SUPPORTING CHILDREN WITH SELECTIVE MUTISM: A CASE STUDY ON THE ROLE OF CLASSROOM ENVIRONMENT ON SPEECH PRODUCTION

by

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A thesis submitted in partial fulfillment of the

requirements for the degree of

MASTER OF ARTS

in

Applied Child and Adolescent Psychology

DEREE - The American College of Greece

2024

THESIS APPROVAL

"Supporting Children with Selective Mutism: A Case Study on the Role of Classroom environment on Speech Production" a thesis prepared by Yasmine El Gabalawy in partial fulfillment of the requirements for the Master of Arts degree in Applied Child and Adolescent Psychology was presented on November 18th, 2024, and was approved and accepted by the thesis advisor, internal examiner and DEREE- The American College of Greece.

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in Applied Child and Adolescent Psychology to be awarded in October 2024

Title: SUPPORTING CHILDREN WITH SELECTIVE MUTISM: A CASE STUDY ON THE ROLE OF CLASSROOM ENVIRONMENT ON SPEECH PRODUCTION

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Abstract

The classroom environment, a space where social and academic shaping normally takes place, may be quite challenging for students with selective mutism (SM). There is limited research on how these students respond to the classroom environment in Greek schools. This current case study aimed to find ways to support and encourage speech production in the Greek classroom environment. It examined the role of classroom environment, specifically aspects of the physical environment (seating arrangement), aspects of the social environment (classmate and professionals' interaction) and other factors in the classroom environment (the use of visuals and technology) on the speech production of a 6-year-old Greek student, JA, with SM. Through semi-structured interviews, four professionals who worked closely with JA discussed five main topics: seating arrangement, classmate interactions, professionals' interactions, the use of technology and the use of visuals and their role on JA's speech production. The deductive analysis found that classmate friendliness and excitement expression, forced-choice prompts, using classmates to prompt JA, practicing answers to questions, and labeled praise encouraged speech production. Whereas seating arrangement, the use of humor, educating other students about SM, and not overreacting when the student spoke did not encourage speech but contributed to setting the ground for the student to feel comfortable to eventually speak. Professionals did not use visuals and technology to encourage speech production with JA. This study shows that students with SM can be supported and effectively achieve speech production with some modifications in the classroom environment.

Keywords: selective mutism, classroom environment, speech production, inclusivity

Yasmine El Gabalawy

EDUCATION

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- "Supporting Children with Selective Mutism: A Case Study on the Role of Classroom Environment on Speech Production"

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- Conducted a reversal ABAB experimental study on the impact of token reinforcement on increasing on-task behavior amongst students with ADHD

Clinical Interviews
- Conducted SCICA clinical interviews with parents, children and teachers and created a case conceptualization for possible diagnosis

WIATT- 3
Administered, scored and interpretated the WIATT-3 assessment for a student

Participatory Research
- Conducted a 4-month participatory research study on the impact of the waste situation on community members in Dahshour

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Student Disability Service, The American University in Cairo
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- Assisted students who are visually impaired to commute to classes
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TRAINING

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Shadow Teaching and Behavioral Interventions

- Completed 350 hours of fieldwork shadowing and supporting students with ADHD, learning difficulties and on the autism spectrum
- Implemented behavioral interventions to assist students in the classroom setting
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Learning Support

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CONFERENCES

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Member

- Conducted weekly visits for elders in shelter homes by providing psychosocial through personal engagement that deliver recreational activities
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AWARDS

Top 10 graduates Spring 2023

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LANGUAGE AND COMPUTER SKILLS

- Fluent in Arabic and English
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I. INTRODUCTION

Selective mutism (SM) is a rare, and often misidentified condition. It is defined as the inability to verbally communicate in social environments where speech is anticipated (in public or at school), while normally speaking in other more familiar social environments, such as at home or around parents (APA, 2022; Muris & Ollendick, 2021). Individuals with SM are physically able to verbally communicate but become extremely anxious in unfamiliar social situations, thus leading to the intentional selection to refrain from verbal communication (APA, 2022). For example, students with SM do not speak to any of the teachers or classmates but speak and answer to e.g., their parents at home (Muris & Ollendick, 2021). Hence, they are quite talkative around individuals and in social environments they are comfortable with but refrain from speaking around unfamiliar individuals and in unfamiliar environments that result in extreme anxiety (Muris & Ollendick, 2021).

These individuals tend to be unable to express that they are struggling. This, in turn, results in social, emotional and academic challenges especially in the classroom environment since it is a space where social and academic shaping usually takes place. However, these challenges are rarely addressed by professionals due to how often it is misidentified, ignored or unrecognized. This gap between the need for support and the lack of support allocated to students with SM makes it crucial to comprehend what SM is, highlight ways to support students with SM and create an environment that is both inclusive and supportive for them to eventually feel comfortable to speak.

Diagnosis

Whether SM should be categorized as a separate disorder, or a sign of an underlying social anxiety disorder has been a never-ending debate in the literature. Despite a few authors

(e.g.: Bergman et al., 2002; Black & Uhde, 1992; Muris & Ollendick, 2021) that have suggested that SM should be classified as a type of social anxiety, it has been officially classified as a separate psychological disorder in the DSM-5-TR under anxiety disorders (Muris & Ollendick, 2021).

According to the DSM-5-TR, for a child to be formally diagnosed with SM, the inability to speak must be there for about one month excluding school's first month because it is typical for shyness and refusal to speak during that month. This verbal communication refraining must not be explained by not feeling comfortable or lacking experience in the spoken language they are required to use in the social environment, and it must be affecting their academic and social functioning (Muris & Ollendick, 2021; Wong, 2010). Also, in order to be diagnosed, one has to first rule out difficulties in speech disorder (e.g., stuttering) and the existence of other developmental disorders such as autism spectrum disorder (APA, 2022; Keville et al., 2023; Muris & Ollendick, 2021; Wong, 2010).

Prevalence

SM is an uncommon condition with a very low prevalence, can often be misdiagnosed and overlaps with other anxiety disorders. The percentage of children who have SM worldwide is estimated to be around 0.3 – 1.9% (Bergman et al., 2008; Muris & Ollendick, 2021; Viana et al., 2009). It has been shown that every five years, an educational psychologist is expected to come upon only one child with SM (Buck, 1998 as cited in Imich, 1998). Research has also shown that SM is more prevalent in females than in males, with a ratio of 1.5:1 (Cunningham et al., 2004).

Onset

SM is a condition that has an early onset, usually prior to reaching the age of five, with an average range from 2.7 to 4.1 years (Vasa & Roy, 2013). However, there tends to be a delay between the age of onset and the age at which the child is referred for support where the mean age that children are referred is from 6-9 years. (Vasa & Roy, 2013; Viana et al., 2009). One possible explanation for this delay is that SM is often unnoticed until these students go to school and start facing situations where they have to speak in unfamiliar settings. Hence, it is because children with SM often speak at home around their parents normally, sometimes parents spend months or years before noticing that their child has SM (Vasa & Roy, 2013). Another possible explanation is the fact that both parents and teachers tend to misidentify the muteness as mere shyness or quietness that the child will eventually outgrow (Kovac & Furr, 2019; White & Bond, 2022).

Comorbidity

Most individuals who have SM also have a comorbid anxiety disorder (Driessen et al., 2019; Manassis et al., 2003; Muris & Ollendick, 2021; Sulkowski et al., 2014). A meta-analysis study found that 80% of children who met the criteria for SM also met the criteria for an anxiety disorder (Muris & Ollendick, 2021). According to the literature, social anxiety, separation anxiety disorder and specific phobia are all comorbid disorders for SM with comorbidity of 61-68%, 32%, and 50% respectively (Manassis et al., 2003; Sulkowski et al., 2014). While all these anxiety disorders are comorbid for SM, social anxiety disorder is the most commonly found comorbid disorder (Driessen et al., 2019; Muris & Ollendick, 3021). Research suggests that this frequently found comorbidity between SM and social anxiety could be an explanation to why the literature has suggested that selective mutism should be classified as an anxiety disorder (Muris & Ollendick, 2021).

Other common comorbid disorders mentioned in the literature are disorders such as obsessive compulsive, dissociative, and panic disorders (Sharp et al., 2007). One of the most common comorbid disorders is autism spectrum disorder (ASD). In a study conducted with 42 children with SM investigating their symptoms, results showed that 80% of these individuals had also scored above the cutoff on the autism probability index (Klein et al., 2019). Similarly, another study conducted with 6–18-year-olds with either social anxiety or SM found that individuals with SM also had symptoms of ASD (Cholemkery et al., 2014).

Characteristics of Selective Mutism

The diagnostic criteria described by the DSM-5-TR do not describe any other symptom of SM other than the main symptom of muteness, which according to research, may indicate a lack of precision in the criteria for diagnosing such disorder as it is hard to diagnose by looking at one symptom only (Vogel et al., 2022). Hence, based on the literature where teachers, parents and clinicians were asked about the indicators they noticed in the child with SM, there are some possible indicators of SM that are beyond the main symptom of speech refrainment (Vasa & Roy, 2013; Vogel et al., 2022). Other than silence, studies have shown that a possible indicator of SM is the inhibition in motor abilities when in unfamiliar environments. The child seems to be physically and emotionally frozen, freezing their facial expressions and movements (Vasa & Roy, 2013; Vogel et al., 2022). Others have shown that children tend to engage in avoidance behavior where they avoid any situations that include verbal communication so as to avoid the anxiety (Vogel et al., 2022). Another possible indicator of SM is the constant reliance and use of nonverbal communication such as the use of hand gestures, pointing or nodding to communicate when they are in unfamiliar social situations (Vasa & Roy, 2013). While some rely mainly on nonverbal communication, others use subtle verbal sounds such as grunting or using babytalk. In

more extreme cases, they refrain from using both subtle verbal sounds and nonverbal communication (Vasa & Roy, 2013). Others have also shown that alongside the muteness, children with SM often have low self-esteem and negative view of their self-worth (Vogel et al., 2013). Additionally, studies have shown that because the individual with SM is scared of social interactions, they often engage in behaviors that are externalized such as tantrums and aggression (Vogel et al., 2013). Others also explained the physical indicators of SM, including blushing, avoiding eye contact, and fidgeting (Crundwell, 2006).

SM is a disorder that also has irregularities and changes in the patterns of speech, sometimes associated with the situation and sometimes with the individuals themselves. Some children with SM tend to completely refrain from verbal communication at school but speak in other public environments, such as at church. Similarly, some children with SM may select an unfamiliar individual to speak to, -such as a shadow teacher, - while refraining from speaking to other unfamiliar individuals. Likewise, another child might be verbally communicating with an individual in some instances but refrain from speaking with the same individual in a different instance. Therefore, SM is a disorder with a wide range of speech variability where there is no specific pattern, posing a challenge for professionals to diagnose (Vasa & Roy, 2013).

There are also certain personality traits that typically match with most individuals with SM. Children with SM usually have a shy, anxious, submissive, sensitive, aggressive, fearful, withdrawn, and inhibited personality in unfamiliar settings (Kumpulainen et al., 1998; O'Neill, 2005). Studies have found that children with SM may be wanting to interact, but they do not because they experience anxiety stemming from the idea of having to engage in spontaneous speech. However, as reported by parents, they might have a completely opposite personality like funny, bossy and are quite verbal at home (O'Neill, 2005).

