight the scarcity of research on teachers' preferences, background knowledge and concerns regarding these technologies. Considering the high percentage of teachers expressing interest in this study, it may indicate that teachers indeed have the desire to grow professionally, expand their IT skills and utilize cutting-edge technology like VR to enhance student learning and progress.

While VR cannot replace in-person interaction, it has the potential to enable the majority of students to engage with educational concepts and advance towards more challenging objectives (Muthu & Vijayakumari, 2009). Ainge (1997) emphasizes that VR not only

enhances spatial thinking and motivates learners, but also offers a unique level of interaction tailored to each individual. Research suggests that children learn better when they actively explore virtual scenes using their own strategies, rather than taking a passive role in the classroom (Ainge, 1997). VR systems can present information repeatedly through various techniques and channels (Araiza-Alba et al., 2022). With its strong auditory and visual components, including nonverbal auditory stimuli, VR provides a multi-sensory learning experience that conventional teaching methods lack. By presenting information through different senses, teachers can address each student's preferred learning style and enhance understanding and retention (Araiza-Alba et al., 2022). The implications of using VR for children with SM and/or anxiety are significant, as it provides a safe and comfortable environment for communication with teachers and peers. VR allows us to simulate situations that are otherwise impossible to recreate in a classroom, such as visiting historical sites, performing complex procedures or conducting experiments without physical tools. Applying knowledge is key to effective learning, and VR offers a global platform for advancing education (Pennington, 2022).

In a study conducted by Gungor et al. (2022) with undergraduate students during a chemistry lab lesson, the use of a VR application had a generally positive impact on students' self-efficacy, self-concept, interest and anxiety. Students who had previously expressed anxiety about participating in the lab work reported reduced anxiety levels after using VR. Students commented that the experience exceeded their expectations and found it enjoyable and interesting saying things like, 'I think it was even more fun than expected', 'it was better than I thought', and 'it was nice and interesting' (p.6-7). Another study by Hoeve (2022) involved primary school children with SM participating in VR lessons where video recordings of their interactions with the avatar teacher were played back to them. The repeated exposure to these recordings facilitated desensitization, leading to increased verbalization and goal attainment for the children with SM.

According to Khukalenko et al. (2022), VR for learning exhibits five main characteristics: (a) it provides hands-on learning through visually stunning simulations, (b) it allows users to experience scenarios that may be dangerous, expensive, difficult or impossible to experience in real life (such as manipulating a solar system), (c) it creates a sense of presence and immersion for users, (d) it facilitates visualization of abstract concepts and (e) it supports pedagogically-appropriate, student-centred learning in independent or socially-rich contexts.

In the classroom, there are tools available such as Google Expeditions and FotonVR. Google Expeditions is a VR teaching tool that enables teachers and students to participate in online VR trips to various locations worldwide. It allows teachers to take their classes on virtual field trips to art galleries, museums and other incredible destinations using mobile devices and VR viewers. On the other hand, FotonVR is a large-scale VR platform with an extensive content library designed to enhance learning experiences for future scientists. It brings learning into the real world, providing an immersive educational experience for students (FotonVR, 2018). VR can serve as a cost-effective alternative that can be utilized in various settings beyond schools, where many treatment sessions typically occur (Dechsling et al., 2021). However, their review indicates a lack of substantial evidence to support the use of VR interventions.

### **2.13 Summary of Virtual Reality**

Numerous researchers have emphasized the importance of early intervention for children and adolescents with anxiety disorders, highlighting that school-based staff members are uniquely qualified to deliver evidence-based interventions (Zaboski, 2022). In light of the significant number of individuals worldwide affected by fear-related disorders, the development of new research and treatment methods for anxiety disorders should be prioritized (Bergsnev & Sánchez Laws, 2022). SM is considered a silent sufferer within this global statistic as anxiety disorders, including SM, are prevalent among approximately 4% of the world's population (Bergsnev & Sánchez Laws, 2022).

VR environments offer several benefits for anxiety disorder treatment as they can accurately model various contexts with precise control over experimental design (Bergsnev & Sánchez Laws, 2022). VR has the potential to bridge the gap between theoretical applications of therapy in clinics and practical use in research laboratories, providing an opportunity to customize therapeutic environments for individuals to respond more effectively (Bergsnev & Sánchez Laws, 2022). VR has been successfully employed in the treatment of PTSD, PD, specific phobias and SAD, including SM (Maria et al., 2021). Research indicates that VR exposure therapy is highly effective in reducing anxiety symptoms and facilitating behavioural changes, with long-lasting effects that translate into real-world experiences (Maria et al., 2021). The immersive nature of VR, utilizing head-mounted displays, headphones and data gloves, allows for the realistic recreation of social situations in a playful setting (Maria et al., 2021).

However, there is still a need for further understanding regarding the integration of VR applications into treatment plans, with limited but significant research in this area (Asiain et al., 2022). VR-based evaluation and intervention techniques have shown promise and have been well-tolerated by individuals with ASD and other disorders (Dechsling et al., 2022). VR technology holds the potential to enhance social skills development and provide affordable solutions for addressing social and educational needs (Asiain et al., 2022). Just as professional training in AR and VR is becoming more commonplace in the field of medicine (Asiain et al., 2022), why not make it a reality in classrooms for teachers and clinics for therapists?

An increased understanding of the anxiety component of the psychosocial state may lead to more firm findings in therapy research (Krysanski, 2003). The rapidly evolving digital technology setting has increased attention to the possibilities of VR and the Metaverse as therapeutic tools for anxiety disorders such as SM. (Virgils Inc, 2022). VR platforms offer the opportunity to equip future generations with essential skills, self-awareness, and social support required for the 21st century (Virgils Inc, 2022). Given the geographical, ethnic and cultural barriers that hinder access to quality in-person care, the demand for remote and virtual treatment options for mental illness is increasing (Donnelly et al., 2021). VR, as a cost-efficient and effective treatment option for anxiety disorders that limit participation, has evolved from an expensive novelty to a dynamic technology with the potential to enhance medical care (McElvery, 2022). Thus, what bright and innovative approaches do we have for the near future? Could VR be the future solution to anxiety disorders, SM, and other similar conditions? Could the future of VR help to solve these issues and make the treatment of SM more successful, more feasible (for the therapist), and more comforting (for the SM individual)?

## CHAPTER 3

### 3.0 METHODOLOGY

#### 3.1 Research Design

In research projects aiming to capture participants' first-hand experiences on a specific topic, a qualitative approach holds particular significance (Neergaard et al., 2009). For this study, a qualitative thematic analysis approach was considered appropriate as it allowed participants to elaborate on and disclose their personal experiences and perspectives. The thematic analysis encompasses three main approaches: coding reliability, reflexive and codebook (Braun & Clarke, 2021; 2022). This thesis adopted the Reflexive Thematic Analysis (RTA) approach, which combines qualitative research methods with the researcher's subjective capabilities (Braun & Clarke, 2021; 2022). RTA is an ongoing, interpretive and flexible reflective process that facilitates the identification and analysis of patterns or themes within a dataset (Byrne, 2022). The analysis process involves immersing oneself in the data, reading, reflecting, posing questions, envisioning, contemplating, writing, taking breaks and returning to the material (Braun & Clarke, 2021; 2022). These analytical steps were all experienced during the writing of this thesis while analysing the data. RTA was chosen because it provided the opportunity to explore codes and themes and to uncover common and recurring patterns, some of which may not have been anticipated initially. Through the application of RTA, this thesis explored the experiences, perspectives and meanings shared by the participants.

#### 3.2 Ethical Aspects

In both quantitative and qualitative research studies, it is the researcher's duty and responsibility to protect the rights, dignity and privacy of participants (Alase, 2017). While studies typically employ an interpretative and participant-oriented research method, it is crucial to make every effort to safeguard their rights. In this regard, all necessary approvals were obtained from the Department of Special Needs Education at the University of Oslo (UiO), including approvals for the thesis proposal and the assignment of a supervisor to oversee the thesis. Furthermore, an application was submitted to the knowledge sector's service provider, SIKT (Kunnskapssektorens tjenesteleverandør), in early January 2023. The application underwent evaluation on 31/01/2023 before the commencement of data collection (appendix 1).

At the outset of the recruitment process, participants were informed that the interviews would be audio recorded, and they had the option to turn off their cameras during Zoom meetings if they wished. Three weeks before the interviews were scheduled, each participant received a consent form, as recommended by SIKT. The consent forms aimed to ensure transparency by providing participants with information about the study's objectives, the voluntary nature of their participation, their right to withdraw at any time and the anonymization of their personal data. The forms also included details on how their personal data would be stored. All data was stored on an encrypted hard drive in compliance with UiO's regulations, as only yellow data was collected from the participants. Yellow data refers to restricted information that is not publicly available. It requires protection and may be accessible to authorized individuals within and outside the institution, with access being limited and regulated. Yellow data includes names, emails, telephone numbers and other data classified as 'normal' according to the GDPR e-learning course on privacy protection at UiO (GDPR e-læringskurs, 2023). Additionally, contact information was provided in case participants had any further questions after the interviews.

To ensure the anonymity of any current or former students mentioned by the teachers or therapists, participants were asked not to refer to specific children, schools or centres by name during the interviews. Participants were assigned codes to their names when referencing their experiences to maintain anonymity. Ownership and control of the data were addressed by allowing participants the opportunity to verify their statements and validate the data if they wished to do so. I took great care to report the information accurately, avoiding assumptions about participants' feelings and emotions. The names of participants and their contact information were kept separate from the dataset. Furthermore, mentions of school or centre names were removed from the transcriptions and results to ensure anonymity. The audio recordings were stored securely on an external hard drive protected by a password and encryption.

To ensure the trustworthiness, credibility and validity of the thesis results, member checking was employed. This involved sending participants their own statements in separate emails, allowing them to provide feedback and verify the accuracy of what they had said. Member checking enhances the credibility of qualitative studies by ensuring that participants' voices are accurately represented and allowing them to confirm or question the accuracy and

interpretations of the data (Candela, 2019). All participants were satisfied with the statements to be used, with one participant requesting a few changes for more elaboration and clarity.

### **3.3 Participants**

The current study employed purposive sampling, which involves making strategic decisions about the research's location, methods and participants. Purposive sampling is utilized in various types of research to achieve generalization, allow for comparisons and focus on specific and unique issues (Cohen et al., 2007). The recruitment process began by contacting colleagues in the fields of education and psychology via email. The email briefly explained the overall topic and purpose of the study. Through snowball sampling, additional professionals who were interested in participating in the project were introduced by the initial participants. This approach was used in addition to purposive sampling. Once the participants were identified, an official email was sent to all, attaching a soft-copy consent letter (appendix 2) that provided them with all the necessary details about the study, ethical considerations and their rights within the project. Participants were asked to sign and return the consent form with their approval.

Initially, the sample consisted of two focus groups: one comprising therapists and child development specialists, and the other consisting of teachers, coordinators and heads of departments in schools. Focus groups offer potential benefits such as the opportunity for participants to challenge each other's ideas in real-time, the ability for the interviewer to observe interactions, the identification of new issues through debates and participants feeling more comfortable discussing their thoughts in a group setting rather than in one-on-one interviews (Aurini et al., 2022). However, unfortunately, participants in one group were unable to find a mutually convenient date and time for a group interview. Recognizing the participants' busy schedules and the challenges of scheduling a time when everyone could be available simultaneously, individual interviews were deemed more practical for the group involving therapists. As a result, the final sample included one focus group with six school-based participants and three individual interviews with therapists.

Group 1 (G1) initially consisted of four participants holding various positions across Amman, Jordan: (a) a speech and language pathologist with 26 years of experience in the field and 18 years as an educational psychologist, (b) a speech therapist/head of the speech department at a university with over 30 years of experience, (c) a paraprofessional/curriculum counsellor and (d) a child development specialist specializing in parent support, utilizing

mindfulness-based play therapy with 9 years of experience. All participants in G1 had encountered children with SM at least once. However, one participant declined participation shortly before the interview process due to personal circumstances.

