The Classroom Communication Resource (CCR) intervention to change grade 7 peers' attitudes towards children who stutter (CWS) in the Western Cape: A Randomised Controlled Trial

by

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1. Mallick, R., Kathard, H., Pillay, M., Thabane, L. (2018). A Scoping Review of the School-aged Stuttering Intervention Literature. (Written in preparation for submission)

2. Mallick, R., Kathard, H., Thabane, L. & Pillay, M. (2018). The Classroom Communication Resource (CCR) intervention to change peer's attitudes towards children who stutter (CWS): study protocol for a randomised controlled trial. *Trials*. 19 (1): 43.

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Inclusion of Papers in this Thesis and Declaration of Academic Achievement or Contribution

This thesis is presented as a sandwich-based thesis in which three papers are included, along with an introduction and synthesis (conclusion) chapter. The following papers can be found in this thesis:

1. "A Scoping Review of the School-aged Stuttering Intervention Literature", is written in preparation for publication and is therefore presented as a paper.
2. "The Classroom Communication Resource (CCR) intervention to change peer's attitudes towards children who stutter (CWS): study protocol for a randomised controlled trial" was published in the *Trials* Journal in 2018.
3. "A cluster randomised trial of a classroom communication resource program to change peer attitudes towards children who stutter among grade 7 students", is under review as it has been submitted to Trials for publishing.

Rizwana Mallick, PhD candidate, is the corresponding author in all papers included in this thesis. Rizwana Mallick's contributions in these papers include:

Developing the research questions, writing the protocol, completing the trial, writing of papers, training of research assistants to collect and capture data, assisting with training of teachers, post-trial interviews, and responding to reviewer comments. The work in this thesis was conducted between January 2016 – to date. Co-authors assisted with analysing the data and preparing the papers for publication.

*It should be noted that there may be some repetition of information and different reference styles in this thesis due to stipulations of the *Trials* Journal. The thesis as a whole has however adhered to APA referencing.

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"It's hard to describe the feeling. Imagine living your entire life in a cave and believing it was your whole world. Then suddenly you step outside. For the first time in your life, you see the sky. You see the trees and the birds and the sun. For the first time in your life, you realise that the world you once knew was false. For the first time, you discover a Truer, more beautiful Reality. Imagine the high of that realisation. For a moment, you feel you can do anything. Suddenly, nothing from your previous life in the cave matters. You become empowered, fully awake, fully alive, fully aware for the very first time. It is an unexplainable feeling. This is the spiritual high that comes with newly discovered Truth." – Yasmin Mogahed.

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Glossary of Terms

Communication is multi-modal and all-encompassing, influencing the way individuals convey their thoughts, feelings, ideas in different environments and tasks.

Stuttering is defined as a fluency disorder that develops during childhood with an unknown cause (Guitar, 2006). It presents with overt and covert challenges such as speech fluency core behaviours (repetitions, prolongations, blocks), secondary behaviours (poor eye contact, fidgeting etc.), avoidance behaviours, negative feelings and attitudes, and reduced social consequences (Guitar, 2006; St Louis, 2015).

Attitudes are defined as the view of subjects and individuals which can be positive or negative (Petty & Wegener, 1998; Petty, Wheeler, Zakary, & Tormala, 2003).

Teasing may include humour, playfulness, ambiguity, aggression -positive or negative (Lee, 2016). **Bullying** is classified as the act with intention to harm emotionally or physically harm another individual (Laas & Boezaart, 2014; Rose et al., 2011; Rose et al., 2012). Teasing and bullying is described as a collective concept in this thesis.

Quintiles, according to the National Norms and Standards for School Funding (NNSSF) policy (Education, 2012, 2014a, 2014b, 2014c) is the classification assigned to schools in accordance with its geographical location, fee per school, and resources (Education, 2012, 2014a, 2014b, 2014c).

RCT is a Randomised Controlled Trial, a quantitative methodological design that is considered rigorous and stringent (Pocock, 2006).

Clusters in RCTs refer to groupings being studies as opposed to individual participants, in this study quintiles.

Blinding refers to the concealment of allocation of intervention and control groups whether it be to participants or researchers.

Randomisation refers to the random allocation to control or intervention groups.

Usual care is practiced in control groups, whereby no intervention is provided and instead participants continue as usual.

A **scoping review** maps out the literature in an area by providing an overview of a research specific topic.

The International Classification of Functioning (ICF) Disability and Health, is a framework that is recommended in healthcare to ensure a holistic view of health and disability.

The Classroom Communication Resource (CCR) is the intervention being tested in this study. The CCR includes a social story, role-play and discussion.

The Stuttering Resource Outcomes Measure (SROM) is the outcomes measure used to measure peer attitudes towards children who stutter at baseline and 6 months post-intervention in the constructs of Positive Social Distance (PSD), Social Pressure (SP) and Verbal Interaction (VI).

The Teasing and Bullying (TAB) Behaviour program is the intervention that the CCR is modelled upon.

The Peer Attitude Towards Children Who Stutter (PATCS) is the outcomes measure that the SROM is based on.

Positivism, is a paradigm that details ontology, epistemology and methodology that emphasises objectivity, external and observable facts, and assumptions that determine the type of research data, design etc that examines the nature of science (Aliyu, Bello, Kasim, & Martin, 2014; Bonell, Moore, Warren, & Moore, 2018; Botma et al., 2016).

Abbreviations

% SS	Percentage of syllables stuttered
% SW	Stuttering word percentage
CCR	Classroom Communication Resource
CENTRAL	Cochrane Central Register of Controlled Trials
CINAHL	Cumulative Index to Nursing and Allied Health
CONSORT	Consolidated Standards of Reporting Trials
CWS	Children who Stutter
EBP	Evidence-Based Practice
EMG	Electromyograph
EPIC	Equitable, Population-based, Innovative, Communication
ERIC	Education Resources Information Centre
GEE	Generalised Estimating Equations
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
ICC	Intra-school Correlation Coefficient
ICF	International Classification and Functioning of Disability Framework
IPATHA	International Project on Attitude Toward Human Attributes
ITT	Intention-to-Treat
LoLt	Language of Learning and Teaching
NNSSF	National Norms and Standards for School Funding

NRF	National Research Foundation
OASES	Overall Assessment of the Speaker′s Experience of Stuttering
PATCS	Peer Attitudes Towards Children who Stutter
PICOT	Population, Intervention, Comparison, Outcome, Timeframe
PERC	Programme for Enhancement of Research Capacities
POSHA-S	Public Opinion Survey of Human Attributes- Stuttering
PRS	Protocol Registrations and Results System
PSD	Positive Social Distance
RCT	Randomised Controlled Trial
RISA	Research and Innovation Support and Advancement
SA	South Africa
SLT	Speech-language therapy
SRES-C	Self-Rating of Effects of Stuttering – Children
SP	Social Pressure
SPM	Syllables per minute
SROM	Stuttering Resource Outcomes Measure
STS	Syllable-timed speech
TAB	Teasing and Bullying unacceptable behaviour
UCT	University of Cape Town
VI	Verbal Interaction

WC	Western Cape
WCED	Western Cape Education Department

Preface

I graduated with a BSc Speech-Language Pathology degree in 2011 and MSc Masters degree in 2015, before beginning my Doctoral degree in 2016. As a Speech-Language Therapist and researcher, I have been working toward developing an intervention that responds to the needs of children who stutter. One of the key issues that children who stutter have raised consistently was the impact of teasing and bullying by their peers on them.

The University of Cape Town has conducted studies since 2009 in which the Classroom Communication Resource Intervention and its outcomes measure has been investigated. In 2011, I was involved at an undergraduate thesis level, whereby the Classroom Communication Resource Intervention was being refined and studied, and it was recognised that more needed to be done. After this, I studied the Classroom Communication Resource Intervention as a Masters study in 2013-2015. At this time, I conducted a pilot study to determine the feasibility of a cluster Randomised Controlled Trial. The pilot study examined procedural aspects such as recruitment and dropout rates of participants, as well as treatment effect at both one and six months post-intervention. The pilot study was instrumental to this thesis as it found that a cluster Randomised Controlled Trial was feasible and guided the implementation of recommendations to ensure a stringent study design.