Etiology

The etiology for SM remains unclear. However, there are some possible theories that attempt to explain the cause of SM. The existing literature has theorized that SM is due to environmental factors or genetic factors or a combination of them (Sulkowski et al., 2014; Vasa & Roy, 2013). Temperament is one of the genetic factors that might be contributing to the development of SM (Fung et al., 2018; Smith et al., 2014). When children are born, they either have an inhibited or an uninhibited temperament. An uninhibited child is the one who is generally open to new experiences and unfamiliar individuals. Whereas an inhibited child is one who tends to avoid new and unfamiliar experiences or individuals (Fung et al., 2018; Smith et al., 2014). Studies showed that because having an inhibited temperament makes children refrain from speaking in unfamiliar situations, these children are more prone to developing SM (Fung et al., 2018; Smith et al., 2014). A study examining the correlation between behavior inhibition and SM found that those who had an inhibited temperament had greater SM symptoms than those with uninhibited temperaments (Muris et al., 2015). Similarly, a study by Gensthaler et al (2016) found that children who had SM engaged in more inhibited behaviors at the beginning of their childhood suggesting that the inhibited temperament might have contributed to the development of the SM. Hence, temperament, specifically inhibited temperament, seems to play a role in the development of SM.

Family history can also contribute as a genetic factor to the development of SM (Vasa & Roy, 2013; Fung et al., 2018). Individuals with SM tend to also have a family member who has SM, suggesting a hereditary cause (Vasa & Roy, 2013). Research has shown that a percentage of about 30% of individuals diagnosed with SM have a family member who also has SM (Black & Uhde, 1995 as cited in Sulkowski et al., 2014). Also, since SM is comorbid with anxiety disorders and social phobias, around 70% of children who have a relative with anxiety disorders

or social phobias have been diagnosed with SM (Black & Uhde, 1995 as cited in, Sulkowski et al., 2014).

Environmental factors may also be a contributing factor. Some theories argue that the reason why a child selectively speaks could be a reflexive response to a traumatic experience (Sulkowski et al., 2014). Other theories comprise problems in the family dynamics, the fear of listening to one's own voice, dysfunctional ways of reinforcing the child, and problems adjusting (Sulkowski et al., 2014).

One of the most common environmental aspects that may contribute to SM is the tendency others have to engage in mind-reading when interacting with a child with SM (Vasa & Roy, 2013). Teachers and parents often try to or mindread what the child wants rather than wait for them to speak because they think that they will not respond either way. Also, sometimes teachers and parents label the SM behavior as 'shy' and therefore do not encourage the child to use verbal communication. This in turn not only drives the child to start resorting to nonverbal communication, but also reinforces the muteness and reduces the chances of them speaking and therefore may contribute to the development of SM (Vasa & Roy, 2013). Having all these etiological theories, it is clear that more research is necessary since the cause of SM is a multifactorial and complicated issue.

Selective Mutism in the School Setting

In order for a child to be diagnosed with SM, their mutism has to stand in the way of their academic or social achievements (APA, 2022). When looking at academic performance, studies have found that when children were assessed for their receptive vocabulary, girls had significantly lower scores compared to the control group, whereas boys' scores did not differ from the control group (Nowakowski et al., 2009). Similarly, Kumpulainen et al. (1998) found

that those who had SM had lower academic performance than their grade level. However, not all children are academically affected by their SM. Even though some children with SM might not be academically affected, SM might sometimes affect a child's general school performance. In a study by Bergman et al (2002), those who had SM were rated by their teachers as having lower academic performance than the control group. This is because it is quite challenging to measure what a child learned and did not learn alongside whether they comprehend the material or not because they do not verbally communicate (Bergman et al., 2002; Resendes, 2022).

SM can also affect the child's social interactions in the school environment. Children who meet the criteria for SM often experience issues with social interactions. Due to the constant refraining from verbal communication in unfamiliar environments, children with SM tend to have reduced social interactions at school (Crundwell, 2006; Cunningham et al., 2004; Steinhausen & Juzi, 1996). Research showed that children who had SM scored lower than the control group on the Social Skills Rating System (SSRS) social assertiveness scale. This indicates that individuals with SM introduced themselves and initiated conversation much less than the control group (Cunningham et al., 2004). This then affects their social skills development, as they may seem unfriendly to others (Crundwell, 2006; Cunningham et al., 2004). It is because other children at school often find children with SM unapproachable and hard to interact with, they tend to reject them and push them away, which again reduces their social interactions with others (Crundwell, 2006; Steinhausen & Juzi, 1996).

Other studies yielded similar results when they assessed how the lack of speech and/or communication problems have affected social interactions. A study by Palmer et al (2016) investigated the effect of having a communication difficulty, such as expressive and receptive language abilities on social relationships. Results showed that the communicating difficulties that

those individuals face have resulted in becoming socially isolated and therefore having a smaller group of friends, participating less in social activities, having increased loneliness levels and less positive social interactions (Palmer et al., 2016). These results indicate that individuals who have communication difficulties, similar to SM, tend to have fewer social relationships and are more likely to develop mental health issues (Palmer et al., 2016).

Supporting Students with Selective Mutism in the Classroom Environment

Since students with SM are usually undisruptive in the classroom, they often suffer without being noticed (Viana et al.,2009). Hence, not having an inclusive classroom environment that supports them can further reinforce the muteness and can pose extra challenges to their learning and social experiences (Omdal, 2008). Therefore, it has become crucial to emphasize modifications within the classroom environments that can be made to create an anxiety-free space that would eventually lead to the facilitation of speech production (Omdal, 2008). In the existing literature, five common aspects were identified as important in creating an inclusive classroom environment that both supports and encourages speech production of students with SM: seating arrangement, classmate interactions, professionals' interactions, the use of technology, and the use of visuals.

Seating Arrangement

There are two main ways in which desks are arranged in a typical classroom; cluster seating arrangement, where desks are grouped together allowing students to sit together or row and column seating arrangement, where students are seated independently (Tobia et al., 2022). Using a cluster seating arrangement would be better in cases when the goal is to encourage classmate interaction because the students are proximally close to their classmates, whereas row and column would be better when the goal is to decrease disruptive behavior (Wannarka & Ruhl,

2008). Despite that, there are some individual differences that affect how students respond to different seating arrangements. According to Tobia et al (2022), lonely individuals are often very alert to social threats in their environment. This makes them take more notice to any negative social interactions they come across and might often lead to social anxiety (Tobia et al., 2022). This also makes their focus more on the social threats rather than the task required from them. In their study, Tobia et al. (2022) showed that students who were rated by their peers in a questionnaire as lonely, performed much better when they were seated alone compared to in a cluster arrangement. This is because being seated in clusters makes it even harder for lonely students because the proximity to their classmates shifts their focus from the required tasks to the social anxiety, which puts more load on their thinking (Choi et al., 2014 as cited in Tobia et al., 2022). Another explanation for the low performance during cluster arrangement can stem from the student's focus on regulating their social anxiety. Lonely students might be regulating their anxiety levels and thinking about the rejection from peers rather than focusing on the required task, leading to low performance (Tobia et al., 2022).

However, the seating arrangements do not only affect students' academic development, but also affect how they function socially within the classroom environment. Studies have shown that when students are arranged in a way where they are close to one another, this minimizes negative classmate perceptions and maximizes the likelihood of them liking each other's company (Allport 1954; Pettigrew, 1998 as cited in Gremmen et al., 2016). A study conducted with 651 children found that when children who did not like each other were seated close to one another, they said that they liked their classmates more compared to when they were not seated together. Also, results showed that when students who were not fond of one another sat together,

they were subjected to less bullying, victimization, and social withdrawal (Van den Berg et al., 2011).

The aforementioned studies have focused on the contrasting effects of cluster and row and column seating arrangements. However, whether students with SM benefit more from cluster or row and column seating arrangement has not yet been clearly identified by previous literature yet. Research on SM has some suggestions for seating arrangements to create a comforting environment that promotes speech production in students with SM.

The first suggestion of a seating arrangement that can facilitate speech production is that the student with SM is seated next to the teacher (Johnson, 2012; Kovac & Furr, 2019). When the student is physically close to the teacher, the teacher will be able to hear them if they spoke and will also create a more comfortable environment for the child where he/she feels secure being near someone, he/she is comfortable with, thus facilitating speech (Johnson, 2012; Kovac & Furr, 2019).

However, other studies found that physical proximity may be anxiety provoking for students with SM (O'neill, 2005). Hence, opposing studies found that some students with SM do not feel comfortable speaking to their teachers as well, where teachers are still unfamiliar individuals to them (Kampulainen et al., 1998). Therefore, having the student sit farther away from the teacher can actually encourage the student to verbally communicate with his/her classmates because the teacher cannot hear them (Crundwell, 2006; Resendes, 2022). Hence physical proximity with the teacher is quite a controversial topic in the literature.

Another suggestion is allowing the child to choose where they want to sit in the classroom (e.g.: beside a friend) (White & Bond, 2022). This ensures that the child is seated in a position that is the least anxiety-provoking (White & Bond, 2022). This suggestion is slightly

consistent with another suggestion emphasizing that seating the student with a buddy they are comfortable with, can significantly increase speech production (Crundwell, 2006; Resendes, 2022). Despite these suggestions, it is clear that there is a lack of sufficient research on the topic and that further research is needed to identify the ideal seating arrangement for students with SM.

Classmates' Interactions

Classmate interactions are another fundamental factor in the classroom environment that can be used to either support or hinder the speech production of students with SM. Previous research has found that students with SM are often subjected to rejection from peers and bullying (Crundwell, 2006; Keville et al., 2022; Kumpulainen et al., 1998; Manassis, 2009; Sulkowski et al., 2014). In a study conducted with 289 teachers of students with SM found that 16% of the students with SM experienced rejection from classmates, 13% experienced rejection during their school playtime and 5% were victims of classmate bullying (Kumpulainen et al., 1998). Rejection could be because other children at school often find it challenging to approach and interact with children with SM due to their mutism, so they push them away (Kumpulainen et al., 1998). Whereas bullying could be explained by the student's inability to verbally express that they do not like the way they are being treated by their classmates, hence becoming an easy target for bullying (Manassis, 2009). Therefore, the muteness is not the only aspect hindering these students', but also how other children treat them plays a role. This is consistent with what Keville et al. (2022) found where children who had SM faced extreme difficulties making friends. Children with SM were kicked under the table and locked in bathrooms as a form of bullying just because they were unable to express that they need assistance (Keville et al., 2022).

However, these results were inconsistent with what Cunningham et al. (2004) found. Results showed that despite having fewer friends, reduced level of initiating conversations and introducing themselves, students with SM were not bullied more than their classmates (Cunningham et al., 2004).

In corroboration for this, a case study by Omdal (2008) conducted with five children with SM found that classmate interactions were very beneficial for children with SM. Classmate support and interactions where they smiled, gave thumbs up whenever the child with SM answered 'yes' has been found to help the child drastically and has resulted in the child's speaking after a year of encouragement from peers (Omdal, 2008). Similarly, a study by Williams et al (2021) found that classmate interactions made it easier for the teacher to communicate with the student with SM. In the study, the teacher said that the student had one classmate whom he/she felt comfortable verbally communicating with. This in turn, allowed the teacher to better understand what the student wanted as the classmate friend would repeat to the teacher what the student with SM had verbally said (Williams et al., 2021). However, others have suggested that the constant reliance on someone else to verbally communicate for the child can sometimes reinforce his mute behavior (Kovac & Furr, 2019; Welsh, 2017).

It is for all the abovementioned reasons, research has suggested that teachers should encourage classmate interactions and the inclusion of the student with SM in order to better help and facilitate in the speech production process (Hahn, 2008; Kovac & Furr, 2019). Teachers are encouraged to not only partner the student with a buddy as a seating arrangement, but in all other activities to encourage social interactions (Kovac & Furr, 2019). Kovac and Furr (2019) found that when students with SM were paired with a student, they were fond of in activities such as reading, this facilitated speech production with this child (Kovac & Furr, 2019). They also found

that when the child was comfortable to speak with his/her pair, new students were added to the group which generalized the verbal communication behavior with other students as well (Kovac & Furr, 2019).