Group 2 (FG2), the focus group, comprised six participants from Jordan, the United Kingdom, Ireland and the United Arab Emirates: (a) a special needs coordinator with 7 years of experience, (b) a director of additional needs in a school with 19 years of experience, (c) a special education teacher with 3 years of experience in the field, (d) a primary teacher/gifted & talented coordinator with 10 years of teaching experience, (e) a primary teacher/assistant head of department with 8 years of teaching experience and (f) a secondary teacher/head of primary with 12 years of teaching experience and 3 years in a leadership role. All participants in FG2 had heard of SM but had not encountered any ‘diagnosed’ cases of SM. The purpose of selecting two different groups with varying knowledge backgrounds and experiences was to include their valuable insights and make comparisons between the two groups, emphasizing the importance of awareness and early identification of SM across a broader spectrum.

### **3.4 Procedures and Data Collection**

One of the primary methods employed to gather qualitative data in this study was conducting interviews with participants, either individually or in focus groups. Interviews are an interactive approach that enables researchers to delve deeper into participants’ thoughts, experiences and perceptions (Aurini et al., 2022). The interviews were conducted using a semi-structured approach, as defined by Aurini et al. (2022), where the questions were open-ended yet standardized, allowing participants to share their experiences. While the same question was posed to each interviewee, they were free to approach and respond to it in their own unique way. To accommodate the geographical locations and time zones of the participants and the researcher, the interviews were conducted using the secure Zoom link provided by the University of Oslo. The interviews were recorded for transcription purposes.

During the last two weeks of February, both the individual participants of G1 and the participants of FG2 were available on the scheduled days. In G1, which primarily consisted of therapists and child development specialists, participants were prompted with questions regarding their role in the identification and diagnosis of SM, their perceptions of effective interventions, adjustments or programs, their thoughts on differentiating between shyness and SM and their opinions on using virtual VR as a therapeutic tool. These questions had sub-



questions to guide the discussion (appendix 3). Prior to the interview meeting, G1 participants were provided with a brief summary of VR. With FG2, teachers were asked questions about their perceptions of shyness, their role in identifying SM as teachers, the strategies they employ in the classroom and their thoughts on using VR in an educational setting. FG2 participants were also given a summary of SM and VR before the scheduled meetings.

The individual interviews lasted approximately 30-40 minutes, while the focus group meeting lasted 80 minutes. Transcriptions of the interviews were prepared immediately after each session and securely stored on an encrypted hard drive. Additionally, notes were taken during and after the interview sessions to reflect on their progression and to summarize potential ideas for data analysis. As semi-structured interviews are designed to be flexible, the questions were occasionally asked in a different order during each interview, depending on the flow of the conversation. Participants were asked, when necessary, to elaborate on their comments to clarify any potential misunderstandings and to ensure a thorough exploration of the topics. To capture any additional important information, each interview concluded with a question asking participants if they had anything else to add.

### *3.4.1 Data Analysis*

According to Braun and Clarke (2006), RTA is an effective technique for discovering, analysing and reporting patterns or themes within qualitative data. RTA was employed in this thesis due to its flexibility in identifying patterns across the dataset using semantic coding (Braun & Clarke, 2006; Byrne, 2022). Semantic coding involves examining the participants' explicit meanings and considering only what they have explicitly stated (Byrne, 2022). The analysis process progresses from a descriptive stage, where the data is organized to reveal patterns in semantic content, to an interpretive stage, where efforts are made to conceptualize the relevance of these patterns and their broader meanings and implications.

Following Braun and Clarke's (2006) recommendations, this thesis implemented the six phases of thematic analysis, as described below. Although these phases are presented in a linear manner, it is important to note that frequent movement back and forth between the phases is necessary, as the process is ongoing, interactive and reflective (Braun & Clarke, 2006; Nowell et al., 2017).

Phase 1: Familiarizing with the data. The recordings were listened to twice before being transcribed using UiO's Autotekst tool. The transcriptions were then read multiple times, following a de-naturalization approach, which involved deleting repetitive unnecessary words, stutters, pauses and conversations unrelated to the thesis while focusing on how the feelings were expressed (Aurini et al., 2022). Thematic analysis requires less transcript detail than conversation, discourse or narrative analysis (Braun & Clarke, 2006). The transcriptions were converted to a Word document for manual coding in the next phase. These files were securely stored on an encrypted hard drive. Additionally, during this phase, reflective notes were written in a journal, capturing my thoughts and new understandings, and remaining aware of the participants' different perspectives, thoughts and beliefs.

Phase 2: Coding. Coding allows the researcher to focus on specific characteristics of the data (Nowell et al., 2017). In this thesis, the coding process began by writing notes on the transcribed texts using highlighters and colours to identify different segments and using comment bubbles to code each sentence or section (appendix 4). A combination of deductive and inductive approaches was employed to develop codes. Codes were initially based on the research questions (deductive) and additional codes were derived from the data itself (inductive). Descriptive, in vivo and process coding techniques were utilized. The coding was performed in a Microsoft Word document, and two copies were stored on UiO's secure Microsoft 365 server and an encrypted hard drive. The data was organized to create meaningful groups and identify relationships between them. This systematic coding process involved examining specific statements and grouping them into themes that best captured the topic of interest (Nowell et al., 2017). This phase facilitated the tracking of keywords or phrases frequently used or expressed by the participants. A separate codebook was created on an Excel sheet (appendix 5) to aid the coding process, although it is not a commonly used component nor a requirement of RTA. The codebook helped me in revising and refining the codes by providing a code number, colour, brief definition, fuller definition, guidelines for usage and an example with sample sentences.

Phase 3: Themes. In this phase, all the codes were collated, and a long list of different codes across the dataset was compiled. The codes were then organized into a table, and statements and quotes from all interviews were grouped according to their codes and colours (appendix 6). The codes were analysed and sorted into potential main themes, subthemes and

miscellaneous categories. Themes emerge by integrating fragments of thoughts or experiences that may seem meaningless when viewed separately (Nowell et al., 2017).

Phase 4: Reviewing the themes. This phase involved reviewing all the compiled excerpts for each theme to determine whether consistent patterns emerged. The themes were assessed for their ability to address the research questions. It was crucial to ensure that the analysis went beyond mere repetition of participants' statements. Patterns needed to be identified across the entire dataset, not limited to a few selected participants. The themes, their interconnections and the overall narrative they conveyed about the data were thoroughly understood by the end of this phase. Each theme is explicitly related to the data by the researcher (Braun & Clarke, 2006). Four common themes were developed in this phase: SM, shyness, the role of the teacher/educator/therapist and VR. Each theme had several subthemes. The thematic analysis aimed to emphasize the importance of SM awareness, early identification and intervention of SM and the potential of VR as a therapeutic and inclusive learning tool in schools. A mind map was created to visually represent the themes and subthemes (appendix 7).

Phase 5: Defining and naming themes. In this phase, the core essence of each theme was defined, and the particular aspect of the data that each theme captured was identified. Working titles were considered for each theme, ensuring they were readily understandable. A final theme map was developed (appendix 7), and the themes were renamed accordingly. Theme 1 became 'Breaking the Sound of Silence' focusing on participants' awareness of SM, their views on diagnosing SM and their shared experiences. Theme 2 was renamed 'Shyness and Beyond' highlighting participants' definitions of shyness versus SM and their distinction between the two. Theme 3 was named 'The Gateway' symbolizing the essential roles of teachers, educators and therapists as gateways for children and parents, emphasizing the need for collaboration, appropriate strategies and interventions. Theme 3 had two subthemes: roles and strategies, which were further broken down into categories such as parental involvement, red flags, inclusion and speech therapy for children with SM. The fourth theme was renamed 'Building Bridges from VR back to Reality' exploring participants' views on VR as an innovative technology and its future implications for therapy and education. The advantages and disadvantages of VR were also considered. A revised mind map was created to present the themes and subthemes more clearly.

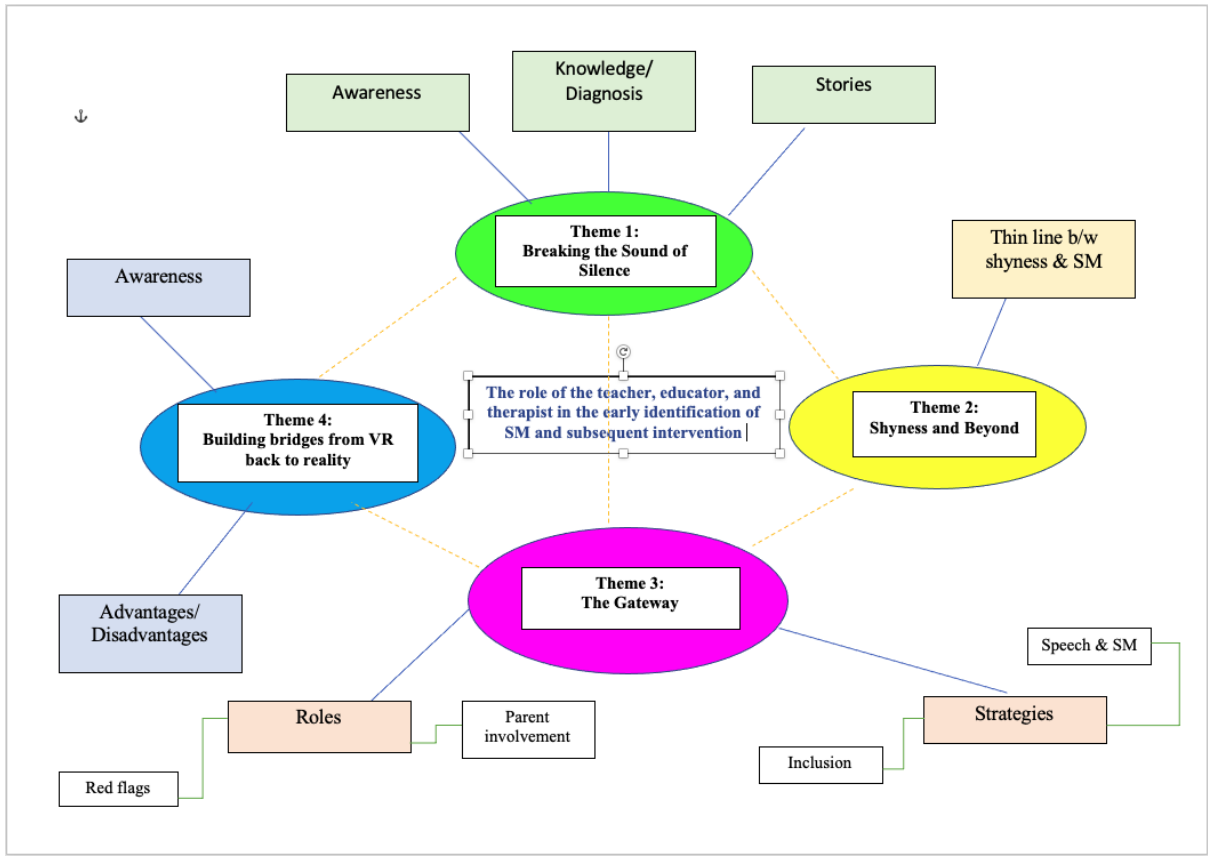
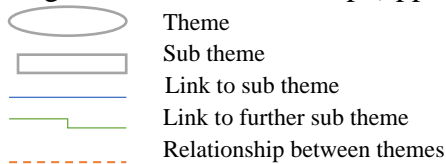


Fig 2: Final Thematic Map (appendix 7)



Furthermore, in this thesis, data extracts are reported both analytically and illustratively. I chose to include data extracts that serve both purposes to provide a richer understanding of the research topic. Analytical data extracts involve interrogating the significance of participants' statements and contextualizing these interpretations in relation to the existing literature (Byrne, 2022). These extracts shed light on the emerging themes from the interviews and are used to illustrate key points or arguments in the thesis. Additionally, illustrative data extracts provide a high-level description of what participants said (Byrne, 2022). These extracts are vivid and compelling, helping to bring the data to life.