Study Abstract

Background: There is an established need to manage teasing and bullying of children who stutter (CWS) through changing the attitudes of their peers. The intervention, the Classroom Communication Resource (CCR), was implemented by teachers in classrooms. The primary objective of the main study was to determine the effectiveness of the CCR through a cluster Randomised Controlled Trial (RCT). The secondary objective of this study was to determine the treatment effect of the Stuttering Resource Outcomes Measure (SROM) within the subscales of Positive Social Distance (PSD), Social Pressure (SP) and Verbal Interaction (VI). The subgroup objective was to determine the primary objective between and across lower and higher school quintile clusters.

Method: A cluster RCT was conducted. Participants in grade 7, aged 11 years and older, were randomly assigned to control and intervention groups using school and subgroup (quintile) clusters classifications. Following randomisation, stratification took place using a 1:1 allocation ratio. Participants viewed a video of a child who stuttered at baseline. Teachers administered the CCR (social story, role-play, discussion) in intervention groups only over a 60-90 minute session after they received an hour of training. Peer attitudes were measured at baseline and at 6 months post-intervention using the SROM in intervention and control groups.

Results: A total of 10 schools were included whereby they were randomly allocated to control (k=5) and intervention groups (k=5). Within the schools, 454 participants were included with n =223 participants in the intervention and n= 231 in the control group. The study showed no statistically significant difference on the global SROM score (mean difference: -0.11 [95% confidence interval: -1.56, 1.34]; p = 0.88). Similarly, no significant differences were noted on SROM subscales: PSD (1.04 [-1.02,311]; p =0.32), SP (-0.45 [-1.22, 0.26]; p=0.21) and VI (0.05 [-1.01, 1.11]; 0.93), the secondary objective of this study. No significant subgroup effect on the global SROM score (lower vs higher quintile subgroups) [interaction p-value = 0.52]

was observed during subgroup analysis. Results were however consistent with the hypothesis and quintile subgroups behaved similarly. Results were found clinically important when considering confidence intervals as well as the magnitude and direction of treatment effect.

Conclusion: While the treatment effect showed no statistically significant differences on the global SROM and within the constructs of PSD, SP and VI, a clinically important result was noted when evaluating the meaningfulness of this study as well as its implications. Subgroup analysis showed that the quintiles behaved similarly, showing that the CCR was appropriate for schools within the lower and higher quintiles.

Keywords: stuttering, teasing and bullying, classroom-based intervention, randomised controlled trial.

Chapter 1: Introduction to this Thesis

1.1. Overview of Chapter

Chapter 1 introduces this thesis by orientating its reader to the focus of this study. A rationale is provided throughout this chapter by presenting theoretical background on several topics including stuttering, teasing and bullying, attitudinal interventions, as well as school-aged teasing and bullying interventions by drawing on health and educational principles. Thereafter, the Patient group (Population), Intervention, Comparison, Outcome, Timeframe (PICOT) framework is reported to describe and frame the intervention, purpose and focus of this study (Botma, Greef, Malaudzi, & Wright, 2016; Echevarria & Walker, 2014). The development of the Classroom Communication Resource (CCR) and Stuttering Resource Outcomes Measure (SROM) is subsequently reported by drawing upon service delivery, clinical practice and teacher collaboration using systematic processes involved in intervention development and testing. This study's contribution in Evidence-Based Practices (EBP) in the Speech-Language Therapy (SLT) profession is described to strengthen its rationale. Specifically, this study offers a cluster Randomised Controlled Trial (RCT) to add to the evolving body of literature in SLT. A cluster RCT was selected for two reasons, namely its inherent level of rigour and quality of evidence in the medical world and, secondly, a previous feasibility study evaluating the CCR recommended an RCT be conducted as the next level of testing. Important contextual considerations that are pivotal to intervention testing, are described herein. In addition, a discussion of the positivist paradigm is included by drawing on the debate of knowledge and context in this chapter. This study highlights the need for consideration of the context of South Africa, given its deep inequalities, in testing the intervention. Lastly, a conclusion of this chapter can be found, after which the objectives and presentation of this thesis is detailed.

1.2. Orientation to the Thesis: Focus of this Study

The focus of this thesis is on the testing of an intervention, the CCR, by evaluating its treatment effect using a cluster RCT. The focus on testing the CCR intervention was selected because of the need for the SLT profession to develop interventions as well as to ascertain its effectiveness. The development, modification, and testing of interventions is an issue that many disciplines and professions have grappled with internationally (Craig et al., 2008). The CCR has been developed, modified, and tested in several small-scale studies to date (Badroodien, 2015; Badroodien et al., 2011; De Freitas, Geben, Parusnath, Relleen, & Van den Berg, 2012; De Grass et al., 2010; Filies, Hartley, Kaplan, & Pettit, 2009; Frieslaar et al., 2013; Kathard et al., 2014; Mallick, Thabane, Borhan, & Kathard, 2018; Walters, 2015). These studies serve as pivotal phases in the development of an intervention before such interventions can be tested in large-scale studies. (Craig et al., 2008). The testing phase of an intervention – the focus of this study – is crucial to determining its use within the SLT profession. This study tested the CCR to determine if intervention had a treatment effect outcome at 6 months post-intervention, globally and within subdomains (or constructs) on its outcomes measure as well as within and across subgroups (quintiles). See appendix A for the CCR. The CCR, uses communication and stuttering as examples within themes of acceptance, diversity and difference in order to address teasing and bullying in schools.

1.3. Rationale for this Study

1.3.1. Stuttering.

Stuttering develops during childhood and is made up of visible and hidden characteristics (Guitar, 2006). For example, while stuttering is predominantly classified according to the apparent presence of visible speech disruptions, it additionally includes avoidance behaviours and negative feelings and attitudes (Guitar, 2006). The cause of

stuttering is unknown, yet it is recognized to be a complex communication disorder (Guitar, 2006). The complexity of stuttering is documented in the literature through its distinct classification as two different disorders: firstly, as a speech fluency and behavioural disorder (Guitar, 2006), and also as a multi-layered social communication disorder (St Louis, 2015).

SLT literature is inundated with information about the nature of stuttering as a speech fluency and behavioural disorder, where clinical practice is traditionally focused (Guitar, 2006; Herder, Howard, Nye, & Vanryckeghem, 2006; Nye et al., 2013). There has since been a shift towards viewing stuttering as a social communication disorder (Baxter et al., 2016; St Louis, 2015). The classification of stuttering as a social communication disorder has necessitated an investigation of the social consequences of stuttering (St Louis, 2015) at home, school as well as in other social environments (Blood & Blood, 2004; Blood, Blood, Dorward, Boyle, & Tramontana, 2011; Blood, Blood, Tellis, & Gabel, 2001; Boyle, Blood, & Blood, 2009; Yaruss, 2007).

The social consequences of stuttering may greatly influence how children who stutter (CWS) function in different environments (Yaruss, 2007). One of the key, and most damaging, social consequences that CWS face is that of teasing and bullying at school (Blood & Blood, 2016; Blood, Boyle, Blood, & Nalesnik, 2010; S. Davis, Howell, & Cooke, 2002; Farelo et al., 2015; M. Langevin & Prasad, 2012; Murphy, Yaruss, & Quesal, 2007a). It was found that teasing and bullying occurs as a result of negative perceptions (Blood & Blood, 2004) and stigmatisation of CWS (Kathard et al., 2014) at school (Blood & Blood, 2004; Blood et al., 2010; Evans, 2003; Langevin, Kleitman, Packman, & Onslow, 2009). The frequency, severity and consequences of teasing and bullying in schools described in this chapter highlight the need for urgent and effective interventions (Mestry & Ndhlovu, 2014; Mestry, Ndhlovu, Van der Merwe, & Squelch, 2006).