Furthermore, research also suggests that teachers should educate other children about SM by talking to them about how the students with SM are not unfriendly or rude, but perhaps they have their own way of interacting (Hahn, 2008). This in turn, will encourage students to initiate interactions, and might promote the verbal communication of the student with SM.

Interactions with Professionals

Professionals, including teachers, are also amongst the most important factors than can be used to facilitate speech production. Research shows that it is less probable for teachers to notice a child's condition when this child is suffering in silence (Loades & Mastroyannopoulou, 2010 as cited in White et al., 2022). Since students with SM often suffer in silence, it can be overlooked easily by teachers (White et al., 2022). It is for that reason; teachers need to be aware of the symptoms of SM in order to help them in the best possible way. Research found that teachers are the key in changing how schools tend to just hope that these children will eventually stop being "shy" (Bergman et al., 2002, as cited in, Crundwell, 2006). However, part of being aware of SM is comprehending that children with SM are refusing to speak not because they are uncooperative but because of the anxiety they experience (Shipon-Blum, 2016; Resendes, 2022). Teachers have to understand that these children are not trying to be rude, but they feel anxious and unsafe to speak (Resendes, 2022). Hence, once teachers are aware of these, they are encouraged to utilize different techniques in order to create a better environment for students to feel comfortable and speak.

Research found that one of the aspects that need to be avoided is forcefully making the child speak (Crundwell, 2006; Hahn, 2008; 2004; Resendes, 2022, Shipon-Blum, 2016). This is because when children are compelled to speak in an environment where they do not feel comfortable in, it might result in regression where the child would return to square one, canceling the progress they have reached in speech production before the forced speaking (Resendes, 2022). Additionally, sometimes when children are forced to speak, they become overly anxious and therefore might engage in anger tantrums or oppositional behaviors (Crundwell, 2006; Resendes, 2022). When teachers see that forcing them is not helping, they often no longer demand speech from the child, which unintentionally reinforces the muteness (Crundwell, 2006; Shipon-Blum, 2016). Hence, it is fundamental not to completely ignore the muteness but not to force the child to speak. Research suggests that the teacher should try to build a comfortable environment and a warm relationship with the child. Teachers can explain to the student that they know that speaking is overwhelming and invite them to speak whenever they are ready (Kovac & Furr, 2019). This in turn will make them realize that they are not in an anxiety-provoking environment when they are in the classroom and that it is okay to take longer to open up (Resendes, 2022; Welsh, 2017).

Another consideration for teachers is to not overreact when the child speaks. When a teacher overreacts when the child speaks, this might make the child anxious and therefore refrain from trying to speak again (Shipon-Blum, 2016). This is due to the fact that the overreaction draws a lot of attention to the children and makes them feel that they want to go back to not speaking to avoid this attention (Resendes, 2022). However, this does not mean that the teacher should not praise verbal communication. Research suggests that teachers are actually encouraged

to praise the child's attempts to speak but without being extremely excited (Resendes, 2022; Sulkowski et al., 2014).

The type of praise that teachers are encouraged to use with students with SM are labeled phrases, and reflective phrases (Barnowski, 2019; Carpenter et al., 2014; Eyberg & Funderburk, 2011 as cited in Kovac & Furr, 2019; Resendes, 2022). Labeled phrases are those in which the child's speaking is labeled such as "I like how you used words to tell me what you need". Reflective phrases are those that reflect back on what the student said, such as "Yes, I can see you like coloring" after the student says, "I like coloring". The persistent use of both labeled and reflective phrases shows the child that speaking is desired and boosts the child's self-esteem (Barnowski, 2019). A study conducted on James, a young boy with SM, found that when James was verbally praised for speaking, his verbal communication increased significantly (Sulkowski et al., 2014).

Tangible reinforcers can also be used to encourage speech production. A study conducted on children with SM found that when children were given small rewards for speaking, they started speaking more often (Oerbeck et al., 2012). However, when the child is continuously reinforced by giving praise or a tangible reinforcer every time they speak, it might make them get stuck at the one or two-word utterances without any attempts to utter full sentences (Sulkowski et al., 2014). One of the ways that teachers are advised to use to prevent that is through the use of shaping (Bunnel et al., 2019; Busse & Downey, 2011; Nelson, 2020; Sulkowski et al., 2014). Shaping is breaking down a behavior into smaller steps and rewarding each step to achieve the desired behavior (Busse & Downey, 2011; Nelson, 2020). Students with SM might sometimes need the behavior of speaking to be broken down into smaller steps to reduce their anxiety (Busse & Downye, 2011; Omdal, 2008). Hence, teachers are advised to

reinforce any attempts of speech at the beginning and once the child masters this task, they start requesting more from the child to receive the reinforcement (Nelson, 2020; Sulkowski et al., 2014). For example, the teacher might praise the child for responding with one or two words at the beginning but once this step is mastered, the teacher then praises them when they attempt to say a full sentence (Sulkowski et al., 2014). This step-by-step process works on reducing their level of anxiety and allows the child to see that the teacher is acknowledging these small successive steps (Busse & Downey, 2011).

A study conducted with 15 children with SM found that when they used a two-leveled shaping intervention to encourage speech production, speech production increased in 13 out of the 15 children where they moved from saying a few utterances to answering open-ended questions at the very end (Bunnel et al., 2019). However, some students do not have the ability to utter a few simple utterances. Hence, it is important to follow a hierarchy of communication. This hierarchy of communication entails that the teacher reinforces nonverbal behavior first then gradually increase the demand from the child where utterances are reinforced, then forced choice answers then open-ended respectively (Kovac & Furr, 2019).

Another important consideration for teachers would be the way in which they ask questions to students with SM to speak. Research found that asking fixed choice questions, where questions are asked in a way where the student is given some options to choose from, facilitates the verbal communication process compared to open-ended questions (Barnowski, 2019; Kovac & Furr, 2018). Responding to yes or no questions was the easiest, followed by fixed choice and then open-ended questions (Kovac & Furr, 2018). Hence, it is advised that teachers should first start with fixed choice questions then move to open-ended questions when they believe the child is ready to do so (Barnowski, 2019).

Research also suggests that in order for progress to occur in answering these questions, one has to be patient and allow for a five-ten second wait time before the question is asked again (Barnowski, 2019; Kovac & Furr, 2019). This reassures the child that the teacher does not mind waiting for them to prepare and utter their answer (Barnowski, 2019).

Technology

Technology is also one of the ways that teachers can use to support students with SM in the classroom. Studies have shown that augmentative and alternative communication devices (AAC) can be used in the classroom to support children with SM (Skacel, 2014). AAC are tools used by people who cannot speak where these tools either replace speech or assist in verbal communication. These comprise aided AAC such as electronic devices that have saved speech messages that a person can choose from, or unaided such as using signs, facial expressions, and gestures (Broomfield et al., 2022; Schlosser & Wendth, 2008). Voice output communication aid (VOCA's) is one of the well-known electronic forms of AACs used. VOCA's are programs where the student clicks on a written word or picture and then a series of speech forms as a replacement of the student's speech, for example clicking on a picture of a boy drinking water, and the sentence "can I drink water" is formed (Broomfield et al., 2022; Skacel, 2014). Another form of electronic AAC is the picture exchange communication system (PECS). PECS are used by students to communicate where on the electronic device, the student chooses a picture expressing what they want and then get a reinforcement as a result. For example, if a student wants a pencil, he/she will show a picture of a pencil and receive the pencil as a reinforcement (Skacel, 2014).

The aforementioned tools can be used to assist students with SM but are not very practical in the classroom because they can make a student feel ashamed of using it. A suggested

form of AAC that is more practical is the use of an iPad where there are many accessible applications that can be downloaded on the iPad and can be used by the student with SM inside the classroom (Skacel, 2014). Skacel (2014) examined the effect of using technology, specifically an iPad on facilitating communication in the classroom for a year five student with SM. Results showed that the use of an iPad where the student clicked on pictures, or typed their answers to express himself, increased the nonverbal communication of the student with SM. However, the communication could not be generalized to verbal speech (Skacel, 2014). Similarly, a study by Bunnel et al. (2018) conducted with 15 children with SM found similar results. A mobile application that allows children to record what they say and then repeat it in a monster voice as well as asking the student to ask the monster in the app an open-ended question and answering questions asked by the monster in the app. Results showed that these children gradually felt comfortable to speak to the app and eventually spoke to clinicians after an hour of using the app (Bunnel et al., 2018).

Visuals

Some of the existing literature has suggested the use of visual aids (such as picture cards) to support children with SM and give them the opportunity to both express their needs and to make sure they understand the material in class (Resendes, 2022). Therefore, one of the suggested ways is that teachers should allow the child with SM to use talking mats. A talking mat is an interactive visual framework that is used on paper. These talking mats allows individuals with communication problems, physical and cognitive difficulties to express what they think about something in terms of opinions and feelings (Stans et al., 2019). These talking mats are used to hold a visual conversation with those who have difficulties doing that. Talking mats have three main categories: topic, option, and visual scale. The topic category is the topic

that they will be talking about (e.g.: my day at school), the option category includes specific topics underneath the main topic umbrella (e.g.: English class, breaktime) and finally the visual scale which has two to five emotions where the child can express how they feel by placing each option underneath the feeling they are feeling (e.g.: placing breaktime underneath a happy emoji) (Coakes & Murphy, 2014; Stans et al., 2019). By using talking mats, children with communication difficulties, such as those with SM are able to express themselves using visual communication which in turn reduces their anxiety and facilitates communication (Stans et al., 2019). In corroboration for this, a case study on young adults with SM found that when the individual used talking mats, it drastically facilitated his communication (Leader, 2024). Similarly, another study was conducted on the use of talking mats with a 40-year-old woman who was not diagnosed with SM but refused to speak around her therapist (Bell & Cameron, 2008). Results showed that using talking mats allowed the woman to use visual pictures to express her views about specific food and activities she liked or disliked and hence facilitating communication (Bell & Cameron, 2008).

Another suggested strategy that is similar to talking mats is the use of a brave talking sheet as a form of token reinforcement (Barnowski, 2019). This is usually a form with check boxes surrounded by visual pictures of brave cartoon characters and superheroes that the child chooses with the teacher. Whenever the child speaks, they receive a tick on the brave talking sheet and eventually receive a larger reinforcement when they have filled the sheet. This sheet does not only make the child feel confident but also gives them a motive to speak (Barnowski, 2019).

Another suggestion proposed by previous literature is the use of visual cards where the child points towards the correct answer on the visual cards when given fixed choice questions

(Resendes, 2022). Others have also suggested that because students with SM find it hard to verbally express what they need, they sometimes have accidents in the classroom because they are unable to express that they need to use the bathroom (Saburi, 2018). Hence, it is suggested that teachers should provide the child with a bathroom visual card where the student just has to show the teacher the card to go to the bathroom, which, in turn, reduces anxiety and prevents accidents (Saburi, 2018).

Research Gap and Aim

To the best of the researcher's knowledge, there is very limited research about selective mutism (SM) in Greek schools in general and also the role of the classroom environment on encouraging speech production in particular. Despite some evidence on how to support students with SM, how these students respond to the classroom environment, specifically aspects of the physical environment (i.e.,: seating arrangement), aspects of the social environment (i.e.: interactions with classmates and professionals) and finally other factors in the classroom environment (i.e.,: the use of visuals, the use of technology) have not been specifically addressed in previous research for Greek schools.

This case study focuses on the case of a Greek primary school student with SM. It aims to examine the role of the classroom environment, specifically aspects of the physical environment (i.e.: seating arrangement), aspects of the social environment (interactions with classmates and professionals) and other factors in the classroom environment, - such as the use of technology, the use of visuals- on the speech production of a student with SM in a Greek primary school classroom. Hence, the main aim of this case study is to find ways to support the student with SM in the classroom environment and encourage speech production.