Phase 6: The report. In this phase, the final results and analysis were presented. Following the standard practice for RTA, the writing process was carried out simultaneously with the analysis. Throughout this phase, I frequently referred to my notes to ensure that the findings and conclusions were interpreted in a credible manner and supported by the existing

literature. The first theme I report is 'Breaking the Sound of Silence'. This theme encompasses discussions about SM in general, including participants' awareness and knowledge of SM, as well as their personal thoughts and stories related to the topic. The second theme 'Shyness and Beyond' is closely tied to the theme of awareness. In this theme, participants discussed the differentiation between shyness and SM, emphasizing the importance of recognizing the signs of each and understanding the distinction. Next, I report on the third theme, 'The Gateway', which is the largest theme and contains the most subthemes. This theme explores the role of teachers, educators, and therapists in identifying and intervening with children with SM. It highlights the collaborative nature of their role, emphasizing the involvement of parents in the process. Last, but not least, the fourth theme is presented as 'Building the Bridges from VR back to Reality'. This theme is intentionally placed last for two reasons: firstly, participants initially had limited knowledge or awareness of VR, and secondly, it introduces the 'new' technology and asks participants about their perceptions of its potential as a beneficial tool in aiding interventions for children with SM.

## CHAPTER 4

### 4.0 RESULTS

The focus group and individual data were analysed and categorized into themes and subthemes, which are presented in this section. The categories align closely with the research questions due to the structure of the interview questions. Common elements, including responses, statements and participants' perceptions and thoughts, were coded and documented during the data analysis process outlined in the previous chapter.

#### 4.1 Theme 1: Breaking the Sound of Silence

##### *Subthemes: awareness, knowledge & diagnosis, shared stories*

SM being the main topic discussed in the interviews, encompassed participants' awareness, prior knowledge, experiences, diagnostic steps and personal stories related to the disorder. The data from both groups were combined under the subtheme of 'awareness', which focused on participants' overall understanding and perceptions of SM.

All participants demonstrated some level of awareness of SM, acquired through training or studies. However, only the therapists had direct experience with children or teenagers diagnosed with SM. Despite their own awareness, every participant emphasized the general lack of awareness regarding SM. This perspective was shaped by their professional experiences in Jordan, the UAE, the UK and Ireland. Participants from Jordan acknowledged that 'awareness is minimal, even for speech pathologists' (P1G1), and that 'awareness in Jordan is lacking... severely so' (P3G1). Participants stated that teachers in Jordan mostly did not even know what SM is, let alone that it is an anxiety disorder. Several participants also agreed that teachers mostly thought that children who did not talk were just being 'obstinate, rude, not interested in class and just lazy' (P4G1). Similarly, participants from the UAE expressed the need for more awareness, noting that teachers tended to label non-speaking students 'stubborn' (P5G2) for not speaking in class or participating. Participants from Europe also agreed that there was a lack of awareness, as they had received no training on SM throughout their 8-10 years of teaching experience. These findings confirmed my assumptions regarding the awareness of SM among teachers, highlighting that it is still not a commonly discussed disorder in schools or a subject of awareness campaigns. One participant further validated my assumptions and said:

I'm sure there's cases of that because it's not as well known...if you ask any teacher around the world, what does autism look like? They have a fairly good idea. What does

ADHD look like? They have a fairly good idea. If you show them a copybook, does this child have dyslexia? They have a fairly good idea. But I don't think I've ever had a conversation with any teacher about selective mutism. (P6G2)

Perhaps my personal experience of self-diagnosing SM later in life, when there was limited awareness among teachers and parents, influenced my decision to explore this topic with the participants. However, similar findings have been reported in this study and other studies in the literature, indicating that awareness of SM remains limited even in 2023 (Camposano, 2011; Hammer & Oerbeck, 2014; Johnson & Wintgens, 2015; Hua & Major, 2016; Hipolito & Johnson, 2021). School professionals and therapists must prioritize spreading awareness of SM and supporting children with this 'mysterious' disorder.

The second subtheme labelled 'knowledge and diagnosis', examined participants' overall understanding and experiences in diagnosing SM, as well as instances of misdiagnosis. Therapists played a more prominent role in diagnosing children, whereas teachers, lacking the necessary qualifications, were not involved in the diagnostic process. However, there was a consensus among participants that many cases of SM, in their experience, went 'unnoticed' (P3G1), 'undiagnosed' (P3G2) and 'misdiagnosed' (P6G2), prompting one participant to ask a very important question:

How do we get schools to correctly diagnose the selective mute? Because I just went to a school recently. I'm doing supply in at the moment. And at first, you're given just like a quick information about the children. So, I was told that I had two selective mutes in the class. And I was just thinking, how am I going to deal with this? (P2G2)

Thus, the issues of awareness, early identification and accurate diagnosis are crucial for children with SM. It is essential to provide teachers with proper training to expand their knowledge beyond commonly known conditions such as autism, ADHD and dyslexia. From the therapists' perspective, regardless of whether SM is formally diagnosed, it is important for them to differentiate between speech delays or difficulties and communication problems or anxiety. This may involve collaboration with a clinical psychologist. For instance, P3G1 mentioned working together with a clinical psychologist when a child with SM also had language delays. On the other hand, P4G1 stated that a formal diagnosis may not be necessary, as they can recognize behavioural patterns and, if there are no signs of language and communication delays, they would work with the parents to develop a plan. The focus is

on identifying the behaviours that contribute to the communication challenges and collaborating with a team to devise effective interventions and plans to support the child (Bercow, 2018; Smith-Schrandt & Ellington, 2018). Personally, I was a child who was constantly labelled as ‘dumb’, ‘stupid’ and ‘stubborn’ by teachers and my father because of my inability to speak. If there had been just one adult who could have read between the lines and recognized the symptoms of SM, perhaps I would have grown up to be a much more confident and outgoing person, both in my personal and professional life.

The third subthematic category is labelled ‘stories’, where therapists shared their success stories and challenging experiences, while teachers recounted instances of misdiagnosis and parental denial. Some stories highlighted successful outcomes with children with SM, while others expressed frustration and despair due to parental resistance or lack of awareness and diagnosis. The consensus among the focus group and individual participants was that parents who were unaware of any disorder or disability were often in denial. For example, P5G2 shared a story about a mother’s denial, where she refused to believe that her daughter was not speaking and instead blamed the school for scaring her and not creating a safe environment. The situation changed when the mother was invited to the school to observe her daughter from a distance without being noticed. It was only then that the mother accepted there was a problem that needed to be addressed together. In many cases, teachers genuinely have the child’s best interests in mind. However, with SM, it can be challenging for parents to believe that their child is not speaking in school if they are not informed and aware of SM. This once again emphasizes the importance of awareness of SM within the community as a whole.

P3G1 shared a case involving a 6-year-old child with a speech delay. Working together with a psychologist, they developed a plan, and the parents were very supportive in this process. However, when parents are not cooperative or are contributing to the child’s SM, it can lead to different outcomes, as one participant explains:

One teenager..... a female....was having a relationship with a boy... you know, in Jordan, it’s very difficult to have relationships, it’s not open like other countries... Her parents discovered that she had a relationship. So, they hit her. And she started mutism. We started (therapy) but it took a long time, because she was devastated because they hit her. (P1G1)

This incident can also be related to cultural boundaries and their effects, as mentioned by one participant when discussing shyness. All therapists in G1 understood that trauma and abuse



can significantly contribute to a child developing selective mutism. This aspect resonates with my own experiences of verbal and physical abuse, as well as culture shock.

In summary, the findings in this thematic category reveal that SM often goes unnoticed, is misdiagnosed, or remains undiagnosed due to various factors. These factors include a general lack of awareness about SM, as acknowledged by all participants, as well as inadequate teacher training and knowledge about the disorder. Additionally, limited resources and a lack of collaboration from some parents were identified as contributing factors to the challenges in identifying and addressing SM.

#### **4.2 Theme 2: Shyness and Beyond**

##### *Subthemes: the thin line between shyness and SM*

The second theme that emerged relates to the research question: What are the perceptions of teachers, educators and therapists regarding the distinction between shyness and SM? This theme encompasses the participants' perspectives on the characteristics of shyness, the underlying reasons for shyness, the differences between shy traits and SM symptoms, and the processes of overcoming shyness versus outgrowing SM.

Therapists in G1 had a clear understanding of how they differentiated between shyness and SM. They viewed shyness as a temporary condition lasting a few weeks, while SM was described as persistent and more severe. They recognized shyness as a personality trait, whereas SM was identified as an anxiety disorder. On the other hand, teachers primarily described accounts of shy children, as they were not familiar with the diagnosis of SM. They associated shyness with typical situations such as the 'first days at school, first days of a new term, first days with a new teacher... a one-off encounter or anxiety that children can overcome' (P1G2). They perceived shyness as a temporary and manageable condition that children can overcome. Teachers used terms like 'lack of confidence' (P4G2), 'social awkwardness' (P2G2) and 'common occurrence with some students' (P5G2) to describe shyness.

It is worth noting that the COVID-19 pandemic was mentioned in relation to shyness and SM. While the pandemic is not the main focus of this thesis, it is important for professionals to consider its impact on social anxiety, communication difficulties and mental health issues. However, it is crucial to not hastily misdiagnose these conditions due to the unique

circumstances brought about by the pandemic. One participant provided a comment on this matter:

I think we're seeing it (shyness) a lot more often because kids weren't socialized during COVID, and they missed out on a lot of social activities and social growth.... So, I think a lot of it has to do with types of socialization and social pressure in the socialization they've had..... goes back to how confident are they in social settings. (P3G2)

Another participant added her views on the cultural aspect of shyness in the Arab world, stating:

It's sometimes part of the culture, especially for girls, to be more reserved and to be shyer.... I think culture also plays a role..... teachers just say, oh, they're just shy because it's so common in this culture (P6G2).

This is an insightful observation that highlights the importance of teachers, educators and therapists being able to distinguish between cultural attributes and anxiety disorders. With the focus on inclusion becoming increasingly prominent in education, teachers are expected to create inclusive classrooms that provide differentiated support and cater to the individual needs and strengths of students (Mjelve et al., 2019).

However, teachers must recognize that shyness, which they may view as a potential problem, can sometimes be an indicator of underlying psychosocial issues or more severe mental health conditions (Mjelve et al., 2019). Teachers may not immediately realize that certain behaviours exhibited by students could be influenced by circumstances at home or other significant factors. One participant shared her experiences of teaching English to refugee children, shedding light on the complexities that arise in such situations:

A lot of them are ... with what you'd term as maybe shyness. But actually, now that I've been working with them for a term, you see that some children, they understand what you're saying, even though it is a different language. They do have some English and could communicate with you. There's another student in the room who speaks the same language as them, but they are choosing not to speak. (P1G2)

In summary, the findings in this category revealed that the participants were able to differentiate between a shy child and one with SM. They described shyness as a personality

trait that typically diminishes within the first two weeks of school, whereas SM was recognized as a persistent and enduring anxiety disorder that should be addressed within the first month. According to Stein and Walker (2009), shyness in very young children is often considered endearing, and behaviours like stranger anxiety or being quiet around unfamiliar people are commonly observed in preschool-aged children. However, such behaviours are considered atypical for a fifth-grade child. It is important to consider age-appropriate development, as what is acceptable for a three-year-old is typically not expected for an 11-year-old (Stein & Walker, 2009).

#### **4.3 Theme 3: The Gateway**

*Subthemes: Roles – red flags and parental involvement*

*Strategies – inclusion and speech delays & SM*

This theme category proved to be the most complex and comprehensive, as it encompassed discussions about the participants' roles as teachers, educators and therapists. The conversations revolved around their experiences working with parents, teachers and schools, including raising concerns, making referrals, identifying SM and implementing various strategies to intervene and assist children with SM. The main focus of this category was to address the research question regarding the roles of teachers, educators and therapists in early identification and intervention for SM. Within the 'roles' subtheme, several subcategories were identified, including red flags and parental involvement. These subcategories provided insights into the specific indicators that professionals look for when identifying potential cases of SM, as well as the importance of engaging parents in the process. The 'strategies' subtheme delved into various approaches employed by the participants, particularly in terms of inclusion and differentiating between speech delays and SM. This subtheme highlighted the need for inclusive practices in classrooms and the necessity of distinguishing between different communication difficulties to effectively address the needs of children with SM.