1.3.2. Teasing and bullying.

1.3.2.1. A global and national phenomenon.

Teasing and bullying is a common, global and multifaceted phenomenon that is widely reported across schools (Laas & Boezaart, 2014; Rose & Monda-Amaya, 2012; Rose, Monda-Amaya, & Espelage, 2011; Rose, Swearer, & Espelage, 2012; Swearer, Espelage, Vaillancourt, & Hymel, 2010; Veenstra, Lindenberg, Munniksma, & Dijkstra, 2010). High incidences of teasing and bullying have been discussed in the media (Central, 2018; Naik, 2017), on organisational websites (Childline, 2018) and government documents in South Africa (westerncape.gov, 2018) because of its negative consequences (Mills & Carwile, 2009).

The South African Department of Basic Education minister Angie Motsheka reported on a study conducted by the Human Sciences Research Council education and skills development unit, in September 2017 (Central, 2018). The study found that South African children reported the highest incidences of weekly (44%) and monthly (34%) teasing and bullying at schools out of the 49 countries that were surveyed (Central, 2018). The Human Sciences Research Council study further reported that in 2017 bullying was most prominent in grades 5 and 9 (Central, 2018). Overall, South African children reported more than double the international average rate of bullying in schools; more so in public schools compared to private schools (Central, 2018) likely due to contextual factors such exposure to violence, socio-economic and political differences (Chaux, Molano, & Podlesky, 2009). The outcry about teasing and bullying has been linked to the damaging physical and psychological consequences of violence, harassment and the violation of child constitutional rights such as discrimination, human dignity and protection of children against abuse (Laas & Boezaart, 2014).

1.3.2.2. The Classroom Communication Resource (CCR) as a teasing and bullying intervention.

The CCR intervention was borne out of the need for school-aged intervention due to reports of teasing and bullying (Central, 2018; Laas & Boezaart, 2014; Rose & Monda-Amaya, 2012; Rose et al., 2011; Rose et al., 2012; Swearer et al., 2010; Veenstra et al., 2010), as well as personal reports from CWS in the Western Cape (Farelo et al., 2015). The management of stuttering and communication-related teasing and bullying is within the profession's scope of practice and should be addressed by SLTs.

Children with differences or disabilities are typically found to be most susceptible to teasing and bullying (Rose & Monda-Amaya, 2012; Rose et al., 2011; Rose et al., 2012). The difference or disability focused on in this study is one of communication and of stuttering which affects speech fluency. Communication was selected as the example within the CCR for two critical reasons. Firstly, it is the focus of our work as SLTs and, secondly, because it influences how children are integrated and accepted by peers in social groups (Davis et al., 2002; Franck, Jackson, Pimentel, & Greenwood, 2003), i.e. the effects of speech fluency results in CWS being viewed as different, causing them to be teased and bullied. Difficulty with communication may negatively influence CWS' social integration and acceptance (Blood & Blood, 2004; Blood et al., 2010; Carter & Spencer, 2006; Langevin, 2009) due to negative peer attitudes and peer rejection (Dijkstra, Lindenberg, & Veenstra, 2008; Murphy et al., 2007a). Furthermore, it is documented that the presence of stuttering exacerbates the likelihood of school-aged teasing and bullying because of negative peer interactions and attitudes (Blood & Blood, 2004; Blood et al., 2010; Evans, 2003; M. Langevin et al., 2009).

Given that peer attitudes, acceptance and rejection plays a pivotal role in teasing, bullying and communication (Blood & Blood, 2004; Blood et al., 2010; Evans, 2003; Langevin

et al., 2009), the CCR intervention was designed to use stuttering as an audible point of discrimination. This means that because stuttering is heard, it would be an obvious, practical and easily identifiable difference to use as an example of a disorder that may result in teasing and bullying.

In addition to using stuttering as an example, the CCR has been found to be most applicable to grade 7 learners aged 11 to 14 years old (De Grass et al., 2010; Filies et al., 2009). While school-aged teasing and bullying may occur at any age and school grade, grade 7s were reported as the most vulnerable (Evans, Healey, Kawai, & Rowland, 2008; Olweus, 1991). Grade 7 learners experience significant emotional changes during adolescence (Evans et al., 2008), high rate of peer rejection (Olweus, 1991) and susceptibility to social rejection (Evans et al., 2008), collectively increasing the likelihood of teasing and bullying at this age.

1.3.2.3. Teasing and bullying defined.

Bullying is characterised by an intention to harm – whether it be emotional or physical (Laas & Boezaart, 2014; Rose et al., 2011; Rose et al., 2012). Violence is a key issue that is raised within the realm of teasing and bullying (Boden, van Stockum, Horwood, & Fergusson, 2016; Brunstein Klomek et al., 2016; Ferguson, Miguel, Kilburn, & Sanchez, 2007; Kim, Leventhal, Koh, Hubbard, & Thomas, 2006; Nansel et al., 2001; Rose et al., 2011; Swearer et al., 2010; Vreeman & Carroll, 2007; Wang, Iannotti, & Nansel, 2009; Whitted & Dupper, 2005). Teasing and bullying has been widely documented internationally (Jankauskiene, Kardelis, Sukys, & Kardeliene, 2008; Land, 2003; Mills & Carwile, 2009; Murphy et al., 2007a; Murphy, Yaruss, & Quesal, 2007b; Vessey & O'Neill, 2011) and within South Africa (Farelo et al., 2015; Kathard et al., 2014; Mestry et al., 2006).

Additionally, bullying commonly transpires in the presence of social, emotional or physical imbalance of power between the bully and victim (Rose et al., 2011). There are three

key participants in bullying at schools, namely: 1. the bullies, 2. the victims and 3. the bystanders who either engage, reinforce or experience aggressive behaviour (Olweus, 1993). The fact that that there are three key roles in bullying supports the use of population- school- and classroom-based approaches as the CCR is likely to target all of these roles.

Bullies may be described as passive, anxious and aggressive bullies (Olweus, 1993) which dictates the type (physical, emotional, or verbal) and extent of bullying (Mills & Carwile, 2009; Rose et al., 2011). Conversely, victims are either passive or proactive, with passive victims making up 80-85 % of those who are victimised (Olweus, 2003). Passive victims do not retaliate or act aggressively in response to bullies (Nansel et al., 2001) while proactive victims exhibit characteristics of bullying (Rose et al., 2011) showing the cycle of how the bullied can become the bully (Vanderbilt & Augustyn, 2010).

Bystanders do not directly contribute to bullying, but play an important role as they have the power to influence, discourage or reinforce bullying (Hong & Espelage, 2012; Rose et al., 2011). Bystanders may reinforce bullying by supporting bullies (called followers) or by remaining observers, referred to as disengaged onlookers (Olweus, 2003; Rose et al., 2011; Salmivalli, Karhunen, & Lagerspetz, 1996). Bystanders may also be supportive of victims, (as passive bystanders) or act as defenders to peer victims (Olweus, 2003; Rose et al., 2011; Salmivalli et al., 1996).

Both peers and teachers may be characterised as bystanders who play a role in reinforcing, discouraging or influencing bullying (Rose et al., 2011). This statement substantiates the rationale of this study in two key ways. Firstly, it shows that a population-based peer approach is appropriate with both peers and teachers as the participants for this study. Secondly, it illustrates that teachers have a role to play in teasing and bullying. It is for this reason that this study signals to the reader the integral role that teachers as well as school

settings may play in addressing teasing and bullying (Rose et al., 2011). Teacher intervention and awareness have been examined in the literature, whereby the danger of being unaware or not intervening with bullying at school has been reported (Abrahams, Harty, St.Louis, Thabane, & Kathard, 2016; Rose et al., 2011).

It was found that teachers viewed physical bullying as the most severe type of bullying, far more seriously than emotional and social bullying at schools (Bauman & Del Rio, 2006; Hazler, Miller, Carney, & Green, 2001; Rose et al., 2011). Teachers also found it challenging to distinguish between student conflict and bullying (Rose et al., 2011). However, learners and peers reported physical, verbal and emotional bullying to be equally severe (Newman & Murray, 2005). Despite the disconnect between teacher and peer views of bullying severity (Rose et al., 2011), this study targets peers as participants and teachers as interventionists with a role to play in teasing and bullying interventions.