This study's findings will help professionals understand the ideal classroom environment for students with SM and to encourage speech production. By comprehensively looking at the use of visuals, the seating arrangements, the use of technology and interactions with classmates and professionals, this study will help professionals create a classroom environment that will be both anxiety-free and inclusive to students with SM so that speech is facilitated.

II. METHODOLOGY

Analysis Strategy

This current study focuses on exploring the role of the classroom environment on the speech production of a student with SM in a Greek primary school classroom. Therefore, using thematic analysis as an analytic strategy would be suitable for this study since the main goal of thematic analysis is to recognize, analyze and present themes in qualitative data. Thematic analysis (TA) is a commonly used method in qualitative research that focuses on recognizing then, analyzing and presenting themes within the collected data (Braun & Clarke, 2006). According to Braun and Clarke (2006), the themes that arise from the data can be identified using two main approaches: inductive (bottom-up) approach, deductive (top-down) approach. The inductive approach is one where there are no prior existing themes that the researcher is trying to categorize the data under, but rather allows themes to arise on their own based on the data collected. On the other hand, a deductive approach is one that relies on either the researcher's aim or interest in specific themes. In this approach, there are some themes that had been already identified by preexisting literature and that the researcher aimed to investigate (Braun & Clarke, 2006).

When looking at preexisting literature, seating arrangement, classmate interactions, professionals' interactions, the use of technology, and the use of visuals are five main themes that have been identified to be important in encouraging speech production amongst students with SM. Hence, based on that, this study used a deductive approach where the researcher tried to fit collected data under these five preexisting themes that have emerged from the literature and expand on them.

Research Design

This case study used a qualitative research design to examine the role of the classroom environment, specifically aspects of the physical environment (i.e.: seating arrangement), aspects of the social environment (classmate interactions and professionals' interactions) and other factors in the classroom environment (the use of technology, the use of visuals) on the speech production of a student with SM in a Greek primary school classroom. To this end, specialists who have observed the student and have consistently worked with him were interviewed using semi-structured interviews that consisted of questions created by the researcher to investigate the changes that they implemented to the environment to encourage speech production. Data was analyzed through deductive thematic analysis where the preconceived themes that data were fit under were: seating arrangement, classmate interactions, professionals interactions, the use of visuals and the use of technology.

Case Description

Case: JA is a 6-year-old boy with SM who was born and raised with his American mother, Greek father and elder brother in Athens, Greece. The family communicated in English, but JA learned the Greek language through courses. By the age of five, the family started noticing some symptoms and subsequently traveled to the United States to seek a diagnosis where JA was diagnosed with SM by a specialized psychologist there. JA has been enrolled in a private English-speaking school in Athens since kindergarten and is currently in year one with 15 other children in his class. JA had not spoken to any staff member or any of the children at school ever since he entered Kindergarten at the age of three and has only been using nonverbal communication (e.g.: hand gestures, pointing, nodding, etc.). However, JA speaks at home with his family. From Kindergarten till the first two months of year one, JA's school did not offer any accommodations for him other than making sure that JA's classmates were the same from

kindergarten through year one and attending a learning support class. JA is part of a learning support class, which he attends twice a week at school when the rest of his class have foreign languages. JA attends learning support not because he needs the academic support, but because the school believes that it is an opportunity for him to speak due to the small group size.

However, by the third month of JA's school year, the school referred him to a psychologist to explore the underlying reasons for his difficulties with speech production and to create an intervention plan for him with a goal of speech production. A specialized psychologist from Switzerland came and observed him in the classroom setting for a period of one week. Based on the psychologist's suggestion, JA's family hired a shadow teacher for him. Then the psychologist came up with an intervention plan for JA where she collaborated with professionals who were in contact with JA (his teachers and his shadow teacher) and trained them to use some methods in order to encourage speech production (e.g.: prompting, praising, modifying the seating arrangement, etc.). Through the implementation of this intervention plan, JA achieved the goal of the intervention plan and spoke for the first time saying "yes" to a specific question in the classroom setting after a month of implementation. From this point onwards, JA started responding with only yes or no responses and gradually started using more words in the classroom environment. After seven months of implementing the intervention plan, JA is currently responding to fixed choice questions asked by professionals or classmates in the classroom. He is also initiating speech (asking questions, requesting) with his shadow teacher but has not yet achieved answering open-ended questions.

Participants

Based on this case, a purposive sampling technique was used to recruit four professionals including the shadow teacher, the class teacher, the psychologist, and the learning support

teacher who work closely with JA. Hence, Chloe the psychologist, Katy the learning support teacher, Katherine the class teacher and Emily the shadow teacher collaborated for data collection.

Chloe the psychologist is a 55-year-old Swiss woman who is specialized in SM. Chloe has been working in the field of psychology for around 20 years. She worked with JA for around one week where she observed the classroom dynamics, introduced new techniques for the class teacher to support the child, educated other children on SM and then provided specialized training for the shadow teacher to help her interact and promote verbal communication.

Katy is a 42-year-old Greek/American learning support teacher who has been a special education needs coordinator and learning support teacher at JA's school for three years and has been in the field of special education since 2005. Katy has been working with JA and two other children for two months in the learning support classroom.

Katherine is a 33-year-old class teacher who has been JA's class teacher for nine months and has been in the field of education as a class teacher for 30 years.

Emily is a 25-year-old Greek/Ethiopian shadow teacher who has been working with JA for around three months and has been employed by the parents. She received extensive training from the specialized psychologist, Chloe, on how to interact with JA and the methods she should use to encourage speech production. Emily follows the student at school every day from Monday to Friday for around six hours a day. Emily also attends all classes with JA, sits next to him, assists him in academic tasks and tries to facilitate verbal communication.

Materials

For this study, a semi-structured interview was developed and used by the researcher. The same 24 predetermined interview questions were asked to all four participants in the same

order and the researcher added additional follow up questions where necessary during the interviews, such as asking them to elaborate more when given short answers or asking them to explain more when their answer was not clear. The semi-structured interview was created by the researcher to gain an understanding of the role of the classroom environment, specifically aspects of the physical environment (seating arrangement), aspects of the social environment (classmate interactions and professionals' interactions) and other factors in the classroom environment (such as the use of technology, the use of visuals) on the speech production of a student with SM in a Greek primary school classroom. The questions were separated into five main sections: classmate interaction, professionals' interactions, the use of visuals, the use of technology and the seating arrangement (Appendix A). These sections and the 24 questions were created based on literature research suggesting that these five aspects are important in encouraging speech production amongst students with SM.

Procedure

Once all four participants were recruited, an informed consent and audio recording consent was sent to them through email prior to the interview. They were asked to sign the written consent form which explained the aim of the research, the procedure of the interview, and assured their confidentiality by informing them that they will be given made-up names (Appendix B). They were also asked to sign the audio recording form which highlighted that this recording will only be used for research purposes and that the data will only be accessible to the researcher (see appendix C). Once participants signed both forms, a one-on-one interview was scheduled and conducted with each participant online either through Zoom or Google Meets depending on participants' preference. The interview followed the interview schedule and took around 40-45 minutes to complete. Participants were asked to answer the 24 predetermined

questions in the same order and were asked follow-up questions if necessary. Once the interview was completed, a debriefing form was sent to them through email (Appendix D).

After the data collection process was completed, the audio recordings of the interviews were transcribed separately to begin data analysis.

Data Analysis

Data obtained from participants through the interviews were analyzed using deductive thematic analysis where data was sorted under the five main aspects identified in preexisting literature to be important in encouraging speech production amongst students with SM (seating arrangement, classmate interactions, professionals' interaction, visuals and technology). Braun and Clarke (2006) emphasized six phases as thematic analysis guidelines: Familiarizing yourself with your data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, producing the report. In the first phase (familiarizing yourself with the data), the researcher listened to the audio recordings and read the data transcriptions multiple times to be familiar with the data. During this phase, some note taking was done on what the data is about to help in the categorization under themes later on. In the next phase (generating initial codes), these notes were converted into initial codes that seem interesting in the data. In the third phase (Searching for themes), a table was used as a visual representation where codes were sorted under the five preexisting themes from previous literature as well as sorted into potential new themes. In the fourth phase (reviewing themes), the data sorted under the five themes in phase three were reviewed to check if they were eligible to fit under this theme or not. Also, new emerging themes, were reviewed to check whether they are considered new themes, can be removed, or even separated into two. During phase 5 (defining and naming themes), the researcher went back to the original transcripts and chose specific quotations to sort under the

identified themes. For each theme, the researcher provided a detailed description or definition of each theme. Also, in this phase, subthemes inside each identified theme were also named and defined if applicable. In the final phase (producing the report), themes and data were written showcasing what the data was about and its association with existing literature and the research question.

III. RESULTS

The deductive thematic analysis was conducted based on five main themes identified in preexisting literature to be important in encouraging speech production amongst students with SM. These themes are: seating arrangement, classmate interactions, professionals' interaction, visuals and technology. A thematic map (Figure 1), alongside a table (Table 1), depict the themes present in this study.

Figure 1

Thematic Map of Emerging Themes and Key aspects Explained by Participants

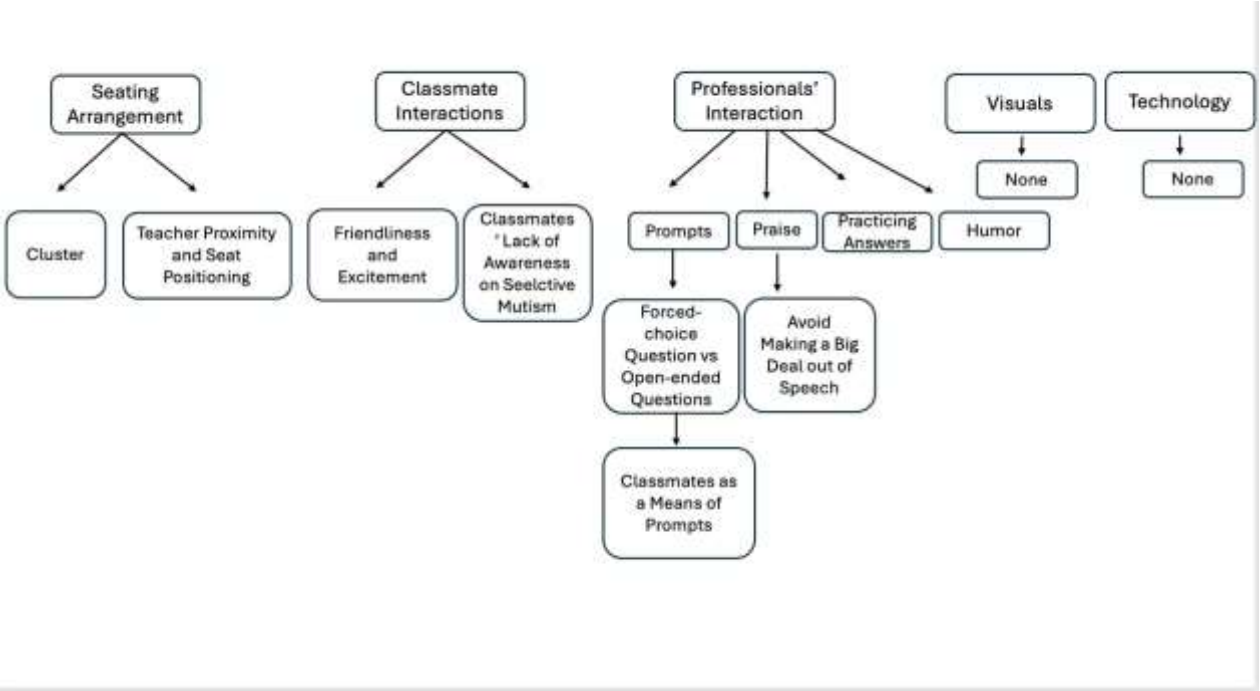

Table 1

Emerging Themes and Key Aspects Explained by Participants

Themes	Key Aspects Explained by Participants
Seating Arrangement	Cluster Seating Arrangement Teacher Proximity and Seat Positioning
Classmate Interactions	Friendliness and Excitement

	Classmates' Lack of Awareness on Selective Mutism
Professionals' Interactions	Prompts
	Forced-Choice vs Open-ended Questions
	Classmates as a Means of Prompts
	Practicing Answers
	Humor
	Praise
	Avoid Making a Big Deal Out of Speech
Visuals	None
Technology	None

Theme 1: Seating Arrangement

The theme seating arrangement concerns where and why JA is seated within the classroom environment and its role in encouraging his speech production. In each participant's description of the seating arrangement, cluster seating arrangement alongside teacher proximity and seat positioning were key aspects described in the interviews that did not encourage speech production but had a positive impact on JA.