From the therapists' accounts, it became evident through their discussions that parental involvement played a crucial role and was considered one of the most significant factors in supporting a child with SM. Therapists emphasized the importance of collaborating with parents as an essential element in the child's journey towards overcoming the disorder. One participant described why parental involvement is crucial:

Parents sometimes sit during the therapy sessions so they know exactly what we're doing and so they can also follow up at home...if there's no carryover at home, therapy is really not going to be that beneficial. (P3G1)

Parents who actively collaborated with therapists experienced rapid and positive outcomes with their children. One notable example is P4G1, who employs a family-based therapy approach. In this approach, the therapist works closely with the parents to develop a comprehensive plan that addresses the child's needs. They also establish communication with the school and foster a collaborative effort among all stakeholders involved in the child's support system. She goes on to explain:

Oftentimes parents will be unaware of the lengths that they will go to accommodate for their child... the role that parents might play and how we can get parents engaged and on board and really to tolerate their own sometimes levels of frustration or anxiety, even when they see that their child is unable to verbalize outside of the home. (P4G1)

Collaboration with teachers in schools, as well as other psychologists and specialists, is equally important in supporting children with SM. Therapists recognize the significance of involving teachers in the therapeutic process, particularly when the child is attending school or even in early childhood settings. According to Bronfenbrenner & Morris (2006), a child's development and socialization are influenced by various contexts and systems they are exposed. This includes the microsystem, which encompasses the child's immediate family, school and social circles. The microsystem is considered the most influential and immediate environmental context within the Ecological Systems Theory (Bronfenbrenner & Morris, 2006).

Therapists emphasized the importance of collaborating with schools and involving teachers in the support and intervention of children with SM. This collaboration ensures a holistic approach to addressing the child's needs within their educational environment. One participant added:

We go into schools to observe and see what teachers are doing, how they're working with the child, what kind of recommendations they might need from us because in every classroom it's different... In schools it's mostly based on behavioural intervention...and the child is getting reinforced week by week on a very specific behaviour that we're trying to shape. (P4G1)

Participants emphasized the importance of parental involvement and gathering comprehensive information to cater to the unique needs of children with SM. They acknowledged the role of teachers in identifying potential red flags and making timely referrals, typically within one month to 40 days after the start of the school year. Drawing upon Bronfenbrenner's theory, participants highlighted the need for effective communication and collaboration between teachers and parents to support the child's development.

Furthermore, in line with Bronfenbrenner's theory, it is essential for teachers to adopt inclusive classroom approaches and foster understanding and acceptance among all students (Evans, 2020). P1G2 emphasized that teachers should not only participate in creating an Individual Educational Plan (IEP) but also gather information about the child's background and interests, ensuring a holistic team approach. Participants stressed the importance of teachers staying informed and equipped with the necessary tools to facilitate understanding between themselves, parents and the child's developmental progress. 'We need to know what's going on at home.... it needs to be a whole team approach' (P1G2). 'We have to keep ourselves up to date, but we also have to have all of these tools... so that parents can understand this is where we are... and this is where they are supposed to be' (P3G2).

The second subtheme focused on the strategies employed by participants and the importance of inclusion in schools. Teachers shared their approaches for working with shy children and noted that these strategies benefitted all students in the classroom. One participant elaborated on how she promotes inclusivity in her class and discussed her perspective on effective interventions:

It needs to be something that everyone's involved in the formation of, including the child if possible... any intervention that helps one child will help multiple children... no one size fits all approach for children with selective mutism. So, I think an effective intervention is one that knows the child, puts them first, and addresses their specific needs in a way that the child is comfortable with as well. It's not pushing them too much..... And then one that's updated and reviewed on quite a regular basis as well. (P1G2)

Sometimes intervention involves including the child's peers as another participant describes:

A lot of times in not the early stages of therapy but maybe towards the middle part and the end we involve their friends. So, we bring them into the therapy session to play and pair with the trial, do different activities together where the child is exposed, they're

requesting, they're asking each other for things, they're communicating, they're having a conversation. (P3G1)

And sometimes peers will 'find ways to also sometimes accommodate for the child' (P4G1).

Both teachers and therapists discussed a range of intervention strategies and therapies they utilize in their practices. The consensus was on the importance of close collaboration with parents and schools to ensure the effective implementation of intervention plans. Teachers shared strategies they employed in the classroom to support shy and introverted children, while therapists discussed their therapeutic approaches for children with SM, whether it was child-based or family-based. Teachers mentioned using various strategies such as utilizing 'positive reinforcement' (P1G2), 'encouraging expression through art and writing' (P2G2) and providing 'visual aids' (P4G2) to facilitate communication. One participant highlighted the preference for combining different therapies:

You would borrow some things from speech and language support. You'd borrow some things from play therapy, some things from using little puppets and creating or even art therapy... I think a lot of mindfulness activities where we're starting from a place of calm where we've actually already worked on our level of anxiety, and we've worked on all these things before we approach the child kind of will build that safety. A sensory room could do the trick if there are sensory issues. So just borrowing from the different therapies to find what works for that specific child in terms of, in terms of what the cause is and what their background is and their comfort level and their age and all of these things. (P3G2)

Therapists employ various approaches in collaboration with clinical psychologists, including CBT, DBT (Dialectical Behavioural Therapy), family-based therapy, and play therapy, among others. P3G1 said she 'specifically works with kids who have selective mutism with speech and language delays depending on the child's age... and we use different kinds of toys'. P4G1 prefers to utilize a combination of methods, focusing on 'social-emotional learning and play therapy... and targeting on self-esteem'. P1G1 places emphasis on pragmatics because 'it's like turn taking, initiating conversation... we do articulation and all the parameters of speech and the language - receptive and expressive'.

In summary, the findings indicated unanimous agreement among all participants regarding the significance of close collaboration with parents and emphasizing the importance of forming a collaborative team. The therapists' role was highlighted as crucial, as they work alongside parents, children and teachers, offering a range of therapy options accompanied by necessary support and recommendations. Their responsibilities encompass not only creating plans but also ensuring their implementation, working systematically with parents and schools to achieve the desired outcomes.

#### **4.4 Theme 4: Building Bridges from VR Back to Reality**

##### *Subthemes: Awareness and advantages vs disadvantages of VR*

The fourth theme addressed the research question: Do teachers, educators and therapists perceive a future using VR technology in therapy and intervention? It explored the participants' perceptions and expectations regarding the use of VR technology in therapy and intervention. This theme aimed to uncover their level of awareness and predictions regarding the future implementation of VR in their respective schools or centres. It became apparent that overall, there is limited awareness of VR as a tool for therapy or as a learning tool in schools. Some participants were familiar with VR but were unaware of its use in therapy, while others had knowledge of VR but had not personally experienced or utilized it. Additionally, some participants had never heard of VR in this context.

I wouldn't have put them side by side as an intervention before your summary. And it makes perfect sense. I immediately associate virtual reality with gaming and gamification and things like that. But then when I think of children who have auditory processing issues where they need their headphones in class if it's too loud or things like this, it would make so much sense to have VR as well as a total escape and a way of communicating with children who have SM as well. (P1G2)

A few participants had the opportunity to try out VR as a demonstration in their schools and expressed their enthusiasm, describing it as 'amazing' (P6G2). Therapists, in particular, expressed their openness to 'innovative approaches' (P1G1), and acknowledged the potential of technology, including VR, in helping children with disabilities. They emphasized the importance of integrating VR with other intervention methods to enhance communication.

Participants generally shared similar views regarding the advantages and disadvantages of VR. Therapists showed a keen interest in learning more about VR and expressed their

willingness to incorporate it into their intervention practices. They recognized that schools ‘are already relying on computer technology in the classroom so this would be an added value’ (P3G1). Some participants believed that VR could be a ‘great solution’(P4G1) if implemented correctly. However, there were concerns about the amount of screen time children would be exposed to and whether VR could potentially increase anxiety due to prolonged screen exposure. One participant went on to add:

A mix of both approaches is key because we don’t want kids to keep thinking that they need to live this avatar life. We want them to actually engage in the real world... And so, this is where maybe the fine balance is really important... I know that technology is not this big bad wolf, we need to embrace it and embrace the positives.. particularly since the simulations of VR, I am assuming, may have a positive impact on developing selectively mute children’s ability to verbalize in social situations through a gradual process. (P4G1)

Teachers perceive VR as having great potential, particularly as a learning tool that promotes inclusion and supports STEM (science, technology, engineering and math) education. However, a few teachers expressed concerns about the impact of technology and AI on essential life skills, such as spelling, writing and connection with the natural and physical world. Despite these reservations, (P1G2) used positive terms like ‘ground-breaking .. and fantastic...it’s genius’ to describe their impressions of VR. One participant mentioned ‘loving’ a VR demo in her school (P2G2), while another highlighted the opportunities and doors it opens as ‘a wonderful tool’ (P3G2).

Nevertheless, all participants agreed that balance is imperative. Two participants mentioned that their schools had already implemented VR in the classrooms or had plans to do so in the near future. Many schools now embrace technology-based learning, providing iPads to each student and teachers utilizing various apps and platforms to design their lessons. The accessibility and affordability of VR have improved, and more schools are recognizing its benefits when combined with other teaching methods (Cooper et al., 2019; Yildirim et al., 2020; Yount, n.d.).

In summary, the participants in both groups demonstrated limited awareness of the potential applications of VR, primarily associating it with gaming. While some teachers and educators had experimented with VR as a learning tool in schools, the majority were unaware of its use in therapy for individuals with anxiety disorders, including children with SM.



However, upon considering the advantages and disadvantages of VR as a therapeutic tool, all participants expressed enthusiasm and viewed it as a promising technology that could enhance learning experiences and foster student engagement in novel ways. They expressed a strong willingness to explore new and innovative approaches that complement traditional therapies, incorporating immersive and realistic scenarios within the classroom.

#### **4.5 Additional Findings with VR Implications**

Through my research, I discovered that an increasing number of companies are exploring the applications of VR beyond gaming, particularly in the areas of social disorders, anxiety and mental health. During my research, an opportunity arose to connect with a start-up company based in Oslo, now known as Simli. In January, I had the privilege of meeting Aili Røtterud Løchen, a Consultant Clinical Psychologist at Simli, for a demo and casual discussion. Simli is a relatively new company that has been rapidly evolving by leveraging advancements in AI and avatar technology and incorporating feedback from their clients. The company was founded in 2021 during the pandemic by three young entrepreneurs who recognized the need to assist individuals with anxiety, particularly during the various stages of lockdown. They also took into consideration the challenges individuals with social anxiety might face when transitioning back to the outside world as the pandemic subsided. While Simli faces competition in the market, they are the first company in Norway to develop a solution specifically targeted at social anxiety. Their mission is to enable therapists to treat more patients in a shorter time and with greater efficacy, therefore bridging the vast gap between the demand for mental health care therapy and therapists' existing capacity to satisfy demand (Simli, 2023).

VR therapy is not intended to replace face-to-face therapy sessions but rather to complement traditional therapy approaches, combining the strengths of both models. At Simli, they have developed three virtual worlds, with plans to create more as they continue to evolve. These virtual worlds include a school setting, a workplace setting and a social setting. Within these environments, clients have the opportunity to engage in various scenarios such as interacting with a teacher, participating in a dinner party or attending a job interview, among other options. Clients can use these virtual settings to practice social situations, freely move around, converse with virtual avatars and explore their surroundings. During the demo, I found the experience to be surreal, although as a first-time user, it initially felt unfamiliar. However, I could clearly see the potential for children to engage with and navigate through

these virtual rooms, interacting with avatars. With careful consideration of appropriate settings and avatars, the use of VR for SM holds promise for the future. Additionally, it could be equally beneficial for adults who still have lingering effects of SM, social anxiety and low self-esteem.

Furthermore, I also recently came across an article stating that a part of UiO's student association, SiO Helse, is developing VR self-help tools to encourage students to overcome shyness and engage in social activities. The objective is to provide support for individuals who are hesitant to participate in large gatherings by offering a new way for them to interact. The prototype of these tools was initially tested by the university's newspaper, Universitas, in May 2023. Although the project is still under development, it is scheduled to be officially launched in October (Segelcke, 2023). According to Segelcke (2023), these VR self-help tools aim to alleviate students' anxiety and fear of public speaking, considering the challenges of accessing mental health treatment, particularly after the pandemic, which led to long waiting lists. SiO Helse seeks to offer various forms of self-therapy through VR. The director of SiO Helse views VR as an exciting tool that can have a significant impact on the current health curriculum.