In addition to teachers experiencing difficulty distinguishing between concepts of teasing, bullying and general conflict (Rose et al., 2011), so do learners (Land, 2003). In fact, there have been debates in the literature about how to define teasing and bullying, separately and together (Land, 2003). Teasing may be positive or negative including humour, playfulness, ambiguity, aggression (Lee, 2016). However, a lack of research available to define teasing as a standalone concept is reported (Land, 2003) whereby it is challenging to divorce teasing and bullying in terms of concepts and acts. Teasing and bullying has therefore been clustered for the purpose of this study, as these concepts are classically discussed jointly and found to be interrelated (Land, 2003; Mills & Carwile, 2009). The connection between teasing and bullying as a collective concept is integral for this study when considering the role of attitudes and perceptions on behaviour, specifically in schools.

1.3.2.4. School environment: its role in teasing and bullying.

The assumption that only schools should be held responsible for addressing, intervening and advocating against bullying is problematic, as paediatric providers, such as SLTs, should also play a role (Vanderbilt & Augustyn, 2010). For this study, the SLT addresses teasing and bullying along with the teacher, while considering the school environment.

Teasing and bullying is influenced by complex inter-relationships between the school environment and individuals (Hong & Espelage, 2012). Schools have also been found to be instrumental in improving emotional well-being (O'Connor, Dyson, Cowdell, & Watson, 2018) where schools play a critical role in fostering academic, social and emotional development (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Academic and social school experiences are thereby influenced by a school's ethos, culture, climate (Peterson & Deal, 2002) and ecological school system (Hong & Espelage, 2012). Inclusive schools can be nurturing, as they foster belonging and educate learners, irrespective of differences in language, gender, class, ability, and race (Engelbrecht, Nel, Nel, & Tlale, 2015). However, school culture could also be toxic for children who are teased, bullied, and experience unacceptable behaviour such as victimisation.

A toxic school environment, the result of teasing and bullying, has been found to lead to depression, social rejection (Evans et al., 2008), and reduced social and academic interactions (Ferguson et al., 2007; Hawker & Boulton, 2000). Teasing and bullying may be influenced by several levels of school systems (e.g. micro- meso-, etc) including youth characteristics – age, race, gender, sexual orientation, health status, depression, anxiety, poverty, learning difficulties or disabilities and intelligence, peer relationships, school connectedness, and environment (Hong & Espelage, 2012). The various school system levels and youth characteristics emphasise the complexity and factors that may illuminate peer

differences leading to social rejection and victimisation. This study aims to highlight the importance of the youth characteristics of peer relationships, school connectedness as well as environment (Hong & Espelage, 2012) in school teasing and bullying interventions.

Proactive school-based interventions are one of the advocated methods to decrease bullying perpetration, improve social awareness and create positive school environments (Rose et al., 2011). School environments and values may contribute both positively and negatively to teasing and bullying (Swearer et al., 2010), which is why factors beyond the intervention itself such as potential predictors of peer attitude and behaviour must be considered. These factors may include how peers function together, teacher attitudes, school climate, and school policies (Swearer et al., 2010). As peer attitudes are a key focus in this study, it is described below considering its role in peer relationships, acceptance, diversity and difference, influencing teasing and bullying.

1.3.3. Attitudes.

Attitude, widely defined as a positive or negative view of individuals and things (Petty & Wegener, 1998; Petty, Wheeler, Zakary, & Tormala, 2003) is influenced by experiences (Foster, 2006). Peer attitudes are therefore influential and central to teasing and bullying. In stuttering, peer attitudes lead to CWS being perceived negatively and labelled as different and disabled due to stigmatisation (Blood & Blood, 2004). Peer stigmatisation results in CWS perceiving themselves negatively (Blood & Blood, 2004). And so, the cycle of being perceived negatively by peers and perceiving oneself negatively is perpetuated (Blood & Blood, 2004). Given the relationship between peer attitude and teasing and bullying, intervention cannot take place without addressing peer attitudes given its central role (Dijkstra et al., 2008; Murphy et al., 2007a) and negative consequence placed on CWS.

1.3.3.1. Attitude and behaviour change.

A survey of attitude and behaviour change models indicates decades of debate (Hardeman et al., 2002; Hughes, 2014; Prochaska, Redding, & Evers, 2008). Literature shows that there is merit in grounding interventions in theory (Davis, Campbell, Hildon, Hobbs, & Michie, 2015). While Behaviour Change Model Theory found that there is no specific model to explain behaviour change (Prochaska et al., 2008), there is value in drawing upon many models in order to understand attitude and attitude change. This study has not investigated behaviour change, but it is necessary to acknowledge that attitude has been linked to Behaviour Change Models (Hardeman et al., 2002; Hughes, 2014; Prochaska et al., 2008). In fact, attitude is viewed as the precursor to several Behaviour Change Models (Hardeman et al., 2002; Hughes, 2014; Prochaska et al., 2008). The premise of attitude as a precursor to behaviour change has positioned attitude as a predictive factor to behaviour, especially in groups (Hardeman et al., 2002). Attitude is the precursor to behaviour change based on the principle that attitude is inferred by individual actions and communications – in other words, behaviour (Foster, 2006).

Attitude and perceptions, used interchangeably in the literature, provide a useful theoretical underpinning of the CCR intervention that is designed to target peer attitude and perception. This study operates under the assumption that because attitudes are learnt (Foster, 2006), and as this learning is a continuous process (Krahé & Altwasser, 2006), attitudes are subject to change over time (Foster, 2006). Attitude change is further explored using Rational Theory to explain that individuals are deterred by negative reinforcement and influenced by positive experiences (Scott, 2000).

1.3.3.2. Health promotion principles.

In addition to peer attitudes in relation to Behaviour Change Models, health promotion literature was reviewed in order to understand its applicability to the population-based focus of this study. Health promotion literature is relevant because SLT is situated in both health and education, making it necessary to draw on both domains of literature in order to investigate its link to one another and the CCR. The SLT, classroom-based CCR intervention straddles the line between health and education by addressing attitude change and creating a healthier school environment using a teasing and bullying intervention. This is supported by O'Connor et al. (2018) and Gough et al. (2018) who reported the importance of using evidence- and population-based interventions to address social, emotional, well-being and acceptance of diversity and difference. These types of interventions should be implemented in schools and not only by healthcare professionals (Adamowitsch, Gugglberger, & Dür, 2017; Gough et al., 2018; O'Connor et al., 2018). Furthermore, health promotion literature promotes once-off or episodic interventions – such as the CCR – due to effectiveness of these types of interventions (Wakefield, Loken, & Hornik, 2010).

Typically, health promotion may include passive approaches such as posters, plays, pamphlets, and general awareness campaigns that address health-related behaviours and topics such as HIV/Aids, road safety, smoking etc. (Wakefield et al., 2010). While posters and pamphlets can be informative, they have limitations such as difficulty with ascertaining their impact, as noted in stuttering-related public campaigns (St Louis, 2015).

In terms of measuring health behaviour and health promotion interventions, on-going interventions have been found largely ineffective (Wakefield et al., 2010) as audiences can become over stimulated and desensitised to the intervention. Additionally, it can be challenging to measure health behaviour using passive interventions, especially in the presence of

additional negative messages from other sources (radio, music, newspapers, product marketing, social norms and television) that can provide conflicting messages to the public (Lancet, 2010; Wakefield et al., 2010).

Health promotion, specifically interactive and participatory mass media campaigns, have been found to be effective in improving health behaviour, preventing negative behaviour and having a place in government policy (Lancet, 2010; Wakefield et al., 2010). The fact that health promotion is linked to behaviour models, and subsequently attitude and attitude change, supports this study's investigation of literature in this area. Furthermore, the use of intervention to target large populations within the realm of health promotion (Wakefield et al., 2010) is useful, showing the population-based interventions can be effective (Lancet, 2010; Wakefield et al., 2010), especially when grounded in theory (Davis et al., 2015).