Cluster Seating Arrangement

All four participants explained that the classroom was arranged in the form of clusters, where every five children sat together on a round table forming three clusters of five. JA sat in the front table, with four other students, in a position that is of closest proximity to the whiteboard and the class teacher where his shadow teacher would either sit next to him or sometimes leave him to try to work independently. Based on participants' interpretations of JA's behaviors, participants explained that having other students, who he eventually became

comfortable around, in a cluster-based arrangement significantly impacted his level of nonverbal engagement and friendships. However, participants noted that the cluster seating arrangement did not have any role in the facilitation of speech but rather on nonverbal engagement, bonding and friendships. The class teacher, who initially created and proposed the cluster-based seating arrangement, explained:

> *"Having him sit in groups was slowly creating friendships. These friendships for JA would be nonverbal, so I would notice things such as simple bonding over giggles, pointing, smiling and drawing together, but even those tiny things sure made a difference."*

Whereas his shadow teacher explained:

> *"Sometimes, I would see JA laughing at one of his classmates' jokes and I think this would not have been the case if he was seated with me alone, he would not have the chance to interact nor bond with those around him, you know. So, I think having them around him kind of forced him to be friends with them, and I think he liked it"*

Teacher Proximity and Seat Positioning

The level of physical proximity between JA and his class teacher alongside the seat positioning was something that participants noted a lot. Based on participants' interpretations of JA's behaviors, both the teacher proximity and seat positioning did not encourage speech production but increased his sense of safety and reduced his anxiety. JA sat in a chair that is of closest proximity to the teacher where they both had visual direction with one another. His seat faced the front, where from his position he could see the teacher and the whiteboard and all other children other than the ones on his table were seated in a way that he could not see them unless he turned around. Participants agreed that having JA sit in a chair that is of closest proximity to

the teacher where all the other children were behind him has made it easier for the teacher to communicate with him, check up on him and make sure that he understands the material. Participants also expressed that his seat position provided a sense of safety for JA and reduced his anxiety levels. They explained that the idea of having all other children sit behind him where he cannot really see them resulted in a reduction in anxiety level stemming from having all the children around him and from the thought of being the center of attention, and therefore made him feel safe in the classroom environment. Participants also emphasized that when JA was placed on a table with at least one classmate whom he felt comfortable with, this facilitated nonverbal interactions between him and the other children and also increased his sense of security. Even though all that provided a sense of security and reduced his anxiety, it did not encourage speech production.

The psychologist explained,

> *"He sat most closely to the teachers desk, I would say…It would have been harder for the teacher to connect with him more often, if he would have sat far behind, you know, like far away from the teacher's desk….Like stopping by here and there, checking what's going on, communicating with him, asking him something, having him come to the teachers desk is easier from that position."*

Whereas the class teacher who was more concerned with the positioning expressed,

> *"All the children were behind them. You know, if he was sitting in the seat, he could see me and the board and only the children on his desk. I think he felt safe this way, where he would not be overwhelmed by the other children. I think it helped with the anxiety a lot."*

Similarly, the LS teacher explained,

> *"So we were mainly considering the placement of who he was near and where he was so he wouldn't be, you know, distracted or feeling uncomfortable by being in the middle of too many noisy children or children, maybe he doesn't feel so comfortable with, or even the thought of having all eyes on him and I think that made the anxiety tone down, we could sense him slowly becoming comfortable in his own space."*

The class teacher further elaborated,

> **"***We tried to put him near someone that he would feel more comfortable with, so it's also who you sit with as well. JA sat next to a boy he felt comfortable with. We could often see him smiling, drawing with the boy…. So having someone he felt comfortable with by his side I think made him more interactive, but again nothing verbal*"

Theme 2: Classmate Interactions

This theme entails the interactions between JA and his classmates alongside its role in encouraging speech production. All participants noted that JA would attempt to speak to his classmates with one-word answers only if they asked him a forced choice question (e.g.: JA, is your favorite color blue or green?). However, JA would never attempt to spontaneously speak to his classmates, nor did he respond to their open-ended questions. Within the data, classmate friendliness and excitement encouraged speech production whereas classmates' lack of awareness on SM temporarily hindered speech production.

Classmate Friendliness and Excitement

According to participants' interpretations of JA's behaviors, having friendly classmates alongside having classmates get excited when JA speaks has made JA feel more accepted and encouraged him to speak more where he answered their questions (e.g.: "*He was talking more, at least one-word answers, like yes, or I don't know, when they talk to him")*. Participants

expressed that JA's classmates are very friendly and accepting where they constantly attempt to initiate conversations with him. It is because they know that JA does not speak much, they get excited and happy whenever he speaks. This excitement, in turn, makes them want to approach him more. Participants explained that classmates' acceptance and excitement encouraged JA to speak more often (e.g.: *When in the classroom and he answers something or speaks, they get really excited, and happy when he speaks which makes them want to try to talk to him more, because it's interesting")*.

The shadow teacher expressed,

> *"The kids are really nice and they're trying to talk to him a lot. When in the classroom and he answers something or speaks, they get really excited, and happy when he speaks which makes them want to try to talk to him more, because it's interesting. So, for sure, I'll say yes. The kids try. And he likes that… I think he feels more like accepted, you know, like when kids try to approach him, it creates a bond with them because I can see the difference from the beginning until now. I could see that he became more interactive with kids and especially with specific kids who have played with him and approached him, he sometimes answers their questions.*

Similarly, the LS teacher explained,

> *"Some of them are very outgoing and they really wanted to include him, so they made a lot of efforts to include him, to talk to him. And this really helped him. I mean we could feel that he felt comfortable around these kids. So, I would say yes, it definitely played a part in his speech. He was talking more, at least one-word answers, like yes, or I don't know, when they talk to him"*

Classmates' Lack of Awareness on Selective Mutism

Based on the interviews, the lack of awareness that classmates had regarding JA's muteness might have hindered JA's speech production for a short while at the beginning. Participants explained that children who were in JA's class did not understand the nature of JA's SM. Hence, even though they were very friendly with JA, this lack of awareness resulted in comments and pointing out that he does not talk, at least at the beginning (e.g.: *why don't you talk).* According to participants' interpretations of JA's behaviors, participants explained that these comments might have hindered JA's progress in speech production as it made him feel more anxious and self-aware. However, these comments were only at the beginning of the year and were soon resolved when the psychologist spoke with the other children, thus not having much of an impact on JA.

The psychologist explained,

> *"Nothing being mean to him. I mean, sometimes I think it happened, sometimes children would say "JA doesn't talk" "why don't you talk" or making a big fuss about him talking…these comments definitely increased his anxiety level and of course affected his talking. But you know, these are kids, and I sat with them, and we talked about it, and I was able to catch those moments and make sure they didn't overdo it with being super excited about him talking, it's a lovely class"*

Theme 3: Professionals' Interaction

The third theme concerns the interactions between JA and professionals around him (e.g.: teacher, therapist, shadow teacher…) and its role, if any, in encouraging speech production. Participants noted that with JA, it was very difficult to get him to speak given that he has been selectively mute at school for two years now where nothing seemed to result in the production of speech. They noted that their lack of awareness on SM made them unaware of JA's SM, how

best to interact with him and most importantly how to make him feel accepted and safe. However, when the psychologist specialized in SM came in to observe, train and collaborate with them, they became more confident and able to help JA.

The class teacher explained,

> *"I knew nothing about the disorder… after the psychologist from Switzerland came and she did some intensive therapy with us in the classroom, I felt more confident in what kind of questions to ask him and try and get an answer from him…I think it was a big help for everyone.*

Having said that, transcripts collected from participants showed that there are some interaction strategies that the psychologist trained them to use and have been encouraging JA's speech production. Participants noted that due to this training, these strategies resulted in having JA speak for the first time ever at school and the continuation of his attempts to verbally communicate.

Prompts

Professionals' use of prompts with JA has encouraged his speech production. Prompts are cues that professionals give to JA in order to encourage him to either respond using verbal speech or initiate speech. Participants explained that prompting was one of the main things that got JA to speak in the first place.

The psychologist explained,

> *"Prompting was totally key for him…It's an avoidant behavior not to talk, and you need to address that. Helping him to talk was really hard in the beginning. So, we really needed to start with a push. And we weren't expecting the prompts to make him speak out*

whole sentences or longer words, but maybe yes and no. For example, do you want to have the purple crayon? yes or no? and then take it from there"

Forced Choice vs Open-ended questions. One type of prompts used that has encouraged speech production with JA was the reliance on forced choice questions as opposed to open-ended questions. Forced-choice questions are ones where a person is asked a question in a way where there are two or more answers to pick from when responding. Participants reported that using these forced choice questions was very effective in prompting JA to speak (e.g.: "*John was not speaking on his own. He was not speaking spontaneously. But I mean, forced choice questions are the best").*

The class teacher explained,

"JA was not speaking on his own. He was not speaking spontaneously. But I mean, forced choice questions are the best. By May and June, he starting to answer forced choice questions and eventually started answering them in front of the class, in small groups or even if he was eating lunch and one child asked him a question, he would respond to it. So, I think it gave him a push."

Similarly, Emily the shadow teacher explained,

"We usually use first choice questions to prompt him. And it's about like you force him to talk. So, you will give him a question and you will give the answers to the question. so like "would you like to have a chocolate ice cream or strawberry ice cream" so you already tell him to choose, and choosing is much easier for him and I think this is what got him to speak in the first place."

In contrast, participants noted that while JA was gradually responding to the use of forced choice questions as prompts to speech production, he was not responding to open-ended

questions. All participants agreed that having JA to think about and answer questions alone was something very hard for JA. They noted that even though they tried it every now and then, JA was not able to respond to those questions even after a year of trying this prompt.

The shadow teacher explained,

> *"To the fixed Choice he will answer, and it is way easier compared to the open-ended. If you ask him what your favorite breakfast, which is an open-ended question, he will not speak even if I try asking the question differently."*

The class teacher also had a similar response where he highlighted that JA was not responding to the open-ended questions because it is a form of engagement rather than a question and children with SM tend to avoid engaging.

> **"***We didn't achieve answering open ended questions by the end of the year.… I would say good morning, JA. And even with the shadow teacher, we could not get him to say good morning back. The only thing we managed was the shadow teacher would say good, and he would say morning. So, this was as far as we had gone because it's not a question. It's not a forced-choice question, it's engaging, and he doesn't like engaging. So, we are not there yet with open-ended questions, but he did good with forced choice"*

All four participants reached consensus regarding the reason why JA was responding to forced choice questions but not open-ended questions. According to their interpretations of JA's behaviors, they all noted that children with SM, tend to have extreme anxiety stemming from the fear of not responding with the 'correct' answer. Hence this amplified fear, and anxiety becomes very overwhelming for them and therefore makes them avoid answering.