## CHAPTER 5

### 5.0 DISCUSSION

Using a qualitative research methodology, this study aimed to gather and analyse the perspectives, experiences and stories of participants regarding SM. The participants, consisting of teachers, educators and therapists from Europe and the Middle East, shared their insights on various aspects related to SM, including awareness of SM and VR, the diagnosis of SM, the distinction between shyness and SM, interventions and therapies for SM and the potential future applications of VR in therapy and the classroom. The analysis of the collected data resulted in the identification of four overall themes: Breaking the Sound of Silence (focused on SM in general), Shyness and Beyond (highlighting the distinction between shyness and SM), The Gateway (exploring the role of professionals in early identification and treatment of SM) and Building Bridges from VR back to Reality (examining the advantages, disadvantages, and awareness of VR technology). These four themes collectively address the research questions of the thesis:

1. What is the role of teachers, educators and therapists in the early identification of SM and subsequent intervention?
2. How do teachers, educators and therapists perceive the distinction between shyness and SM?
3. Do teachers, educators and therapists envision the future use of VR technology in therapy and intervention?

By exploring these themes and answering the research questions, this study aims to contribute to the understanding of the experiences and perspectives of professionals in relation to SM, while shedding light on the potential role of VR technology in the field.

#### 5.1 Addressing Research Question 1:

*What is the role of the teacher, educator and therapist in the early identification of SM and subsequent intervention?*

Themes 1 and 3 are closely related and collectively address the first research question of the thesis. The findings in theme 1 confirmed the limited awareness of SM among professionals in the field, despite its gradual increase in recognition and research. Although therapists are treating children with SM and educators and teachers are aware of the condition, participants emphasized the prevailing lack of awareness of SM in their respective countries. This observation aligns with existing literature, which reports minimal awareness

of SM among parents, teachers, educators and therapists, as well as insufficient research on the subject (Camposano, 2011; Johnson & Wintgens, 2015; Hua & Major, 2016; Hipolito & Johnson, 2021). Therefore, it is pivotal for professionals to be well-informed about SM, recognize its symptoms and address the issues as early as possible. Participants agreed that increased knowledge and collaboration among schools and therapists could lead to better identification, diagnosis and treatment of children with SM, enabling early intervention and differentiation from shyness. Awareness must be the first step in addressing SM, followed by the promotion and maintenance of inclusion. It is imperative that all children have their needs effectively met, fostering their growth as productive adults who contribute positively to the community and society as a whole. As a researcher, I also acknowledge that my own struggles with SM may have influenced my desire to contribute more to society.

Teachers particularly emphasized the need for more knowledge and training to effectively address SM. The findings revealed that not all teachers were familiar with SM, especially those who lacked training or experience in working with children with SM (including myself). This aligns with a very recent study by Harwood & Bork (2022), whose participants (teachers) had extensive experience with special needs children but were relatively unfamiliar with SM. Therefore, it is vital for teachers to seek support, professional development and resources from their schools to stay updated, well-informed and supported in addressing SM. While most schools and teachers are well-informed about disorders such as ADHD, ASD and dyslexia, SM often goes unnoticed. Many children with SM may slip under the radar, as teachers may be unable to recognize indicative signs and symptoms (Rodrigues et al., 2021). It is ideal for educators in schools, such as special needs coordinators or department heads, to provide more professional development workshops in this area. Moreover, teachers are an integral part of the child's progress and well-being, and their involvement is crucial (Martinez et al., 2015; Welsh, 2017; Kovac & Furr, 2019; Longobardi et al., 2019).

Early identification of SM was a central focus during the interviews, as participants recognized that early childhood anxiety and SM do not resolve on their own (Shipon-Blum, n.d.a,b). Early interventions are essential to help children overcome SM, as the condition is likely to worsen as they grow older without appropriate support. Theme 3, The Gateway, emerged in conjunction with theme 1, highlighting the importance of parental, therapist, teacher and school involvement in early identification and intervention for children with SM. Participants emphasized the need for parental support and involvement in interventions and

planning. However, at times, parental involvement was lacking, with some parents in denial about their child's issues or attempting to hide them, making it challenging and, at times, futile to offer support. In most cases, it is the teacher who reveals to parents that their child is not speaking, highlighting the important role of teachers in ensuring they are well-informed and supported by a collaborative team that includes parents, other educators and therapists. Parents need to be transparent and collaborate with schools and therapists to ensure their child receives the best available support. Kotrba (2015) highlights the importance of researching the child and the family when diagnosing SM, as environmental factors play a significant role (Bronfenbrenner & Morris, 2006; Viana et al., 2009; Kovac, 2018; Pamba, 2018). Participants emphasized the collaborative effort among parents, teachers and therapists in developing a suitable plan and intervention for a child's needs. Involving parents in therapy sessions, particularly through family-based therapy approaches, was seen as an essential factor by therapists. Teachers and educators should maintain close ties and effective communication with parents, obtaining as much background information as possible to identify problems and provide appropriate interventions. Thus, working within the micro and mesosystems of the community (school and home) is crucial for the positive progress of a child with SM (Bronfenbrenner & Morris, 2006).

Regarding intervention and therapy, family-based therapy approaches were considered the most popular and effective by the therapists in the interviews. Participants agreed on the importance of having parents on board. Tatem & DelCampo (1995) argued that therapy only focused on the child would be ineffective, as SM is a complex issue that affects the entire family. White & Bond (2022) also emphasized the significance of working with parents, including sharing strategies between home and school, fostering parent and caregiver understanding and encouraging parents to gently push their children with special needs beyond their comfort zones. During my time at the school, most success stories involved active parental involvement and contribution to the child's plans and treatment. Although challenging parents were experienced, including those in denial or refusing assessments, and those expecting miraculous solutions, it ultimately came down to raising awareness and opening the minds of parents and teachers. Some participants shared success stories involving parents, highlighting the importance of their collaboration. The findings also supported Johnson & Wintgens' (2015) claim that therapies have shifted towards recognizing the critical role of parents and teachers in addressing the child's difficulties and maintaining progress. Selecting appropriate strategies, involving parents, raising concerns at the right time

and practising full inclusion in the classroom and community were identified as key factors necessary for effective SM intervention.

Participants acknowledged that not all children with SM are the same, emphasizing the need for therapists, educators and teachers to gather sufficient background information from families and work together to implement tailored therapies that suit each child's needs. Therefore, the role of therapists, teachers and educators is to ensure early identification and diagnosis of children with SM and implement subsequent appropriate and effective interventions. They must foster a supportive and collaborative environment that empowers individuals to overcome communication difficulties and improve their quality of life.

## **5.2 Addressing Research Question 2:**

*How do teachers, educators and therapists perceive the distinction between shyness and SM?*

While shyness is not the main focus of my thesis, it is important to explore its relationship with SM and understand the perceptions of teachers, educators and therapists regarding this distinction. This question led to the emergence of theme 2: Shyness and Beyond. Teachers, educators and therapists must reflect on this distinction in order to accurately identify and diagnose SM. By visualizing the thin line between shyness and SM, professionals can more effectively provide appropriate support and interventions.

Although the literature suggests some confusion between shyness and SM, I found that my participants were generally aware of the differences. Therapists and educators emphasized the importance of distinguishing between shyness and SM, as they share similarities such as social anxiety and reluctance to speak in certain situations. However, participants recognized that SM is a more serious condition than shyness, as it involves a physical inability to speak due to anxiety. While the participants acknowledged these distinctions, they also noted that recognizing the signs of SM can still be a challenge in many schools. Silent suffering may go unnoticed by teachers, making it less likely for them to recognize mental health issues or emotional distress indicators (White et al., 2022). Therefore, it is vital to equip teachers and parents with the necessary skills and knowledge to identify early warning signs and respond appropriately to children's needs (Cameron, 2009).

The cultural aspects of shyness were also mentioned by some participants, highlighting the importance of considering cultural factors when identifying a problem. Teachers and educators should delve into a child's family history and background to distinguish between

cultural aspects and potential disorders or disabilities. Overall, teachers and therapists viewed shyness as a trait that should be closely monitored, rather than a negative characteristic. Both groups emphasized inclusivity, creating a safe and secure environment for all students. Furthermore, the impact of the pandemic on children's social skills development was discussed, prompting teachers, educators and therapists to pay closer attention to this aspect of a child's life and implement strategies applicable to multiple children, if not all.

Consequently, by connecting the first three themes, we can jointly address the first two questions in the thesis. Exploring SM and shyness involves raising awareness, encouraging parental involvement and recognizing the important role of teachers, educators and therapists. Even with a limited number of participants, initiating discussions on SM enables school professionals and therapists to take proactive actions, creating a snowball effect that spreads awareness of SM, facilitates identification and diagnosis and promotes appropriate treatment measures in other schools and clinics.

### **5.3 Addressing Research Question 3:**

*Do teachers, educators and therapists envision the future use of VR technology in therapy and intervention?*

To address research question 3 concerning the perception of teachers, educators and therapists regarding the future use of VR technology in therapy and intervention, the fourth theme emerged: Building Bridges from VR back to Reality. All participants expressed great eagerness to explore the possibilities of VR in their classrooms or clinics, despite having limited knowledge about it. This is consistent with earlier research indicating teachers' willingness to learn more about technology and enhance their digital expertise, such as Trust et al. (2021). The advantages of VR, as supported by the literature and discussed in the interviews, outweighed the disadvantages. However, participants also acknowledged the importance of being aware of the potential negative effects of VR if used inappropriately. Concerns were raised about increased screen time for children and the potential for AI to replace essential skills such as writing, analysis, and critical thinking. Therefore, the consensus among participants, consistent with the literature, was that VR should be used in conjunction with other therapies and teaching techniques to be an effective tool in helping individuals overcome mental health issues, including SM (Klinger et al., 2015; Chen, 2016; Kahlon et al., 2019; Asiain et al., 2022; Hoeve, 2022). Participants agreed that VR should not

replace traditional therapy and interventions but should be utilized alongside other effective practices, ensuring a balanced approach that caters to each individual's needs.

However, VR also offers the opportunity to escape the limitations of reality, facilitating self-reflection and personal growth (Lui & Bai, n.d.). There is a growing awareness of VR's significant contributions to clinical psychology (Repetto & Riva, 2011). VR enables the design and creation of environments that can be used for evaluation, exploration, treatment, play and social skills training effectively (Asiain et al., 2022), and 'building bridges back to reality through virtual reality' (Virgils Inc, 2022). While participants reflected on the desire to bring children back to the outdoors and limit their device usage, it is becoming increasingly evident that technology and AI are becoming essential parts of our lives. Instead of resisting new technologies, participants suggested utilizing the potential benefits of VR and other powerful tools to improve the lives of children and adults, particularly in addressing SM, social anxieties and similar disorders. VR has the capacity to enhance interventions and therapy, providing a safe, controlled and engaging environment for individuals to learn and practice new skills. In some cases, VR may be the only means for children to socialize, communicate and make friends. Participants acknowledged that while there is greater awareness of VR in the treatment of conditions such as ASD, ADHD, social anxiety and phobias, more attention and research are needed to explore how VR can specifically benefit individuals with SM in the treatment process (Rizzo et al., 2000; Freeman et al., 2017; Dechsling et al., 2021; Donnelly et al., 2021; Dechsling et al., 2022).

#### **5.4 Limitations**

The information gathered in this study relied on the participants' personal accounts, which introduced a degree of subjectivity. This subjectivity may have led to bias, as participants' perspectives and experiences may not be representative of all educators and therapists. Additionally, researchers themselves can introduce subjectivity if they interpret data to support their hypotheses or selectively include relevant data (Shah, 2019). The order of questions or the use of leading questions by researchers could also influence participants' responses. To minimize bias, I attempted to remain unbiased by using open-ended questions and respecting the participants' views. However, as an inexperienced researcher using RTA for the first time, the quality of the analysis may be compromised. It is important to acknowledge my own reflexivity and recognize that my past experiences and learning a new method may have influenced the analysis.



Another limitation is the absence of direct input from individuals with SM, which is an important perspective to consider. Reporting solely on how SM appears to outsiders, such as teachers, educators and therapists, may result in an incomplete representation of the disorder (Walker & Tobbell, 2015).

Lastly, the study unintentionally focused on the perspectives of female teachers, educators and therapists, which may limit its generalizability to other populations, including male teachers and therapists. The selection of participants was based on specific characteristics that were seen as beneficial in addressing the research questions, such as work experience and exposure to SM cases.