In addition to supporting the use of population-based focus of intervention, it was found that engaging and participatory health promotion methods were effective when fostering social support (Kulik et al., 2015). It has been found that children do not learn in isolation, instead collaboration and participation with peers, teachers and even family are instrumental in learning (Durlak et al., 2011). These findings substantiate the claim that peer support is effective in health-related interventions, especially when using health, attitude, belief and perceptions in interventions, fostering peer connectedness (Ramchand et al., 2017). The use and methods of the participatory and engaging learning principles is what this study has drawn upon. This is illustrated in the method of the CCR, using a social story, role-play and discussion that teachers and learners can engage with in reflection and dialogue.

The CCR makes use of reflection by emphasising key messages in the social story and then reinforcing it in the role-play. The social story emphasises that all individuals have strengths and weaknesses, as well as differences and personal values such as empathy and

kindness, illustrating acceptance and support. The role-play follows the social story plot so that the study's participants can once again engage in the key messages of the story through participating in a role-play, using cooperative learning and social pedagogy principals. The role-play is also designed to specifically put the participants quite literally in the characters shoes. Thereafter, the discussion contains broad open- and closed-ended questions to generate discussion and dialogue among teachers and learners. The discussion begins by asking questions about key themes of the story, as well as questions around communication and stuttering. Teasing and bullying are also included, while teachers are encouraged to adapt and modify the discussion to include that which is most applicable to the school. For example, if teasing and bullying related to appearance and weight is experienced at the school, the teacher can link the discussion to that. The social story, role-play, and discussion are all designed for the teacher to administer to her classroom.

Participatory health promotion is also critical in terms of teachers who administer interventions (Adamowitsch et al., 2017). Teacher participation develops during the phases of intervention: adoption, installation, planning and administration (Adamowitsch et al., 2017). The implication of this finding shows that while the teacher is not a focus in this study, their role as interventionists has the potential to influence the study to some extent, despite randomisation.

In terms of classroom-based health promotion and interventions, participation and engagement are important to learning (Adamowitsch et al., 2017; Durlak et al., 2011). If one examines classroom learning more closely, it is evident that the use of strategic-learning within group interactions can result in more effective learning experiences (Blatchford, Kutnick, Baines, & Galton, 2003). While group interactions are largely unplanned and depend on classroom formation, social pedagogy can facilitate learning monumentally (Blatchford et al., 2003). Social pedagogy, also referred to as co-operative learning, resulted in promoting

reasoning, problem-solving, and helping behaviours among learners as they engaged in dialogues and discussions (Gillies & Khan, 2008). The CCR builds on principles of co-operative learning, practicing of communication skills, and dialogue, especially in the role-play and discussion activities.

1.3.3.3. Interventions: changing attitudes.

Based on the theoretical underpinnings of this study in the areas of attitude, behaviour change and health promotion, attitudinal interventions are explored. It should be noted that these attitudinal interventions have a focus of bullying and/or stuttering while general stuttering interventions are described in the scoping review paper. General stuttering interventions are presented in the scoping review to show the dominance of school-aged interventions, but in this chapter, emphasis is placed on attitude.

It has been established that there is a need to address teasing and bullying within vulnerable populations (Rose et al., 2011) using attitudinal interventions. Many anti-bullying interventions using single and longitudinal dosage variations have reported mixed results but ultimately advocate for peer-group approaches (Salmivalli, Kaukiainen, & Voeten, 2005). In stuttering-specific teasing and bullying interventions, there have been several studies that have drawn upon peer- and group-based interventions to target collective populations (Langevin & Prasad, 2012; Scott, 2000; St Louis, 2012, 2015) such as public campaigns.

1.3.4. Population-based approaches.

Public campaigns have used group approaches to intervention in order to target stigmatisation of stuttering (Scott, 2000; St Louis, 2015) and reduce the debilitating nature thereof. The focus here was on social reactions and environments of and to individuals who stutter (St Louis, 2012, 2015). Well-known stuttering public campaigns include the International Project on Attitude Toward Human Attributes (IPATHA) and the Public Opinion

Survey of Human Attributes- Stuttering (POSHA-S) interventions (Flynn & St Louis, 2011). The IPATHA and POSHA-S are documented public interventions (Flynn & St Louis, 2011) which have been instrumental in laying the groundwork for understanding the epidemiology of public attitudes towards stuttering. Unlike effective participatory health promotion interventions described previously, these public interventions have shown that researchers do not know enough about public interventions and that it is difficult to quantify attitudinal change. Similar to passive mass media campaigns, public campaigns are designed for the general public. This makes measurement of the resultant attitudinal changes challenging. However, the IPATHA and POSHA-S are pivotal as advocators for group-based approaches to reducing stigmatization of stuttering (St Louis, 2012, 2015).

Recorded school campaigns and interventions include "Take a Stand, Lend a Hand, Stop Bullying Now" that was developed and tested in the United States as a social marketing campaign to target peer bullying for adolescents aged 9 to 12 years (Vessey & O'Neill, 2011). The "Take a Stand, Lend a Hand, Stop Bullying Now" campaign (term used interchangeably with intervention) made use of cartoon webisodes which depicted common potential teasing and/or bullying situations at school (Vessey & O'Neill, 2011). It also consisted of materials such as posters, public service announcements and documents detailing advice (Vessey & O'Neill, 2011) that could be shared with a broader audience and/or supplement the webisodes. Content of the webisodes was selected based on previous study (Vessey & O'Neill, 2011). The "Take a Stand, Lend a Hand, Stop Bullying Now" campaign obtained input from interviews with intervention experts, parents, school personnel, adults, and organisations that frequently interact with adolescents such as teachers, researchers and healthcare workers as well as adolescent focus groups (Vessey & O'Neill, 2011). Input from these individuals and groups were consolidated, to guide the webisodes (Vessey & O'Neill, 2011). The "Take a Stand, Lend

a Hand, Stop Bullying Now" campaign and other interventions described here show that numerous studies are required in its development, modification, and finally testing phases.

1.3.5. The Teasing and Bullying Behaviour (TAB).

Classroom-based interventions are supported by literature as an effective method of targeting peer attitudes towards CWS internationally (Langevin, 2009; Langevin & Hagler, 2004; Langevin et al., 2009; Langevin & Prasad, 2012; Murphy et al., 2007a; Vessey & O'Neill, 2011) and in South Africa using preliminary studies (Badroodien, 2015; Badroodien et al., 2011; De Freitas et al., 2012; De Grass et al., 2010; Kathard et al., 2014; Mallick etal, 2018; Walters, 2015). There has been one classroom-based intervention that has shaped and influenced the CCR intervention exponentially – the Teasing and Bullying Behaviour (TAB) by Langevin in 2000 (Langevin, 2009; Langevin & Hagler, 2004; Langevin & Prasad, 2012).

The TAB was designed for an international audience at a curriculum level for teachers and allied healthcare workers (such as SLTs) to use in grades 3 to 6 as a classroom-, school- or individually-based intervention (Langevin & Prasad, 2012). The aims of the TAB were to:

1. improve attitudes toward CWS,

2. increase knowledge around stuttering and bullying,

3. improve support for CWS,

4. reduce the approval of bullying by peers,

5. mobilise peer support of CWS, 6. and encourage peers to take action against bullying (Langevin & Prasad, 2012).

The aims of the TAB (Langevin & Prasad, 2012) are key concepts that underpin the CCR. The TAB made use of stuttering as its example, but could be applied to communication disorders and leaning difficulties that place children at risk for bullying (Langevin & Prasad,

2012) much like the CCR. The TAB was originally designed with the aim of providing a basis for future educational resources that could be used at schools (Langevin & Prasad, 2012). After teachers attended 2-hour training workshops to use the TAB, teachers administered the intervention over a three to four week period (Langevin & Prasad, 2012).