The psychologist noted,

> ***"****We know that 67% of those children do struggle with anxiety around making mistakes or saying something wrong, so it's pretty clear if I ask you a close ended question, there's no discussion about what's right or wrong…but if I would ask you an open-ended question, you can say anything. You have to come up with the answer. And here, this 'coming' up with the answer is the key reason why children with selective mutism do not answer…It is the anxiety"*

Similarly, the shadow teacher explained,

> *"He doesn't have to think whether his answer is a good answer or a bad on. so, he just chooses what he prefers…I think with open-ended questions, inside of his mind he's like oh, what's my favorite breakfast and is it a nice answer or is it not. because usually kids with selective mutism have also anxiety. so, it makes him feel nervous. So, first choice is way easier than open-ended questions"*

Classmates as a Means of Prompts. One of the ways in which participants noted that they use with JA and has encouraged speech production is asking his classmates to prompt him. Participants explained that requesting from other children to ask JA specific forced choice questions encouraged JA's speech production and has allowed him to not just speak to his shadow teacher and class teacher, but to also be responding to his classmates.

The psychologist explained,

> **"***In the beginning of the week, I used to line feed the other students questions to use a forced choice question format or like go ahead and ask JA if he likes cheese or sausage better. And they did that, or ask him his favorite color, like open-ended questions or force choice. And he would respond. On an 80% to 90% basis, he would respond."*

Practicing Answers

Another aspect that participants used with JA that they were not trained to do and has encouraged speech production is practicing answers to questions that are commonly asked (e.g.: What is your favorite color?). According to participants' interpretations of JA's behaviors, participants explained that when they practice together the answers to commonly asked questions or practice ordering something at a restaurant (e.g.: Can I order one scoop of vanilla ice cream), it did not only prompt him to speak but has also reduced the anxiety stemming from responding with the correct answer. This was because they have previously practiced that this is indeed counts as a correct answer or sentence to use, thus encouraging speech production.

Hence, the shadow teacher explained,

> *"So, we practice answers to some questions and practice is really helpful. He used to say orange to what is your favorite color because we practiced it. He knows that's his favorite color but practicing the answer made it easier for him to say it because we discussed how it is the 'correct' answer because it is really his favorite color…. He's having anxiety so practicing makes him more confident and ready to speak."*

Humor

Another aspect that professionals used and was not trained by the psychologist to do with JA was humor. Participants explained that they use humor as a way to reduce JA's anxiety and feel comfortable and safe in the classroom environment. According to participants' interpretations of JA's behaviors, the use of humor did not encourage speech but increased his sense of safety.

The class teacher noted,

> *"I think using humor is something he liked and appreciated. I would do anything to reduce his anxiety. So, because it's an anxiety-based disorder, anything that reduces the*

child's anxiety makes them feel safe and comfortable. And that was the goal. From the beginning of the year, the goal was to reduce anxiety."

Praise

Participants also noted that constantly praising any of JA's attempts to speak, whether it was a one-word or a full sentence response, has encourages speech production. They noted that they used labeled praise, which is specifically pointing out the behavior that they want him to repeat, such as "that was so brave answering Katy's question". Based on participants' interpretations of JA's behaviors, they all agreed that the use of labeled praise has reinforced JA's speaking attempts as it made him feel more confident, thus facilitating speech.

The psychologist noted,

"And we do labeled praise for any speech …. So, thanks for telling me that, or that was really interesting how you explained that to so and so. And it made him feel good about himself, he liked praise and pushed him to talk more…because well, if you praise somebody, if you praise a person for anything, you see more of it."

The LS teacher also mentioned,

"You have to use lots and lots and lots of positive reinforcement and reflecting what he says. So basically, every time he speaks. "Oh, good job answering this question or thank you for telling me about blah. Blah blah and I believe it was one of the things that really helped JA push himself to verbally articulate words, you know, he enjoyed being praised"

Avoid Making a Big Deal out of Speech. However, participants noted that even though praise might encourage JA's speech production, one key aspect that one has to be mindful of is not to overreact or make a big deal out of it when JA speaks. Based on participants'

interpretations of JA's behaviors, they explained that while it made him feel good about himself, sometimes it might unintentionally result to a counter effect, where JA would become more resistant to speak. Participants explained that this overreaction can make JA feel that he is the center of attention and make him feel anxious therefore reinforcing the muteness rather than trying to remove it. Hence, participants noted that giving a not so overreacted yet encouraging reaction would encourage JA to see that speaking is a desired behavior.

The psychologist explained,

> *"Sometimes you have to kind of damp it down a little bit especially if you have a child who has social anxiety…they just feel the focus is extremely on them and on the speaking and it makes them nervous… and it can sometimes make him hold back from talking even more to avoid that reaction and the spotlight. You cannot praise in a way that is like super-duper excited."*

Similarly, the shadow teacher noted,

> *"I am not allowed to say, oh my gosh, JA, you just answered. And we also teach other kids that they don't have to be like oh wow, but just give a normal reaction.…and it helped him a lot because it is as if he is at his house where he speaks normally, and they never show him that he is doing something wow when he speaks"*

Theme 4: Visuals

This theme entails the use of visuals or cards to encourage speech production. However, during the interview, when participants were asked whether they used visuals, or communication cards, none of them used visuals to encourage speech production with JA.

Theme 5: Technology

This theme focuses on the use of technological tools inside the classroom to encourage speech production. However, similar to the use of visuals, participants explained that even though the classroom had some technological tools such as a whiteboard, technology was not used to specifically assist JA in any way.

IV. DISCUSSION

This study aimed to explore the role of the classroom environment, specifically aspects of the physical environment (seating arrangement), aspects of the social environment (interactions with classmates and professionals) and other factors in the classroom environment, - such as the use of technology, the use of visuals- on the speech production of a student with SM, JA, in a Greek primary school classroom. This study fulfilled its aim of finding ways to encourage speech production of students with SM in a Greek classroom environment. It showed that through modifications in the classroom environment, students with SM can be successfully supported and encouraged to speak in the classroom environment. Through the incorporation of this study's findings, making students with SM feel comfortable and increasing speech production can be achieved and can guide experts to support students with SM in the classroom environment.

This study found that the use of prompts, praise (labeled), practicing answers, and classmate friendliness and excitement have encouraged speech production for JA. Based on participants 'interpretations of JA's behaviors, the use of prompts, specifically the use of forced choice questions, (e.g.: do you want to eat carrots or cucumbers?) as opposed to open-ended (e.g.: what would you like to eat?) removed the anxiety stemming from having to answer with the 'correct' answer that is usually present when answering open-ended questions and has been found to encourage speech production. Additionally, asking classmates to ask the student with SM forced choice questions has also been found to support and encourage the speech production of JA. Moreover, the use of praise, specifically labeled praise, has been found to encouraged speech production for JA as, according to participants' words, it boosts his confidence level.

It was also found that practicing answers to questions with a professional encouraged speech production of JA as, according to participants interpretations, it reduces the anxiety

stemming from responding with the correct answer by allowing them to practice answering with what counts as a 'correct' answer. Additionally, having friendly classmates that get excited when JA spoke has been found to be a way that encourages speech production for JA as, based on participants' interpretations, it makes him feel more accepted by the classmates around them.

On the other hand, while these aspects can effectively be used with students with SM in the classroom environment to encourage speech production, this study found that, the use of humor, educating other students about the nature of SM, not overreacting when the student speak, having a cluster-based seating arrangement, and having JA sit close to the teacher and positioning his seat in a way where he cannot see his classmates were all things that did not necessarily encourage speech but contributed to setting the ground for the student to feel comfortable to eventually speak. According to participants' interpretations of JA's behavior, these have been found to reduce his anxiety, increase his sense of safety, encourage nonverbal engagement and increase formation of friendships. Even though these did not encourage speech production, these findings can still be used to set a comfortable environment for students with SM as an initial step to eventually feel comfortable to speak. Hence, these findings prove that students with SM can be supported and encouraged to speak within the bounds of a classroom. Therefore, a detailed analysis of each preconceived theme is presented.

Seating Arrangement

This theme primarily focused on the seating arrangement of JA's classroom and its role in encouraging speech production. Research found that the classroom's physical environment has a prominent role on students' social interactions and comfort within the given space (Byers et al., 2018; Crundwell, 2006; Wannarka & Ruhl, 2008 as cited in Tobia et al., 2022). Participants in this current study agreed with these findings where they noted that having JA sit with four other

children on the same table in a cluster-based seating arrangement, was one of the aspects that did not encourage JA's speech production but increased his level of nonverbal interactions with his classmates and was slowly creating friendships that were based on nonverbal interactions (e.g.: giggling, smiling, pointing). These were consistent with Van den Berg et al. (2011) who found that when students were seated together, it maximized their likelihood of them liking each other's company, increased social interactions and reduced negative social interactions.

While using a cluster-based seating arrangement did not encourage speech production in this present study may seem like something negative, the increase in JA's nonverbal interactions and friendships may be considered as initial steps that set the ground for achieving speech production. Research highlighted that students with selective mutism might sometimes need the behavior of speaking to be broken down into smaller steps, where they follow something called the hierarchy of communication to reduce their anxiety and eventually speak (Busse & Downye, 2011; Omdal, 2008). This hierarchy of communication entails that the teacher reinforces nonverbal behavior first then gradually increase the demand from the child where few utterances are reinforced, then answers to questions (Kovac & Furr, 2019). Hence, the cluster-based seating arrangement that resulted in an increase in JA's nonverbal interactions and friendship formation might be the start of JA's road to achieving speech in the classroom environment.

Additionally, other aspects in the seating arrangement that participants emphasized their importance are having JA sit in a position that is of closest proximity to the teacher and to at least put JA next to one classmate whom he felt comfortable with. Results showed that while teacher proximity made it easier for the teacher to communicate with him and catch up with his level of understanding, having a classmate he is comfortable with sit next to him has facilitated interactions and made him feel secure. These results were in agreement with studies suggesting

that teacher proximity allows the teacher to hear the student if they spoke (Johnson, 2012; Kovac & Furr, 2019), and other studies suggesting that partnering the student with SM with someone whom he felt comfortable with encourages social interactions (Crundwell, 2006; Resendes, 2022).

Moreover, the seat positioning was another aspect in the seating arrangement that had a positive outcome on JA. JA had his seat positioned in a way where he could see the board and the teacher while all the other children, except for those on his table, were seated out of his sight behind him. This positioning has, according to participants words, significantly increased his sense of safety and decreased JA's level of anxiety that was stemming from having all the children around him, alongside the social anxiety stemming from the thought of having eyes on him because he could not really see the other children from where he was seated. Despite the lack of existing literature on the role of the seat positioning on individuals with SM, some literature found that being surrounded by so many children shifts the focus of lonely individuals from the required task to the social anxiety, which puts extra load on their cognition (Tobia et al., 2022). Therefore, it is possible that JA's focus did not shift from the required tasks to his social anxiety but rather felt safe and his anxiety decreased in the seat position, because his classmates were placed somewhere out of his sight to avoid this from happening.

Hence, even though the seating arrangement that was set for JA (cluster-based, seat positioning, teacher proximity, proximity to a classmate he is comfortable with) did not encourage his speech production, it has been found to reduce his anxiety, increase his sense of safety, encourage nonverbal engagement and increase formation of friendships, which are all aspects that are necessary for the student to achieve first to then eventually feel comfortable to produce speech. Existing literature concluded that building a comfortable environment and a

comfortable relationship with the student with SM will not only support the child's performance at school, but also make them realize that they are not in an anxiety- provoking environment when they are in the classroom and eventually feel comfortable to speak (Welsh, 2017). Hence, the collective approach comprising his close proximity to the teacher, the positioning of the chair where all other children were seated behind him in way that is out of his sight alongside having a classmate whom he felt comfortable next to him have all contributed to a positive outcome for JA that set the initial space for speech production to occur. This can be supported by the fact that since students with SM are in need of a safe, supportive, and encouraging environment, making the necessary modificatioins in the classroom's seating arrangement makes these students feel safe, and reduces their anxiety levels to eventually feel comfortable to speak (Crundwell, 2006).