## **5.5 Conclusion**

Previous literature suggests that SM was uncommon, but more recent studies indicate prevalence rates between 0.71% to 1.9%, meaning that approximately one in 50 school-aged children may have SM (White et al., 2022). SM is an anxiety disorder characterized by an individual's silence in specific settings, which can have adverse effects on their socialization, communication and academic achievement throughout childhood and adulthood (Schwartz et al., 2006), if not identified early on.

Teachers, educators and therapists play a focal role in detecting SM, requiring collaboration, proactiveness, professional development, empathy and care. Teachers have a significant responsibility as they are often the first to recognize the disorder and notice symptoms of SM in the classroom or social settings, considering that many children do not exhibit symptoms at home. Consequently, raising awareness about SM leads to a growing interest in further understanding and addressing the disorder, as demonstrated by this study. While we acknowledge the existence of SM based on current research, it still requires greater recognition as a social anxiety disorder. The value of early detection should be acknowledged by therapists, educators and teachers. Therefore, more research is needed to include all demographics, provide training for teachers, and incorporate technology into interventions.

To maximize the effectiveness of SM treatment, school professionals must develop the necessary skills and knowledge to implement evidence-based practices that support students' context-relevant speech. The findings emphasize the vital role of school professionals in addressing SM, including creating awareness, early detection, diagnosis and implementing appropriate and effective intervention plans. Moreover, teachers and educators need to be

observant, compassionate and flexible, collaborating with families and other professionals, such as therapists and psychologists, to establish a supportive and understanding classroom environment that promotes communication and reduces anxiety. Collaboration with parents is also essential for ensuring continuity of care and support. By working together, they can provide individualized interventions to help children with SM overcome their communication difficulties, which may involve behaviour therapy, cognitive-behavioural therapy and social skills training. Furthermore, school professionals can educate themselves, parents and the broader community about SM, its symptoms and effective interventions, aiming to reduce stigma and increase understanding of the disorder, thereby improving outcomes for children with SM.

Furthermore, in addressing SM, we need to think outside of the box and explore innovative intervention solutions for children. While various methods are used in treating SM, little attention has been given to VR. Although VR is a relatively new approach to social anxieties, it has been utilized successfully for other disorders. Notably, research on various treatments has shown that exposure-based therapies are more effective than other forms of therapy (Repetto & Riva, 2011). With technology rapidly advancing, VR has the potential to be a highly effective therapeutic intervention for individuals who do not respond well to cognitive-behavioural therapy or those who struggle with face-to-face interactions with therapists.

Ultimately, school professionals and therapists have a very essential role in identifying and treating SM in children. Early identification and intervention can significantly improve outcomes, requiring collaboration between professionals and parents to establish comprehensive and effective treatment plans. Furthermore, exploring innovative approaches to treating SM, such as VR and its potential benefits in therapy and as a learning tool in classrooms, offers a promising future for individuals with SM.

## **5.6 Recommendations for Research and Practice**

Based on the findings of this study, several recommendations can be made. While there has been a significant increase in research on SM in the past decade, studies on SM, particularly with VR as therapy, remain limited. Given that recent studies suggest SM may be more common than previously believed (Bergman et al., 2002), further research is needed to explore the disorder and identify interventions that have positive effects on children with SM.

Additionally, research should focus on expanding the target demographic to include adolescents, adults and the elderly, as these groups have received limited attention in SM studies (Driessen et al., 2020). Understanding how SM affects individuals across different age groups is crucial for developing effective interventions. Moreover, adults with SM rarely seek treatment, which limits our understanding of the prevalence of the disorder among this population (Berent, n.d). Many adults who have experienced SM either overcome it or make adjustments to their environment to avoid triggering situations (Omdal, 2007). Although not the focus of this thesis, further research on adults with SM can provide valuable insights as they are better able to articulate and comprehend their own thoughts and emotions compared to young children (Walker & Tobbel, 2015). It is important to consider the experiences and perspectives of adults with SM to gain a more comprehensive understanding of the disorder.

There is strong evidence that individuals with SM and other social anxiety disorders are at risk of experiencing long-term communication and social difficulties if they do not receive early and effective intervention (Keeton et al., 2019). Children with SM often follow diverse paths in life, with some outgrowing the disorder quickly while others struggle to make friends for years. Even if they no longer meet the diagnostic criteria for SM, children may continue to exhibit social anxiety well into adolescence and adulthood (Scott & Beidel, 2011). Therefore, it is critical to listen to the experiences of adults with SM and understand how the disorder has affected them. Additionally, raising awareness and promoting early identification of SM are essential in addressing this anxiety disorder effectively.

## **5.7 Final Reflections**

These reflections are not directly based on the results of this study (although there may be some connection to them), but rather on my personal journey and thoughts throughout the research process.

Firstly, it appears that the term ‘Selective Mutism’ may not accurately convey the nature of the disorder, as it is often misunderstood and misdiagnosed. The change from ‘Elective Mutism’ to ‘Selective Mutism’ in the DSM-IV did not effectively address public perceptions of SM (Johnson & Wintgens, 2015). Many English speakers interpret ‘selective’ as a voluntary choice rather than a specific situation, leading to the misconception that children with SM are refusing to speak. Alice Sluckin, President of the Selective Mutism Information and Research Association (SMIRA), proposed the term ‘Situational Mutism’ 40 years ago as a more fitting alternative (Johnson & Wintgens, 2015). By changing the name, I concur, that

we may foster a better contextual understanding of the disorder among teachers, educators, therapists and parents, emphasizing that the child is not choosing to be silent but is affected by specific situations. Renaming it as ‘Situational Mutism’ could have a positive impact on how we interact with and support children with SM. There is currently a petition on *change.org* advocating for this name change. Retaining the acronym SM, it could serve as a new identification term that benefits all involved with SM. Increasing awareness, reducing stigma and providing appropriate support are important steps that need to be taken.

Despite these challenges, I believe the future of SM is promising. There is a growing awareness and understanding of the condition amongst mental health professionals, educators and the general public. This increased recognition and diagnosis of SM can lead to improved resources and support for individuals with the disorder. Advancements in technology, such as VR and ongoing research can also contribute to the diagnosis and treatment of SM. In the classroom setting, VR can be utilized as an Augmentative and Alternative Communication (AAC) tool and as an inclusive teaching strategy to engage all students, including those with SM. VR as an AAC tool facilitates communication as a collaborative process where meanings are generated (Light & McNaughton, 2014). Based on the literature review and evaluation of existing research, I strongly believe that VR is a positive intervention method for SM in the classroom. It has been shown to enhance student understanding, promote inclusivity, increase self-confidence and establish effective communication paths (Chen, 2016). Additionally, VR encourages student engagement and supports a variety of teaching approaches (Araiza-Alba et al., 2022).

I recall a true story about a Norwegian boy named Mats, who suffered from muscular dystrophy and was wheelchair-bound from the age of four. His parents believed he was a lonely boy spending most of his time indoors, playing computer games. It was only after Mats’ death, at the age of 25, that his parents discovered he had many online friends and had created a world of relationships, trust, and companionship through gaming. Mats had not been alone (Schaubert, 2019). This story, although not directly related to SM or discussing VR as a gaming tool but rather as an intervention, carries similar implications. Technology is not the monster we often perceive it to be. While it is important not to encourage excessive use of VR or other games, for some children and youth with special needs, it can be their only means of socializing and communicating—it becomes their own world, as an avatar. For some children with SM, it may be the key to ‘Breaking the Sound of Silence’.

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# APPENDICES

## Appendix 1

### SIKT Assessment & Evaluation

19/03/2023, 14:25

Notification form for the processing of personal data



[Notification form](#) / [Breaking the Sound of Silence](#) / Assessment

## Assessment of processing of personal data

Reference number	Assessment type	Date
993999	Standard	01/02/2023

**Project title**  
Breaking the Sound of Silence

**Data controller (institution responsible for the project)**  
University of Oslo / Faculty of Education / Department of Special Education

**Project leader**  
Tamara Kalandadze

**Student**  
Khadijah Basma Sati

**Project period**  
23/12/2022 - 01/12/2023

**Categories of personal data**  
General

**Legal basis**  
Consent (General Data Protection Regulation art. 6 no. 1 a)

The processing of personal data is lawful, as long as it is carried out as stated in the notification form. The legal basis is valid until 01.06.2024.

[Notification Form](#)

**Comment**  
ABOUT OUR ASSESSMENT  
Data Protection Services has an agreement with the institution where you are carrying out research or studying. As part of this agreement, we provide guidance so that the processing of personal data in your project is lawful and complies with data protection legislation.

**FOLLOW YOUR INSTITUTION'S GUIDELINES**  
We have assessed that you have a legal basis to process the personal data, but remember that it is the institution you are employed/study that decides which data processors you can use and how you must store and secure data in your project. Remember to use suppliers that your institution has an agreement with (eg for cloud storage, online questionnaires, video calls, etc.)

We presuppose that the project will meet the requirements of accuracy (art. 5.1 d), integrity and confidentiality (art. 5.1 f) and security (art. 32) when processing personal data.

**NOTIFY CHANGES**  
If you intend to make changes to the processing of personal data in this project it may be necessary to notify us. This is done by updating the Notification Form. On our website we explain which changes must be notified: <https://sikt.no/en/notify-changes-notification-form>

**FOLLOW-UP OF THE PROJECT**  
We will follow up the progress of the project at the planned end date in order to determine whether the processing of personal data has been concluded.

Good luck with the project!

## Appendix 2

### Example of consent letter

#### Are you interested in taking part in a research project?

##### *“Breaking the Sound of Silence”*

#### Purpose of the project

The purpose and overall aim of this research project is to understand what your perceptions and views are on: how important is early identification and intervention; how interventions, accommodations and programs can be implemented to help children with SM, how SM affects people in adulthood; and what does the future provide in ways that help these individuals with SM; a sub-question to the research question entails foreseeing a possible future of using platforms of Virtual Reality to help young children with SM.

#### Who is responsible for the research project?

*University of Oslo* is the institution responsible for the project.

#### Why are you being asked to participate?

You are receiving this inquiry because you have agreed to participate in interviews with me. You, alongside four or five other participants, will form a focus group in which you will discuss your knowledge and experiences with SM students.

I am sending this to you after your consent to share your email.

#### What does participation involve for you?

If you chose to take part in the project, this will involve one online zoom meeting. The meeting will take approximately 60-90 minutes.

Questions in the interview will entail discussions such as: how teachers/therapists perceive their role in the identification process of SM children, what they perceive as good intervention, accommodations, and programs. Other topics of discussion in the interviews will be – How is SM and shyness differentiated? What do you think of VR as an intervention in schools? Do you perceive a future using VR technology in therapy and intervention?

The zoom meeting will be recorded, for transcription purposes. It is entirely up to you to have your cameras on or off.

#### Participation is voluntary

Participation in the project is voluntary. If you choose to participate, you can withdraw your consent at any time without giving a reason. All information about you will then be made anonymous. There will be no negative consequences for you if you chose not to participate or later decide to withdraw.

## Appendix 2 (continued)

### **Your personal privacy – how we will store and use your personal data**

We will only use your personal data for the purpose(s) specified in this information letter. We will process your personal data confidentially and in accordance with data protection legislation (the General Data Protection Regulation and Personal Data Act). Your personal data will be stored in secure systems that are approved by UiO for processing personal data. This will be deleted after 6 months to a year from when the project is completed.

I, alone, will have access to any personal data. For this project anonymity when writing the proposed thesis will be ensured giving aliases, pseudonyms or codes to your names when quoting your experiences. The list of names, contact details, professional occupation and respective codes will be stored separately from the rest of the collected data, on a research server, locked away and encrypted. Participants will not be recognizable in the thesis.

With regards to ownership and control of data, you will be given a chance to verify your statements and validate the data, if you wish to. I will ensure steps to report accurately and consider your sensibilities, while making no assumptions of your feelings and emotions.

### **What will happen to your personal data at the end of the research project?**

The project is scheduled to end June 1, 2023. Personal data will be deleted after 6 months of completion of the project.

### **Your rights**

So long as you can be identified in the collected data, you have the right to:

- - access the personal data that is being processed about you
- - request that your personal data is deleted
- - request that incorrect personal data about you is corrected/rectified
- - receive a copy of your personal data (data portability), and
- - send a complaint to the Data Protection Officer or The Norwegian Data Protection Authority regarding the processing of your personal data

### **What gives us the right to process your personal data?**

We will process your personal data based on your consent.