The TAB included six teaching units which included a video, manual, discussion guides with potential responses of learners, activities and optional take-home activities that could be completed with parents (Langevin & Prasad, 2012). The take-home activities were not an integral part of the TAB, and it was found to be time consuming for teachers to have to review said activities (Langevin & Prasad, 2012). Much like the CCR, the TAB drew upon attitude as the precursor to behaviour change models whereby cognitive, affective and behavioural components were targeted (Langevin & Prasad, 2012). While the TAB was instrumental in the development and study of the CCR, it was not suitable for the South African population in terms of context – language, literacy, culture, and the time constraints placed on teachers in order to administer supplementary interventions in addition to academic curricula.

Statistically significant and clinically important results in the series of TAB studies (Langevin & Prasad, 2012) has also guided this study to explore both results. Clinical significance (used interchangeably as clinical importance) refers to the meaningfulness and applicability to clinical use of an intervention (Bauer, Lambert, & Nielsen, 2004). While statistical significance speaks to the effectiveness of an intervention, it does not speak to the importance of an intervention or the need to include important contextual information (Thompson, 2002).

School-aged group-, population- and classroom-based stuttering interventions such as the TAB have documented effectiveness in the prevention of anxiety and depression using curriculum approaches addressing prosocial behaviours and skills such as promoting positive

behaviour, peer support and resilience (Blank et al., 2009). Because children spend a large amount of time at school, school-based interventions are seen as beneficial (Blank et al., 2009).

1.3.6. The Peer Attitudes Towards Children who Stutter (PATCS).

While the PATCS was an outcomes measure and not an intervention, it is discussed here as it was used to measure peer attitudes once the TAB had been administered. The PATCS is a 5-point Likert Scale and validated-outcomes measure (Langevin & Hagler, 2004; M. Langevin et al., 2009). The PATCS questionnaire included 36 items within the three constructs of Positive Social Distance (PSD), Verbal Interaction (VI) and Social Pressure (SP). PSD refers to the extent of comfort in interacting with CWS, e.g., "I would let a kid who stutters hang out with us" (Langevin, 2009; Langevin & Hagler, 2004; Langevin et al., 2009; Langevin & Prasad, 2012). SP refers to peer concern around other individual views of CWS, e.g., "I would be ashamed to be seen with a kid who stutters" (Langevin, 2009; Langevin & Hagler, 2004; Langevin et al., 2009; Langevin & Prasad, 2012). And finally, VI refers to the frustration that peers may experience listening to CWS, e.g., "I would feel uptight talking with a kid who stutters" (Langevin, 2009; Langevin & Hagler, 2004; Langevin et al., 2009; Langevin & Prasad, 2012). The PATCS was however found to be too long and complex given the language and literacy difficulties experienced in South African classrooms (De Grass et al., 2010). Therefore, the SROM was developed as an outcome measure for the CCR.

1.3.7. Development of the Classroom Communication Resource (CCR) and Stuttering Resource Outcomes Measure (SROM).

While this study focuses on using a RCT to test the effectiveness of the CCR, background to the development of the CCR is provided to illustrate that the stages before this RCT study were critical and are necessary. The history of the CCR outlines the principal of engaging in practice, learning from practice, creating focus, developing focus and

systematically developing, modifying and testing interventions through its validation processes.

1.3.7.1. Learning from practice: SLT service delivery context.

The CCR was developed in 2009 after the University of Cape Town SLT undergraduate students noted that CWS were not receiving therapy or attending clinics in their 2008 stuttering clinical block (H. Kathard, personal communication, 10 January, 2016). These findings were substantiated by a study conducted at a prominent tertiary hospital in Western Cape, Cape Town, South Africa (Overett & Kathard, 2006). The study reported that SLT service delivery for children (including CWS) at hospitals and clinics was found inaccessible and unsustainable due to contextual challenges (Overett & Kathard, 2006). Thus, illustrating a service delivery challenge. The study also indicated disparity between the children who required SLT and those able to attend therapy at public service hospitals and clinics, thus illustrating the need for adequate provision of SLT services in schools (Overett & Kathard, 2006). It is important to note that the tertiary hospital provided services for those who could not afford treatment, and even so it was impractical and unaffordable (Overett & Kathard, 2006).

The findings of the study by Overett and Kathard (2006) showed that the current model of SLT service delivery was ineffective and unsustainable. Traditionally, SLTs have used a pull-out model of service delivery in hospitals, community and educational contexts while school-based services require a shift in the role of SLT to a collaborative one (Harn, Bradshaw, & Ogletree, 1999). The pull-out model makes use of individual or small group SLT sessions whereby learners are removed from class to attend therapy (Harn et al., 1999) or attend SLT sessions at tertiary hospitals and clinics. These individualised therapy sessions are specific to the communication disorder but have little to no connection to what is happening in the

classroom (Harn et al., 1999) and outside SLT. It is for this reason that the pull-out model has been criticised for being fragmented (Harn et al., 1999). Additionally, the brief overview of the pull-out model explained why children with communication difficulties were coming for SLT but could not sustain attendance (Overett & Kathard, 2006).

Reasons reported for inability to attend SLT included contextual and systemic reasons such as access to transport, money for transport, and general access to the hospital (Overett & Kathard, 2006). It became clear that the issue with SLT service delivery was not solely a concern for speech-language therapists, but also for the undergraduate SLT students and teachers as the development of children that needed treatment was going to be lost to the health and education sectors. These children could be faced with learning and communication burdens on themselves and their teachers. Collectively, the study (Overett & Kathard, 2006) and student observations gave rise to a community-based clinic that subsequently led to the development of the CCR (H. Kathard, personal communication, 10 January, 2016).

1.3.7.2. Learning from practice and creating focus: Community-based clinic.

While the clinical block was set up for CWS, the SLT students received referrals for children with other communication disorders such as language and literacy difficulties (H. Kathard, personal communication, 10 January, 2016) which showed the gravity of service delivery challenges. The decision to provide community-based SLT clinics was born out of the desire to ease the burden of poor service delivery and the consequences thereof on children (H. Kathard, personal communication, 10 January, 2016).

Group SLT sessions facilitated a role-play by CWS that foregrounded the issue of teasing and bullying (H. Kathard, personal communication, 10 January, 2016). CWS highlighted teasing and bullying as their primary concern with less emphasis on their fluency of speech (H. Kathard, personal communication, 10 January, 2016). CWS used the role-play

to illustrate their issues around negative self-perceptions, negative peer perceptions, teasing, bullying, and violence (H. Kathard, personal communication, 10 January, 2016). The complexity of the South African context was conveyed within the role-play whereby teasing and bullying was intrinsically linked to the violence in the community context in which the clinic took place. The community violence included gangsterism and crime which played a key role in how teasing and bullying was experienced and managed in the community. For example, it became clear through the role-play that CWS were first teased and bullied and later became the bully. The CWS explained through the role-play that they were unable to use their voices to defend themselves, but could use their fists to fight back (Farelo et al., 2015).

By nature, a stutter is observable when interacting with CWS, however a CWS is no longer labelled or victimised when they are quiet or when their stutter improves. However, stuttering is often exacerbated in emotionally charged situations aggravating fluency, another reason for not being able to verbally defend themselves against teasing and bullying. The prevalence of teasing and bullying was alarming because of the extensive long-term negative consequences (Rose et al., 2011) widely reported in the literature including suicide, depression, anxiety, diminished self-esteem (Blood & Blood, 2007; Blood & Blood, 2016; Brunstein Klomek et al., 2016; Cook & Howell, 2014; Copeland, Wolke, Angold, & Costello, 2013; Hawker & Boulton, 2000; McAllister, 2015; McAllister, Kelman, & Millard, 2015; Messenger, Packman, Onslow, Menzies, & O'Brian, 2015; Vidal et al., 2007). The negative consequences of teasing and bullying, coupled with the reality of violence in South African communities, was concerning to the undergraduate SLT students and to the profession.