Classmate Interactions

This theme primarily focused on the classmate interactions that JA has and its role in encouraging speech production. Based on participants' words, having friendly classmates alongside the excitement classmates expressed when JA spoke have both been found to be successful in encouraging his speech production and increasing his sense of acceptance (e.g.: *I mean we could feel that he felt comfortable around these kids. I would say yes, it definitely played a part in his speech. He was talking more, at least one-word answers, like yes, or I don't know, when they talk to him")*. These results further support previous literature that found that classmate interactions were very beneficial for children with SM and a contributor to speech production (Hahn, 2008; Kovac & Furr, 2019; Omdal, 2008).

Results showed that JA had warm, friendly and understanding classmates who constantly made effort to include and initiate conversations with him. JA's classmates noticed that JA did not speak and as a result, they often got excited when he spoke and approached him more to see

him speak more. Both the excitement expression and the friendly classmates made JA feel accepted within the given space and was witnessed speaking more due to his classmates. These results were interestingly consistent with what Omdal (2008) found in his study. In his study conducted with five students with SM, classmate support and interactions where classmates smiled, gave thumbs up whenever the child with SM answered 'yes' has resulted in the child's speaking after a year of encouragement from peers (Omdal, 2008). This was also in line with research suggesting that teachers should encourage other children to interact with the student with SM to facilitate the speech production process (Hahn, 2008; Kovac & Furr, 2019). Kovac & Furr (2019) found that when a student with SM was paired with another student not just as a seating arrangement but in all sorts of activities such as reading, this classmate interaction resulted in an increase in speech production. Hence, friendly classmate interactions and the excitement they express to the student with SM have been found to be ways to support students with SM in the classroom environment and encourage their speech production.

Nonetheless, participants noted that classmates' lack of awareness on JA's SM hindered his speech production progress temporarily. Even though JA had a class of warm and friendly classmates, JA felt more anxious and self-aware due to the negative comments he was subjected to by his classmates (e.g.: why don't you talk) at the beginning when children were unaware of the nature of SM. Therefore, the muteness is not the only aspect hindering these students, but also how other children treat them plays a role (Manassis, 2009). These results seem to be partially in line with previous research that found that students with SM are often subjected to rejection from peers and bullying (Crundwell, 2006; Keville et al., 2022; Kumpulainen et al., 1998; Manassis, 2009; Sulkowski et al., 2014). Keville et al. (2022) alongside Manassis (2009) found that students with SM were bullied, kicked and locked in bathrooms because they were

unable to verbally express that they did not like this treatment nor ask for help. However, in this current study, according to the participants, JA was not subjected to bullying but rather some minor comments from his classmates that were not uttered with the intention of bullying but rather from the lack of awareness. Hence, since children tend to reject students with SM because they often find it challenging to approach and interact with them (Kumpulainen et al., 1998), a possible explanation to this study's results can also be explained by the abovementioned explanations. JA's classmates might have been saying those comments not because they were bullying him but because they did not know how to interact and approach him. It is important to acknowledge that participants expressed that these comments were temporary where children stopped commenting in this way once the psychologist trained and explained to them. Hence, even though it might have slightly hindered JA's speech the beginning, the immediate training that the psychologist did with the children resulted in it not having much of an impact on JA. Part of being aware of SM is comprehending that children with SM are refusing to speak not because they are uncooperative but because of the anxiety they experience (Resendes, 2022; Shipon-Blum, 2016). Hence, these results can be supported by research suggesting that teachers should educate other children about SM where they talk to them about how the student with SM is not unfriendly or rude, but perhaps have their own way of interacting (Hahn, 2008). This in turn, will encourage students to initiate interactions, and might promote the verbal communication of the student with SM (Hahn, 2008). Therefore, educating other students on the nature of SM and how to interact with the student with SM is an important step towards supporting students with SM.

Professionals Interactions

This theme primarily focused on the interactions between JA and professionals around him and its role in encouraging his speech production. Research found that because students with SM often suffer in silence, it can be overlooked easily by teachers (White et al., 2022). This was in line with what professionals explained in the interviews where it was evident that prior to the training they received from the psychologist, they were unaware of JA's SM, alongside the best way to interact with JA and how to make him feel safe. However, once training took place, prompts, practicing answers, and praise were three methods of interactions that professionals used with JA and have significantly been found to encourage JA's speech production.

Professionals' use of prompts, specifically the use of forced choice questions as opposed to open-ended alongside having classmates prompt JA, has significantly encourage speech production with JA and was the main contributor to JA's first speech production in the classroom setting. Participants explained that JA's speech production was encouraged through the use of forced choice prompts, but responses to open-ended questions were never achieved even after a year of prompting. These results were consistent with previous literature suggesting that teachers should first start with forced choice questions as it is easier for them, then move to open-ended question when they believe the child is ready to do so (Barnowski, 2019; Kovac & Furr, 2019).

In the current study, participants described two reasons they thought could explain the lack of speech production when open-ended questions were used with JA. One reason is that open-ended questions are not considered questions but a form of 'engagement' which children with SM, including JA, do not like to do. Another reason why participants thought JA was not responding to open-ended prompts but was verbally responding to forced choice ones, was because of the extreme anxiety stemming from the fear of not responding with the 'correct' answer. Participants noted that open-ended prompts force the child to come up with their own

answer where to them, there might me a correct and an incorrect answer. Whereas with forced choice prompts, JA can easily choose between two or three choices without having to make up his own. It is for that reason, JA experiences amplified fear of not giving the "correct" answer when given open-ended prompts and therefore makes him avoid answering.

A possible explanation to why JA's speech production was encouraged using forced choice prompts and not open-ended, can also be explained by some insights in previous literature indicating that students with SM might sometimes need the behavior of speaking to be broken down into smaller steps through shaping to reduce their anxiety (Busse & Downye, 2011; Omdal, 2008). Since, prompts were the main contributor for JA's first attempt to speech production, his lack of responses to open-ended questions might be because he needed the process of verbal communication to be broken down into smaller steps. Some students at the beginning, do not have the ability to utter simple few utterances. Hence, research suggests following a hierarchy of communication where the teacher reinforces nonverbal behavior first then gradually increase the demand from the child where utterances are reinforced, then forced choice answers then open-ended respectively (Kovac & Furr, 2019). Hence, JA might have been at the beginning of the hierarchy of communication, where he was still not there yet for open-ended prompts.

Moreover, using JA's classmates to prompt JA using forced-choice questions was another aspect that participants agreed to have encouraged JA's speech production and generalized his speech from speaking to his teacher and shadow teacher to also speaking to his classmates. To the best of our knowledge, this has not been suggested by previous literature. However, this study expands on existing literature and suggests the use of other classmates to prompt the student with SM. Some participants also mentioned that practicing answers to questions (e.g.:

what's your favorite color? *Orange)* encouraged speech production because it did not only prompt him but has also reduced the anxiety stemming from responding with the correct answer, since they have previously practiced that this is indeed counts as a correct answer to use. This was also something that was not present in previous studies and this study expanded on.

Additionally, professionals' use of praise, specifically labeled praise, where they explicitly pointed out that they liked the speaking behavior (e.g.: well done telling Katy that you wanted to use her pencil), has been found to be one of the ways that increased JA's confidence level and encouraged his speech production. These results were in line with previous literature suggesting that the persistent use of labeled praise shows the child that speaking is desired and boosts their self-esteem (Barnowski, 2019; Carpenter et al., 2014; Eyberg & Funderburk, 2011 as cited in Kovac & Furr, 2019; Resendes, 2022). It was also consistent with a study conducted on a young boy with SM whose speech production increased when he was verbally praised (Sulkowski et al., 2014). However, most of the previous literature also highlighted the importance of using tangible reinforcers. Studies found that giving children with SM tangible rewards increased their speech production (Oerbeck et al., 2012; Sulkowski et al., 2014). This slight discrepancy in the results can be due to the fact that these studies were conducted outside the bounds of a classroom environment, whereas giving tangible rewards with all other classmates, in JA's case, might not be as practical in the classroom environment.

While all these professional interactions encouraged speech production, participants mentioned two aspects that did not encourage speech production but set a comfortable environment for JA to eventually feel comfortable to speak. The use of humor was one of the ways that reduced JA's anxiety and made him feel safe and comfortable in the given space. To the best of our knowledge, humor has not been suggested by previous literature. Hence, this

study expands on existing literature and have provided this as a suggestion that has been successful to set a comfortable environment for JA that will eventually encourage speech production.

Participants also explained the importance of not giving an overreactive praise when JA speaks, which was consistent with what existing literature found (Kovac & Furr, 2019; Resendes, 2022; Shipon-Blum, 2016; Sulkowski et al., 2014). Results of this current study found that even though praise made a huge difference with JA, when it was overreacted, it made JA more anxious and resulted to a counter effect, where JA became more resistant to speak. This was interestingly in line with what Shipon-Blum (2016) suggested. Shipon-Blum (2016) explained that when a teacher overreacts when the child speaks, this might increase their anxiety and make them more resistant to speaking. Additionally, this study's results found consistent results with what Resendes (2022) suggested. Participants believed that this overreaction might be causing JA to resist from speaking because he wants to avoid having the focus on them. Similarly, Resendes (2022) suggested that students with SM will feel that there is so much attention towards them and will refrain from speaking if the positive encouragement was excessive.

Hence, the use of labeled praise, forced choice prompts, asking classmates to prompt the student with SM, practicing answers to questions, have all been effective in encouraging the speech production for JA, whereas humor and not overreacting to speech have been used to set a comfortable environment for the student to eventually speak.

Visuals and Technology

This theme primarily focused on the use of visual aids/cards to encourage JA's speech production. Despite the existing literature indicating that the use of visuals such as talking mats, brave talking sheets, and having the child point on or show visual cards as a means to make them

feel safe and therefore encourage speech production (Barnowski, 2019; Coakes & Murphy, 2014; Stans et al., 2019; Resendes, 2022), this study showed that none of the participants used any visuals to facilitate speech production with JA.

Similarly, technology is another theme that primarily focused on how the use of technology can be used to encourage speech production but was not used by any of the participants to encourage JA's speech production. Previous literature found that electronic devices such as the AAC that have saved speech messages that a person can choose from have supported students with SM in the classroom (Broomfield et al., 2022; Skacel, 2014). Studies showed that AACs such as the VOCA or the PEC where the student clicks on a written word or picture and then a series of speech forms as a replacement of the student's speech can be used by students with SM to facilitate communication (Skacel, 2014; Schlosser & Wendth, 2008). Similarly, others found that using a mobile application or an iPad application has also increased nonverbal communication, and in some cases, verbal communication with clinicians (Bunnel et al., 2018; Skacel, 2014).

This present study did not ask a follow-up question for participants in order to know why they did not use technology or visuals if they have been supported in the literature, which is a limitation of this study. Although this was not investigated further in this present study, a possible explanation to why participants in this current study did not use technology nor visuals can be attributed to the fact that both of these facilitate communication rather than speech production. Participants in this study aimed for speech production rather than a means of communication. Hence, it is possible that they did not use any of these because they did not just want something to facilitate communication, where these visuals or devices replace his own speech, but rather create an environment that is safe for JA to be ready to use his own speech.