Based on an agreement with University of Oslo, Data Protection Services has assessed that the processing of personal data in this project is in accordance with data protection legislation.

### **Where can I find out more?**

If you have questions about the project, or want to exercise your rights, contact:

- University of Oslo via: Basma Sati at [kbsati@uio.no](mailto:kbsati@uio.no) .
- Our Data Protection Officer: Roger Markgraf-Bye [personvernombud@uio.no](mailto:personvernombud@uio.no)
- Data Protection Services, by email: ([personvertjenester@sikt.no](mailto:personvertjenester@sikt.no)) or by telephone: +47 53 21 15 00.

## Appendix 2 (continued)

Yours sincerely,

Researcher/Student Basma Sati



## Consent form

I have received and understood information about the project “*Breaking the Sound of Silence*” and have been given the opportunity to answer and ask questions. I give consent:

- ◆ to participate in an online interview
- ◆ for my personal data to be processed until the end date of the project,

approximately June 1, 2023

---

(Signed by participant, date)

## Appendix 3

### Sample interview questions for therapists

#### GROUP 1 – Therapists & Speech and Language Specialists

\*Participants will be given a short one-page summary of VR before the interview.

#### **A. How therapists perceive their role in the identification process of SM children; what they perceive as good intervention, or adjustments and programs.**

1. How did you diagnose SM and how early on? Explain.
2. Did you work closely with the teacher/parents? Explain
3. What strategies did you use to help the child/children with SM? Explain
4. Is the child/children's academic progress hampered by SM? Explain.
5. Is there a relationship between SM and speech difficulties? Explain
6. If so, how do the strategies to address these issues differ? Explain.
7. In your opinion, how prevalent is SM? And why does it go mostly unnoticed?
8. Does SM child qualify for an Individual Education Plan (IEP) in your region?

#### **C. What are therapists' perceptions of the thin line between shyness and SM and how is shyness differentiated by the teacher or therapist?**

9. Do you think there is a thin line between SM and shyness/introversion? Elaborate.
10. How do you differentiate between SM and shyness/introversion? Elaborate.
11. Do children outgrow SM once they reach adulthood in your opinion? Explain.

#### **D. What do therapists' think of VR as an intervention in schools?**

12. Do you know what Virtual Reality is? Explain what you know.
13. Are you aware that VR has been used to address certain anxiety and communication disorders such as SM?
14. If not, would you be willing to incorporate this method into your strategy?

#### **E. Is it the new 'digital' way for therapists to go with and do they perceive a future using VR technology in therapy and intervention?**

15. If you are not interested in this method, explain what advantages and/or disadvantages you foresee.

#### **F. Do you perceive a future using VR technology in therapy and intervention?**

16. Virtual reality can be used in classrooms. Are you interested in seeing teachers incorporate it within an inclusive classroom environment? Explain.

**Is there anything you would like to add before we finish?**



## Appendix 3 (continued)

### Sample interview questions for teachers and educators

#### FOCUS GROUP 2 – Teachers with no experience with SM

\*Participants will be given a short one-page summary of SM and VR before the interview.

##### **A. What are teachers' perceptions of the thin line between shyness and SM and how is shyness/introversion differentiated?**

1. When you hear the term social withdrawal in children or shyness, what are your immediate thoughts?
2. Do you have any experiences with shy or introverted children? Elaborate.
3. Do you consider being shy a challenge? Why/why not? (A challenge in the classroom context? Academic performance? A challenge for the child?)
4. During the course of your teaching career, did you learn any strategies for helping/interacting with children who are shy/withdrawn? If yes, which strategies?
5. What factors in the classroom do you think contribute to whether a child is shy or withdrawn?
6. How would you differentiate shyness as opposed to an anxiety disorder such as SM?
7. Do you think children outgrow shyness in your opinion? Explain

##### **B. What is the role of the teacher, educator or therapist in the early identification and intervention of SM?**

8. What do you think the role of the teacher, educator or therapist in the early identification and intervention of SM is? Explain
9. How do teachers perceive their role in the identification process of SM children; what you perceive as good intervention, what strategies could you suggest?
10. In your opinion why does SM go mostly unnoticed?
11. Are you interested in learning more about SM? Why?
12. If so, what could you and your schools do about it?

##### **C. What do teachers think of VR as an intervention for SM?**

13. Do you know what Virtual Reality is? Explain what you know.
14. Are you aware that VR has been used to address certain anxiety and communication disorders such as SM?
15. If not, would you be willing to incorporate this method into your strategy?

##### **E. Is it the new 'digital' way for teachers/therapists to go with and do they perceive a future using VR technology in therapy and intervention?**

16. Whether you are interested or not in this method, explain what advantages and/or disadvantages you foresee.

##### **F. Do you perceive a future using VR technology in therapy and intervention?**

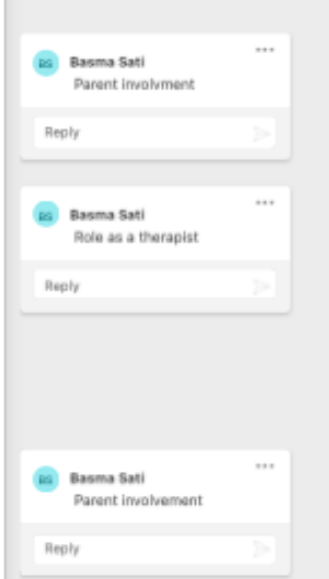
17. Virtual reality can be used in classrooms. Would you and your colleagues be willing to incorporate it within an inclusive classroom environment? Explain any barriers if any.

**Is there anything you would like to add before we finish?**

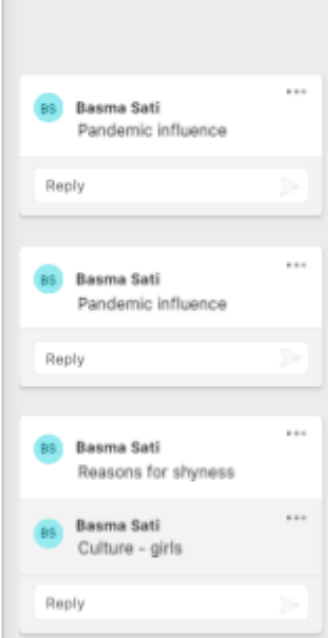
## Appendix 4

### Coding Process - Examples of first round coding

142 we kind of label anxiety as this kind of bully inside of a child's brain. And so I'll use a  
143 combination of SEL like social emotional learning, play therapy, but really targeting on self-  
144 esteem. And then I will do a bit of psycho education with the child, teaching them about  
145 how anxiety is kind of hijacking their brain in these moments and how they can start talking  
146 back to their anxiety. And so there might be, yeah, so I would say with, with child focused,  
147 it's a lot of social emotional learning, psycho education and play based therapy. And with  
148 the parents and with the teacher, it's psycho education as well with parents and teachers,  
149 actually. It's probably mostly based on a behavioral intervention, whereby we structure a  
150 program with the parents and the teacher. And the child is getting reinforced week by week  
151 on a very specific behavior that we're trying to shape. So initially, we might just start with  
152 and you probably know this, like a wave or a child to do thumbs up, thumbs down. I was  
153 meeting a focus group last week in the south of Jordan, actually, and they invited a child  
154 that was selectively mute to my focus group, and he was refusing to verbalize. I gave him  
155 just kind of hand signs that he and he communicated with me through that. And then after  
156 the focus group was done, I invited him to just have a chat chat, you know, one, one to one,  
157 and he was very verbal, but at least he was nodding and just saying one word responses.  
158 And so we might start with something as you know, basic and simple as that. And then week  
159 by week, we monitor the plan, and we will reinforce the child with the teacher's assistance  
160 inside of school.  
161  
162 INT: 09:50.320 --> 09:52.920  
163 And with the child, it's one to one?  
164  
-----



51  
52 P6:03:01.920 --> 03:05.080  
53 Yeah, I want to echo a little bit what P3 was saying just now. And we talked about it a lot  
54 with P2. Like after lockdown when we came in and we were wearing the masks, and UAE  
55 was very extreme about it as well, that the kids were scared of us. Like say for me, I'm  
56 already pretty tall with my heels and a huge mask on my face. I would come to a KG child  
57 and I'm like, hi, honey. And they were like, you know, (pulling away). So I think that definitely  
58 played a role. And then P3 said something that I actually I didn't really make that  
59 connection. But now that she's saying it, we've been experiencing a lot of just quickly  
60 jumping to fights in like grade five, grade six, seven, eight boys. And that didn't necessarily  
61 make the connection. But it could be connected to the fact that they didn't have to deal  
62 with any social situations. They didn't have to confront their emotions or in a family setting.  
63 It would be very different. They wouldn't be used to these big groups and things like that.  
64 So we definitely experienced that. And then just on a general level, for example, in the UAE,  
65 and you know this, like you've lived here for so long, but it's sometimes part of the culture,  
66 especially for girls, to be more reserved and to be more shy. So if I compare it to back home,  
67 it's just impossible to find girls in grade five in Czech Republic that would be shy to speak to  
68 an adult. Or if there was such a case, it would be because there's a very good reason for it,  
69 whereas in UAE, I think culture also plays a role. So for little girls here, I think that's also  
70 something you have to consider. Do you know, we cannot name, but do you know the girl  
71 I'm talking about, actually? She's been in the school since KG. We all know her mom. We all  
72 know her siblings. And we see her every single day. And yet there was an incident last week  
73 with her, and it took me a good 20 minutes to get her to talk to me. She would give me one-  
74 worded answers, or she would look on the floor. She would look at the floor. She would  
75 make a lot of eye contact. And she's not on the spectrum or anything, but it's just she's shy.  
76



## Appendix 5

### Code book sample

Code Number & Color	Code Name	Definition	Inclusion	Exclusion	Example
<b>YELLOW 1.1</b>	Shyness	Defining shyness and any reasons for shyness	Every time shyness is defined and Every time a person says the reasons for shyness or overcoming/outgrowing shyness. Reference to pandemic	When it refers to something else like SM. When it doesn't refer to shyness	it would be a one-off encounter. There's a variety of reasons ... Social shyness, I would say yes, children can outgrow...
<b>PINK 1.2</b>	Strategies (for shyness and SM)	Different tools, strategies, interventions and techniques used in the classroom	When stating different ways that they incorporate in the class to work with shy children - tools, intervention, strategies, techniques in the classroom + addressing the needs of SM children	When it doesn't refer to shyness or SM	You could work on with different tools - encouragement - positive reinforcement - different methodologies - draw and talk - don't push the student too much - encourage
<b>GREEN 1.3</b>	SM	Defining SM & reasons for SM	Every time SM is defined or talking about awareness of SM or talking about diagnoses or symptoms of SM	When it refers to something else like shyness	A lack of attachment from a very early age - it would be of huge benefit to have CPDs on selective mutism, just to bring awareness to...He just wouldn't speak to us...he could speak on certain occasions to certain people
<b>PURPLE 1.4</b>	Inclusion	Talking about inclusion - all children	Any sentence that mentions benefit for all children - all - inclusion	When inclusion is not mentioned	Benefited all children, not just who outwardly struggled with that - any intervention that helps one child will help multiple children
<b>KHAKI 1.5</b>	Differentiating SM vs shyness	Difference between shyness and SM	Everytime someone compares the two or talks about one or the other	When not talking about the relationship between the two.	The lasting effect and how selective mutism would show itself in all aspects of a child's life and all aspects of their thinking rather than just one like an interaction with that new person.
<b>RED 1.6</b>	Red Flags	Talking about when teachers notice a concern	When the teacher notices a concern and identifies there is a problem	When not talking about teacher concerns	if they couldn't communicate it with me it would be a bit of a red flag
<b>Turquoise 1.7</b>	Role as a teacher	Talking about what a teacher ensures in her classroom with her students to develop an inclusive	when they talk about their role as a teacher to the children, classroom and school and Relationship with teacher	When not talking about their role or what they do in the classroom	My role as a teacher ...
<b>GREY 1.8</b>	Parent involvement	Involving parents in the process and asking them for help	When parent involvement is mentioned, or the home, siblings, relatives, family etc cooperation and denial of parents	When it doesn't refer to parent or family involvement	I would certainly use parents... What's going on at home
<b>TEAL 1.9</b>	Awareness of VR	Talking about awareness or knowledge of VR	mention of VR awareness, or what it is used for	When not talking about VR	I immediately associate VR with gaming...
<b>BLUE 1.10</b>	Advantages & disadvantages of VR	The positives and bad sides of VR	Talking about the pros and cons of VR - barriers and positives	When not talking about VR and SM	It's their avatar doing something ...they don't have to talk - VR would be groundbreaking
<b>BLACK 1.11</b>	Speech and SM	Speech development related to SM	when someone speaks about speech and language development, speech delay, bilingualism etc	When not mentioning speech development or some form of language development	