1.3.7.3. Learning from practice: teacher collaboration.

The community-based clinic was effective, only through collaborative partnerships with schools, teachers, children and parents – all of whom attended the clinic (H. Kathard,

personal communication, 10 January, 2016). Teacher collaboration and attendance at the 2008 clinic was also instrumental to the CCR in that it positioned teachers as key partners in SLT service delivery. Teachers reported challenges experienced in managing communication difficulties in the classroom and requested assistance at this clinic (H. Kathard, personal communication, 10 January, 2016). Teachers experienced many other types of communication challenges and among them were teasing and bullying, especially related to stuttering. The importance and need for collaborative partnerships with teachers is additionally supported by literature whereby some teachers have expressed concern around the lack of available training and resources to deal with communication difficulties, disabilities and stuttering-related difficulties in South African classrooms (Abrahams et al., 2016; Hobbs et al., 2016; Penn, Watermeyer, & Schie, 2009). As such, several teachers requested assistance with managing teasing and bullying with children with communication difficulties, of which teachers specifically identified stuttering (Abrahams et al., 2016; Hobbs et al., 2016). In this study, the literature, the student clinic, and use of a classroom-based intervention has repositioned the teacher as the interventionist. Here, the SLT acts in a supporting role in consultation with the teacher whereby the teacher is trained to use the CCR.

Discussions with teachers at the student clinic gave rise to the notion of teachers as potential generative agents of communication in the classroom through collaborative partnerships with SLTs. It positioned teachers as interventionist partners who play a pivotal role in children's lives, by moulding learning, personal, social and academic development. The value of teachers and SLT practitioners (Wylie, McAllister, Davidson, & Marshall, 2018) as collaborative partners who view teamwork as valuable is reported (Hartas, 2004). These collaborative partnerships are viewed as instrumental to working towards common goals of student learning and development through complimentary roles (Hartas, 2004) while alleviating poor SLT service delivery.

Teachers play a vital role in teasing and bullying interventions and, in doing so, should be provided with opportunities for capacity building, i.e. professional development (Rose et al., 2011). The professional development is recommended specifically in teasing and bullying literature in the areas of understanding victimisation, perpetration and those at risk in order to intervene (Rose et al., 2011). The collaboration and partnerships with teachers are important in literature and this study for improved adherence, buy-in and use of interventions to address teasing and bullying (Rose et al., 2011). It is also valuable for teachers to be the CCR interventionists as they can also make decisions about policies (Rose et al., 2011) based on interventions that they have used in their classrooms.

Teacher attitude is therefore important in their roles as interventionists. Despite the fact that they are not the focus participants of this study, the researcher wishes to signal that the teacher is a significant part of this study. Engaging with teachers in this study could possibly shift their own attitudes, even though their attitudes are not measured. For example, the findings of this study could be influenced by the presence of teacher's negative attitudes towards either stuttering, communication, teasing, bullying, CCR intervention or the research process. In fact, it was found in a study that while teachers held positive attitudes towards stuttering, they viewed stuttering negatively (Abrahams et al., 2016).

1.3.7.4. Developing focus systematically: research.

The students took into consideration that while individual SLT, using the pull-out model, is effective is some cases, stuttering is unpredictable as it may improve and be exacerbated at any point in a CWS's life. Even so, individual SLT sessions often focus on speech fluency while teasing and bullying was noted as more of a concern for CWS. This clinical observation and clinic necessitated the need for a teasing and bullying classroom-based intervention. The clinic findings prompted the SLT undergraduate students to develop the CCR (Filies et al., 2009). The development of the CCR also considered that stuttering is a complex

case for understanding human communication at the point of social interaction, especially when considering teasing and bullying. To date, several studies have been conducted to develop, modify, and refine the CCR.

The methodology of the CCR intervention was developed and refined to appeal to young learners. This means that the CCR was not only adapted to be appropriate in terms of literacy and language, it was created knowing that its translation into a classroom lesson would be relatable to learners. The use of the social story, role-play and discussion were often completed in classrooms in oral, comprehension, writing and dialogue in the classroom. In fact, the CCR uses different modalities that require classroom participation (Filies et al., 2009) so that peers actively engage with the CCR. These tasks and methods were useful because it made the engagement and testing of attitude change more functional and tangible for peers and teachers.

The use of the CCR was designed under the premise that it encouraged learner-centred intervention through an activity-based approach to education (Filies et al., 2009). This was achieved through a classroom-population-based focus (using the role-play and discussion activity), while engaging in dialogue, cooperative and social pedagogical learning (Adamowitsch et al., 2017; Blatchford et al., 2003; Durlak et al., 2011; Gillies & Khan, 2008). In doing so, the CCR was designed to provide learners with opportunities to re-evaluate their view of themselves and their peers (Filies et al., 2009) by drawing upon social and personal development.

Personal and social development is reportedly the learning outcome in schools generally (Durlak et al., 2011) and, more specifically, the school subject of Life Orientation on which the CCR was developed, based on the school policy document in 2002 (Filies et al., 2009). This means that the CCR was originally developed understanding that peers in grade 6

should be able to discuss the effects of stereotypes, relationships, abuse, as well as show compassion and mediate conflict (Filies et al., 2009). The CCR was therefore developed to enhance learning opportunities to achieve the school policy learning outcomes (Filies et al., 2009).

As explained previously, the CCR was modelled upon the TAB, and the SROM was modelled on the PATCS, both of which (TAB and PATCS) were developed and studied in Canada (Langevin, 2009; Langevin & Hagler, 2004; Langevin et al., 2009; Langevin & Prasad, 2012). The CCR and SROM (see Appendix B) were both adapted accordingly and studied from 2009 to date (see Table 1, Appendix C). The researcher was involved in the CCR studies in 2011 and 2013-2015 before pursuing this study. The following processes and CCR studies were conducted:

In 2009, the CCR was studied to determine teacher and grade 6 peer responses towards the intervention (Filies et al., 2009). Feedback about the structure, and presentation of the CCR was obtained from teachers and peers. Additionally, topics of conversations generated using the CCR, as well as perceived learning outcomes elicited, were explored (Filies et al., 2009). The CCR was first piloted, resulting in the story and role-play being adapted to be more culturally appropriate and diverse. Thereafter the CCR was administered, peers completed a questionnaire and teachers were interviewed. The CCR was found more suitable for grade 7 peers, was relatable and diverse, but could not be completed within one classroom lesson (45 minutes) as it required a 90 – 120 min session. It was also found that literacy difficulty impeded the role-play in some situations. Participants found that the CCR included discussions around communication, communication difficulties, difference, feelings, attitudes, and diversity (Filies et al., 2009).

In 2010, the CCR was tested using an adapted PATCS in a small-scale study (De Grass et al., 2010). It was first piloted, which found that the CCR was too long and that teachers required a protocol for administration (De Grass et al., 2010). The CCR was therefore shortened to be administered over a 60 minute session (De Grass et al., 2010). PATCS results were compared from baseline to immediately after the CCR and showed a statistically significant treatment effect shift from mildly positive to moderately positive attitudes (De Grass et al., 2010). A more longitudinal study was recommended in broader populations amongst the Western Cape (De Grass et al., 2010).

In 2011, the CCR was studied to determine its effectiveness overall, between genders and quintile (lower versus higher) schools (Badroodien et al., 2011). It was also first piloted which resulted in the modification of the CCR and administration procedures (Badroodien et al., 2011). A cognitive debriefing session was also held with grade 7 peers identifying modifications needed to the PATCS – later referred to as the SROM (Badroodien et al., 2011), which was then changed to the SROM (see Appendix B). The study showed statistically significant results overall and no differences between genders (Badroodien et al., 2011). The higher quintile was more positive at baseline, while the lower quintile showed a greater shift in attitude after the CCR (Badroodien et al., 2011). Adaptations to the CCR were recommended in order to simplify it further and modifications needed for the teacher training protocol (Badroodien et al., 2011).

In 2012, the CCR was studied to determine peer attitudes in classes that were identified as holding potentially negative attitudes towards CWS. The study noted a shift in treatment effect across all participants with the biggest shift noted in those who exhibited negative baseline scores. The biggest shift in treatment effect was also noted in the construct of PSD (De Freitas et al., 2012).