This can be consolidated by research suggesting that the constant reliance on someone else to verbally communicate for the child can sometimes reinforce his muteness and reduces the chance of verbal communication (Vasa & Roy, 2013; Welsh, 2017). Similarly, these results were consistent with Skacel (2014) who examined the use of an iPad where the student with SM typed his answer, clicked on already made answers or pictures and then these were converted into a series of speech. Skacel (2014) found that this increased the communication of the student with SM, but this communication could not be generalized to his own verbal speech (Skacel, 2014).

Another explanation to why these two themes were not present in this current's study can be because they did not want JA to feel that he is different from his classmates for having a device, iPad or visual cards to communicate. This can also be supported by previous literature indicating that AAC devices can make a student feel ashamed of using them (Skacel, 2014).

Strengths and Limitations

This current study has some strengths and limitations. One of this paper's strengths is that expands on the limited existing research on SM, specifically filling the gap in research done with the Greek culture. Additionally, to the best of our knowledge, the existing literature addressing the role of classroom environment on speech production of students with SM are mostly literature reviews, where very few of them are empirical research. Hence, this study's second strength is that it fills this gap through the use of a case study on a 6-year-old boy with SM, where it yielded significant conclusions for teachers to follow that are based on a real case. A final strength is the use of a case study where it provided an in-depth analysis of the topic at hand by focusing the detailed findings of this specific case.

However, this study also has some limitations. One of the limitations is the lack of generalizability. Since this study is a case study, these results are only applicable to JA's unique

case and cannot be representative of the whole SM population in Greece nor worldwide. Another limitation lies within the use of thematic analysis. Since thematic analysis relies on the researcher's own interpretation and analysis, this can lead to subjectivity. Hence, another researcher might not yield the same results from the same data set, hence affecting this study's inter-rater reliability. Moreover, during the interviews, the researcher did not ask follow-up questions to know the reason why participants did not use technology nor visuals if they been supported by the literature. These follow-up questions would have provided more insight to these themes but were not investigated further. Also, another limitation is that amongst the aspects that participants used to encourage JA's speech production, all of them were used interchangeably. Hence, it is quite difficult to know for sure whether the collective use of all of them was the contributor to the encouragement of speech production or was it the effect of only some or one of them. Additionally, the factor of time might have acted as a confounding variable to the results of this study. The passing of time in a consistent classroom environment with the same classmates from kindergarten through year one could have impacted his speech production, hence limiting this study. Additionally, another limitation is that this study's results are based on participants' interpretations of JA's behavior, for example, results indicating that the intervention reduced his anxiety or boosted his confidence, were not measurable but perhaps subjective interpretations from the participants' experience with the JA. This can lead to subjectivity and bias.

Recommendations for Future Research

Since SM is a rare topic in existing literature, further studies are necessary to expand this topic. A recommendation would be to conduct further research on the aspects that emerged from this study's findings and were not previously addressed in the literature. Hence, further studies

may investigate the use of humor, seating positioning, cluster-based seating arrangement, and practicing answers to questions to encourage speech production. Additionally, another recommendation for further research is conducting studies on the same topic but with the use of a longitudinal approach. Conducting a longitudinal study will address how the development of speech was supported over the years and also provide insight into how the classroom environment modifications played a role in the long-term progress of the student's speech production. Moreover, to the best of this research's knowledge, most of the existing literature on the topic at hand are mostly literature reviews, where very few of them are empirical research. Hence, it is recommended for future research to address this gap and conduct empirical studies with students with SM rather than relying on the analysis of the scarce already existing literature. This in turn will provide a deeper understanding of such a rare condition and will guide teachers with classroom modification suggestions that have been successful with real-life cases.

On the other hand, there are other recommendations that can be used to address the aforementioned limitations of this study. Since deductive thematic analysis poses a risk for researcher subjectivity, it is recommended to use inductive thematic analysis rather than deductive to reduce the possibility of having the results being impacted by the researcher's subjectivity. Allowing the data to yield its own themes rather than categorizing them under preconceived themes will provide richer results and a precise presentation of all the different aspects the data found. Additionally, since this study did not further investigate why visuals and technology were not used, it is recommended for further research to investigate aspects that were not clear during the interviews by asking follow-up questions to get a deeper understanding. Moreover, it is recommended to conduct further studies that include a large number of participants with SM rather than relying on one case to increase generalizability of results. Also,

it is recommended to examine the role of each aspect of the classroom environment on their own in order to know whether the collective use of these contributed to the encouragement of speech or only some of them.

V. CONCLUSION AND FUTURE IMPLICATIONS

This paper assessed the role of classroom environment on speech production of a Greek student with SM by looking at five main themes identified in preexisting literature to be crucial in encouraging speech production: seating arrangement, classmate interactions, professionals interactions, the use of visuals and the use of technology. This study met its aim of finding ways to encourage speech production of students with SM in the classroom, indicating that supporting these students is quite achievable with some modifications in the classroom.

This study found that the use of prompts (fixed choice prompts and using classmates to prompt the student), praise (labeled), practicing answers, and classmate friendliness and excitement (i.e.: classmates interactions) have encouraged speech production for JA. Whereas, the use of humor, educating other students about the nature of SM, not overreacting when the student speak, having a cluster-based seating arrangement, and having JA sit close to the teacher and positioning his seat in a way where he cannot see his classmates were all things that did not necessarily encourage speech but contributed to setting the ground for the student to feel comfortable to eventually speak. Even though these did not encourage speech production, they are still important as setting a comfortable environment for the student is the first step towards achieving speech production. Additionally, this study found that the use of visuals and the use of technology were not used by participants to encourage speech production.

To the best of our knowledge, within these five major themes, seat positioning, using classmates to prompt the student, the use of humor, and practicing answers are all aspects that were not present in previous literature. However, this present study's experts have used them and were successful in encouraging speech production with JA. Hence, even though some of these findings are not supported by research, they still have significant implications on professionals and can be used as suggestions.

These findings are significant because they bridge the gap in the literature of the role of the classroom environment on the speech production of students with SM in the Greek culture and have added more insight into suggestions that were not mentioned in previous literature. This study's findings can be used as a guide for professionals to modify their classroom environment and follow the suggested ways that have been successful in encouraging speech production of students with SM. By incorporating this study's findings and suggestions, professionals will be able to create an inclusive and warm environment for these students to feel comfortable to verbally interact.

To conclude, these students who tend to be living in silence unnoticed in the classroom environment can indeed be supported and effectively achieve speech production with some modifications in the classroom environment. Through the incorporation of this study's findings, encouraging speech production and creating a comfortable environment for students with SM to thrive in can evidently be achieved.

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VII. APPENDICES

Appendix A (Interview Schedule)

Seating Arrangement

1. Can you describe the seating arrangement of the classroom?
2. Where does the student with SM usually sit in the classroom?
3. How has the student responded to the seating arrangement?
4. Are there any modifications that were made in the seating arrangement to meet the needs of the student with SM?
5. If yes, how has the student responded to the modifications made in the seating arrangement?

Classmate interactions

6. Have you seen the student with selective mutism speaking with his classmates? If yes, in which circumstances?
7. How does the student with selective mutism respond to classmates' attempts to interact with him, if any?
8. How have classmate interactions encouraged the student's speech production?
9. How have classmate interactions hindered the student's speech production?

Interaction with Professionals

10. Have you ever tried to engage in prompting the student to speak?
11. If yes, how has the student responded?
12. How do you react to the student's attempts to speak in the classroom?
13. How has that reaction encouraged the student's production of speech?
14. How has that reaction hindered the student's production of speech?

15. When you communicate with the student, how does the child respond to open ended questions compared to fixed choice questions?
16. Are there any other communication strategies that you use to encourage the production of speech?

Technology

17. Are there any technological tools or apps that you have used with the student with SM?
18. If yes, which technological tools have you used?
19. How have these technological tools/apps encouraged the student's speech production?
20. How have these technological tools/apps hindered the student's speech production?

Visuals

21. Have you used visual aids/cards to communicate with the student with selective mutism?
22. If yes, which visuals aids have you used?
23. Has the use of visual aids encouraged the student's speech production?
24. Has the use of visual aids hindered the student's speech production?

Appendix B (Informed Consent Form)

Please take your time to read this form and please do not hesitate to ask for any clarifications you need.

Purpose of the Research:

The purpose of this study is to investigate the role of the classroom environment, specifically aspects of the physical environment (i.e.: seating arrangement), aspects of the social environment (i.e.: classmate interactions, professionals' interactions) and other factors in the environment (the use of visuals, the use of technology) on the speech production of a student with SM in a Greek school.

What you will do in this research:

If you decide to participate in this study, you will be asked to take part in a one-on-one online interview about a child with SM you have worked with. The questions will be about how the child with SM responds to the use of technology, the use of visuals, aspects of the physical environment (seating arrangement), and aspects of the social environment (the interactions with classmates, interactions with professionals).

Time required:

The interview will take around 40- 45 minutes to complete.

Risks/ Benefits of the Research:

There are no risks involved in this study. This study will not benefit the participants directly. However, your participation in this study will help in understanding the ideal classroom environment for students with selective mutism and its role in speech production. You may receive more information about the study and its results after the completion of data collection and analysis.

Confidentiality:

Your participation in this research is completely confidential. Your identity will be kept private through the use of pseudo names and the data collected will only be accessible to the primary researchers of this study. The name of the school will not be reported anywhere, and no personal identifiers of the case will be reported except for the age of the student where a pseudo name will be used for referencing the student. All data collected will be kept confidential where the responses will all be coded, summarized and described as a whole.

Participation and Withdrawal:

Your participation is completely voluntary, and you will be able to withdraw from the study whenever you wish to without any consequences. Please note that if you choose to withdraw from the interview at any point, the responses you will have given will not be used in the research.

If you have any further questions or concerns about the research at any point, please do not hesitate to contact the primary investigator: Yasmine El Gabalawy, Phone: +306943413422, Email: y.elgabalawy@acg.edu. Or the faculty member supervising this work, Dr Despina Paizi, Email: dpaizi@acg.edu, Address: The American College of Greece, DEREE – School of Graduate and Professional Education, 6 Gravias Street, 15342, Athens, Greece.

This research study has been reviewed and approved by the Institutional Review Board of The American College of Greece.

Name and signature of the main investigator: Yasmine El Gabalawy

I have read and understood the information provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

Signature _____ **Date**_____

Appendix C (Audio Recording Consent)

I voluntarily agree to be audio recorded during the study being held by Yasmine El Gabalawy. I comprehend that the recordings will only be for data analysis and will only be accessible to the researcher. These recordings will be kept with the researcher only until the data analysis is complete and will be completely destroyed afterwards.

_____

Signature of the Participant Date

_____

Signature of Investigator Date

Appendix D (Debriefing Form)

Thank you so much for taking the time to participate in this study. Your participation will help in understanding the role of the environment for students with selective mutism towards the design of an ideal classroom environment for students with selective mutism to foster speech production. The main aim of this research was to understand the role of the classroom environment, specifically aspects of the physical environment (seating arrangement), aspects of the social environment (classmate interactions, professionals' interaction) and other factors in the environment (the use of technology, the use of visuals) on a student with selective mutism in the Greek culture. It aims to examine the association between the classroom environment and the facilitation of the student's verbal communication. Through data analysis, the study aims to provide suggestions and insights for teachers who work with students with selective mutism to better understand how to encourage speech production in students with selective mutism by modifying the classroom environment. Please note that if you are interested in knowing more about the results of this research when it is completed, please contact Yasmine El Gabalawy at y.elgabalawy@acg.edu or Professor Despina Paizi at dpaizi@acg.edu. Whom to contact about your rights in this research or for questions, concerns, suggestions, complaints that are not being addressed by the research team, or in case of research-related harm: Institutional Review Board at the American College of Greece. E-mail: irb@acg.edu Please do not disclose research procedures and hypotheses to anyone who might participate in this study between now and the end of the data collection (September/2024) as this could affect the results of the study. Thank you for your participation!