## Appendix 6

### Examples of collating the codes



#### THEMES – TEACHERS/EDUCATORS

Selective Mutism SM in general assessment/stories	Shyness This line links shyness to SM	Role of the Teacher Strategies Inclusion Red flags Parent involvement	VR Assessment & interventions/strategies
<b>Selective Mutism (12)</b> SM in general assessment/stories			
<p>PRG1: that then selective isolation and more kind of long-standing anxiety and social anxiety, that I would attribute to lack of attachment from a very early age that has more become part of a child's day-to-day life and day-to-day perception of their world</p>			
<p>PRG2: Yes, I haven't fortunately or unfortunately had a child with selective mutism in my 18 years of teaching.</p>			
<p>PRG2: that 100%, it would be of huge benefit to have CPSE on selective mutism, just to bring awareness to that because every single school is dealing with it now, whether they know it or not. But at the minute, it's just a focus on English language skills. But <a href="#">CPSE</a>, there's so much more going on under the surface that's far beyond just language because they would have that language. It's actually the emotional side of things as well.</p>			
<p>INT: there's a lot of things that can trigger SM and one of them is trauma. Coming from country to country, dysfunctional family, whatever, there's biological explanations, there's just many things ..... that it's many factors that can be a reason for SM. It could be environmental, psychological, could be biological. There's something in the brain. It could be dysfunctional family. It could be abuse in the family. It could be immigrating from country to country. It could be bilingualism and multilingualism and that child refusing to speak in that language. There's many, many factors that could lead to SM.</p>			
<p>PRG2: I had heard of SM, but I hadn't really <a href="#">looked</a> on it as part of this in education classroom because I haven't had a student with SM to my knowledge, a student diagnosed with SM in the 18 years I've been teaching, but I would obviously know what mutism is and selective mutism. But actually, when I first think of it, I think of adults. I don't know why I that's would just be my automatic link. Yeah, kind of like VR and gaming mutism.</p>			
<p>PRG2: He just wouldn't speak to us, and especially the ones who wanted to solve the problem. <a href="#">He</a> he felt it, and he would just block completely. And we know very well he can speak. We all heard him speak. But there were certain trigger situations where he would just shut down, and nobody could get to him no matter what ..... because the boy that Pru is talking about, he would speak in certain occasions to certain people. But most of the time, he wouldn't speak to anyone, and especially when there was a highly tense situation.</p>			
<p>PRG2: it's (SM) a form of anxiety. And very often, there's trauma related. <a href="#">See</a> it's very different than shyness.</p>			
<p>PRG2: she has been in and because it happened after the year she didn't attend by her father</p>			

Shyness (7) This line links shyness to SM
<p>PRG1: I mean VR in general has become a big thing especially after COVID for kids, they enjoy it a lot</p>
<p>PRG1: With the shy child, I would say that with the first encounter maybe or the second encounter with a person that they don't know they might exhibit you know these characteristics of being shy being kind not wanting to interact too much. But once you start interacting more with them, talk to them, play with them perhaps you'll see that they'll come out of their shell. OK, especially on a <a href="#">group</a> level, with the child with selective <a href="#">mutism</a>, it's a completely different story. You see this across environments of course and most by like you said before in the classroom and then it's not just a matter of interacting with the child, playing with them little but when you're able to bring out the best that they can do it's, it's much more than that yeah.</p>
<p>PRG1: I believe that you can be confident and shy at the same time. <a href="#">See</a> I don't think that those two should go hand in hand. And especially now, I think the research has evolved in terms of that. But for me, when I think about selective mutism, it's this ability to not be able to speak outside of the home. And it's very much linked to an anxiety disorder. This is how I always define selective mutism in my brain.</p>
<p>PRG1: Shyness is a trait. And I don't think that every shy child is an anxious child at all. I think that shyness maybe is linked to introversion and that a shy child will really wait. And this is and also with some anxious children as well. But they will wait until they honestly are feeling more comfortable in their environment. And maybe sometimes we call these kids like slow to warm up kids. It takes them just a bit of time. And then, you know, the last 30 minutes of a birthday party, it's hard to pull them out of the party.</p>

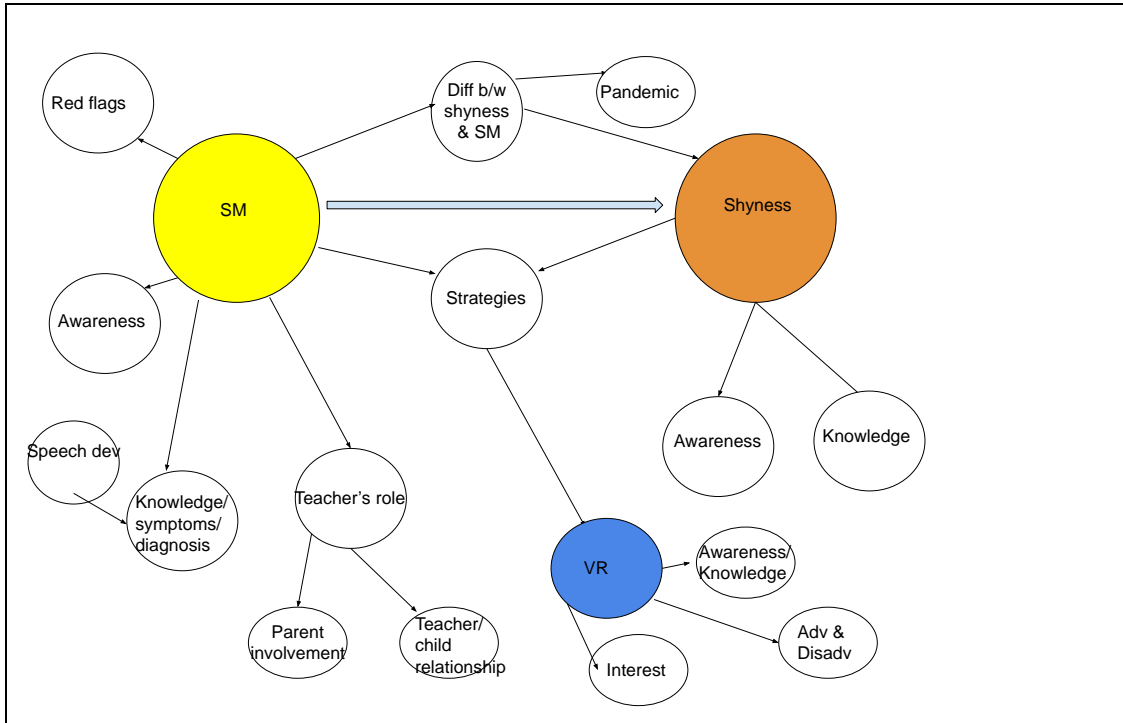
<p>PRG1: A selectively mute child, maybe I can say it's at a deeper level than shyness or it's a more I don't want to say how am I going to I don't want to pathologise it, but I would like to point out that it requires a set of responses and modifications within the child's environment and really a deep understanding of this child and their struggles in order to help the child push through while shyness might be a trait that someone carries for life. And it may or may not hinder a child's day to day performance. But I think with selective mutism, that's a different story.</p>
<p>PRG1: I think there is an element of shyness ..... but it is more complicated than shyness.</p>
<p>PRG1: Maybe it's persistent in the child, that is what I believe in. It's not like shy, you are shy after dealing with someone for half an hour, let's say for one month, like in school, and it will go but if SM more than one month it stays, so I think it is related to shyness for sure. But it is <a href="#">persistent more, more like anxiety</a>.</p>

Role of the Therapist (7)
Strategies Inclusion Red flags Parent involvement
Role as a therapist (10)
<p>PRG1: way I found this out was through of course interacting with the child through assessments that I did, through information that I got from the family and the work there was basically done with me as a speech pathologist and a clinical psychologist who would work on you know getting the child to basically talk more be able to get in the environment that they're in and be able to communicate the way that they should.</p>
<p>PRG1: sometimes of course in these cases you usually would have to refer them to another specialist who would work in this area like play therapists have done really good work with children with selective mutism</p>
<p>PRG1: You understand and you're able to help. And once we start working with these <a href="#">kids</a> we pair up with the parents to give them all the recommendations tips. They sit in during the therapy sessions so they know exactly what we're doing and so they can also follow up at home. Some of the follow up that is required from them in the home environment, could be a lot of times if there's no carryover at home, therapy is</p>

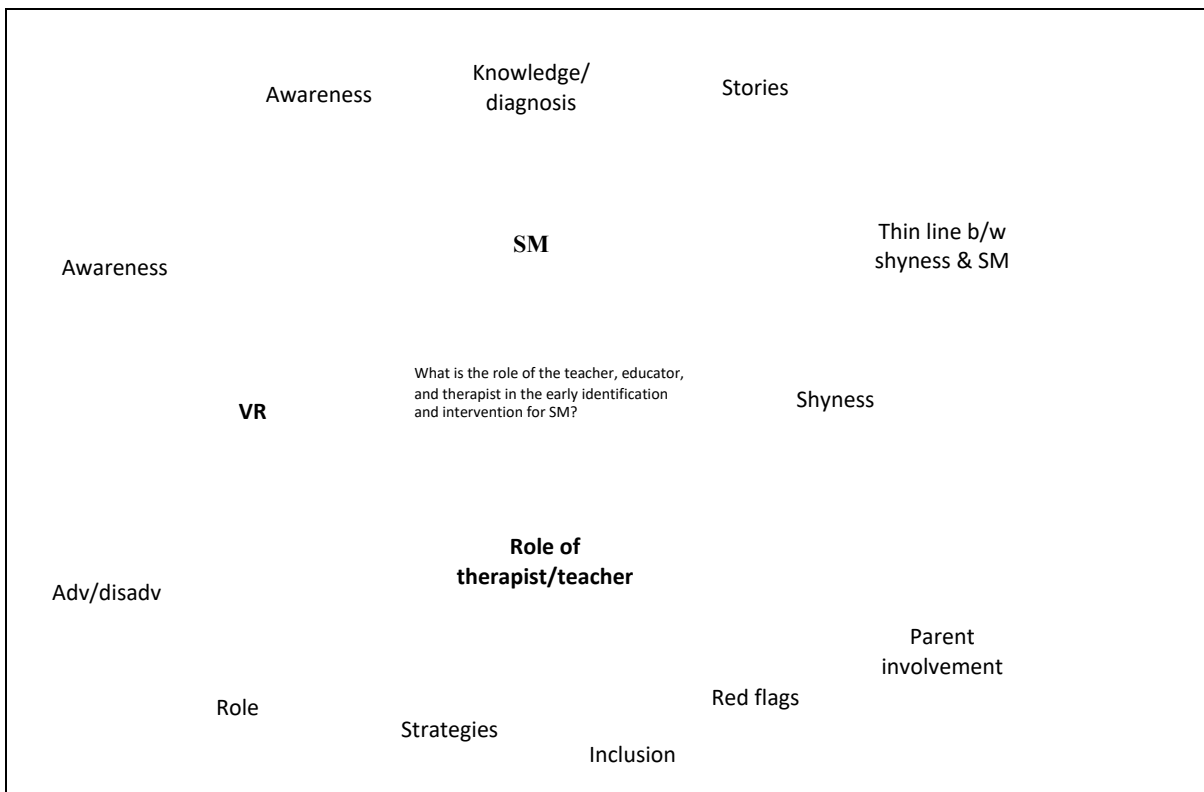
## Appendix 7

### Thematic maps

Original thematic map 1



Thematic map 2



## Appendix 7 (continued)

### Final Thematic map