In 2013 – 2015 the CCR was studied using pilot and feasibility studies where attitudes were measured one (Frieslaar et al., 2013; Kathard et al., 2014; Walters, 2015) and six months post-intervention using the SROM (Badroodien, 2015; Mallick et al, 2018). The CCR was administered and peer attitudes were measured at baseline and one-month post-intervention using the SROM in lower quintiles (Frieslaar et al., 2013; Kathard et al., 2014) and higher quintiles (Walters, 2015). Gender differences and exposure to someone who stutters were also explored. It was found that the CCR resulted in a shift in attitudes at one-month post-intervention (Frieslaar et al., 2013; Kathard et al., 2014; Walters, 2015), that there were no significant differences in attitude between gender in lower quintiles (Frieslaar et al., 2013; Kathard et al., 2014) even with girls more positive in higher quintiles (Walters, 2015). Peers with exposure to individuals who stutter were more positive at baseline and subsequently at one-month post-intervention one (Frieslaar et al., 2013; Kathard et al., 2014; Walters, 2015)

In 2015, a RCT was found to be feasible and was subsequently recommended as the next layer of study for the CCR (Badroodien, 2015; Mallick et al., 2018). The study conducted in 2015 (Mallick et al., 2018), conducted a pilot study to determine the feasibility of a cluster RCT. The study first explored procedural aspects including the recruitment and drop-out rates from baseline to one month and then to six months post-intervention as well as treatment effect (Badroodien, 2015; Mallick et al., 2018).

The procedural aspects were explored because it was a longitudinal study and school-based research is known to be challenging (Badroodien, 2015; Mallick et al., 2018). The recruitment rate was high (82%, 9 out of the 11 invited schools agreed to participate). A total of 610 participants were eligible while 449 were recruited after schools agreed to participate (Badroodien, 2015; Mallick et al., 2018). It was reported that a high recruitment rate was observed because schools were contacted early in the year and could thus make the necessary arrangements to participate in the study. The dropout rate increased from baseline

(intervention: 23%, n = 34 and control: 6%, n = 15) to one month (intervention: 7%, n = 10 and control: 6%, n = 15) to six months (intervention: 7%, n = 10 and control: 17% n = 44) due to parental consent forms not being returned and absenteeism (Badroodien, 2015; Mallick et al., 2018). Schools reported that the research had become time-consuming and that they would not have committed to it had they understood the research process (Badroodien, 2015; Mallick et al., 2018).

Six months post-intervention data was collected because the longer-term effects needed investigation. The study found that a larger shift in attitude was noted at six months, compared to one month. A statistically significant result was only noted in the construct of VI. However, teachers and principals felt that the research was time consuming and could therefore not commit to research including four research visits:

1. measure of baseline attitudes and teacher training,
2. CCR administration,
3. measure of one-month post-intervention attitudes,
4. measure of six month post-intervention attitudes.

Given that a greater shift was observed at six months and that schools could not commit to several research visits, only 6 months post-intervention data was recommended. Schools went on to recommend that data be collected at fewer time-intervals in future and since a greater shift in attitude was noted at 6 months (Badroodien, 2015; Mallick et al., 2018), albeit not statistically significant, only 6 months post-intervention data collection was recommended.

Clusters were used because the CCR was administered to classroom clusters and because this is how learners exist at school. It was found that individual recruitment was challenging and cluster recruitment at a school-level, relying on principals and teachers was

more beneficial. It also showed no differences in genders and exposure to stuttering (Badroodien, 2015; Mallick et al., 2018) much like previous studies (Badroodien et al., 2011; Frieslaar et al., 2013; Kathard et al., 2014).

The 2015 study (Badroodien, 2015; Mallick et al., 2018) is critical to this study because this thesis is offering a cluster RCT as its methodology. The 2015 study showed that extensive background work is required before RCTs can be conducted as RCTs are expensive and large-scale trials require meticulous planning. The study showed that school-based research is possible despite it being challenging and that organisation, early planning, scheduling, preferred mode of communication, and logistics would require careful consideration with schools when arranging for the RCT (Badroodien, 2015; Mallick et al., 2018). School-based research was challenging due to the dropout of participants and the strict window within which research can take place. According the Department of Basic Education, research may not be conducted at the beginning of the first term or at all during the fourth school term (Badroodien, 2015). Furthermore, relationships and consistency of researchers were highlighted as key aspects to the study – especially where the study relied upon teachers to offer or be willing to administer the CCR to their class (Badroodien, 2015; Mallick et al., 2018).

The UCT CCR collectively showed that further study of the CCR using the SROM was necessary. These studies also showed that teacher training was important and that a protocol was needed in order to provide information to enrich the CCR. Additionally, they highlighted the need for classroom observations of teaching style and administration, noting relationships with learners.

1.3.8. Evidence-Based Practice (EBP).

The series of CCR studies, including this thesis, aims to guide future clinical practice based on its research findings. This study, therefore, aims to contribute to EBP within SLT.

EBP is crucial to the provision of quality healthcare (Vallino-Napoli & Reilly, 2004) and more specifically within the SLT profession (O'Connor & Pettigrew, 2009). In fact, EBP is advocated for in SLT (O'Connor & Pettigrew, 2009) as a method for facilitating clinical practices through bridging the gap between clinical practice and research (Schlosser & Raghavendra, 2004). In contemporary clinical practice, SLT practitioners are encouraged to view themselves as evidence-based practitioners because they are at the core of therapeutic practices that are guided by research (McCurtin & Roddam, 2012).

There is a need for EBP given that the field of SLT is a young profession with limited literature (Erickson & Perry, 2012) positioned in health and education. The SLT profession, positioned within healthcare, has strong medical roots and is thus concerned with evidence-based medicine, therapeutic practices and efficacy of interventions to guide EBP (McCurtin & Roddam, 2012). Literature has however suggested that, despite its medical roots, EBP has gained traction in other areas of healthcare including SLT. Similarly, SLT EBP positioned in education could possibly be benficial as a population approach as more research of the effectivness in education settings is needed.

It is important to consider that research is an integral component of EBP, along with clinical practice and patient values (Ratner, 2006). Testing interventions using rigorous methodological designs are essential to generating findings for EBP (Ratner, 2006). This thesis therefore aims to contribute to the research component of EBP by using a RCT to test the CCR. In doing so, SLT practitioners may draw upon the findings of this study, in conjunction with patient values and the existing body of literature (McCurtin & Roddam, 2012; Ratner, 2006), to guide clinical practices. It is therefore important for the reader to bear in mind that while the effectiveness of the CCR is the focus of this study, teachers were positioned as collaborative partners. It would therefore also be useful to understand their perceptions of the CCR, post RCT.

1.3.9. Randomised Controlled Trials (RCT).

A RCT was the selected methodological design used to test the CCR because it is a widely regarded methodology to test interventions (Botma et al., 2016; Pocock, 2006). This study acknowledges that while RCTs are not uncontested or commonly used methodological designs within the SLT profession, it was selected as one of the available methods to test the CCR. RCTs are specifically recommended to advance knowledge within a field by aiming to add to routine clinical practices (Pocock, 2006).

RCTs are specifically advocated in the literature for testing interventions in the medical world of research because of its ability to determine cause-and-effect relationships (Botma et al., 2016; Pocock, 2006). It is additionally important to acknowledge that while several methodologies exist, a RCT was selected because of its stature in the scientific community. RCTs are regarded as gold standard (Heal, Groot, Sanders, & Anders, 2017) because they have the advantage of a rigorous methodology including its use of control groups and randomisation to eliminate bias and consequently improve the reliability of findings (Arlene McCurtin & Hazel Roddam, 2012).

Given the focus of the study, and drawing upon intervention and attitudinal literature described, this study wanted to know if the CCR is an effective intervention. The SROM was used to measure the treatment effect at 6 months post-intervention globally and within the constructs of PSD, SP and VI, once participants were given time to internalise their learning. This study was also concerned with understanding the effectiveness and treatment effects of the CCR, using the SROM, at 6 months post-intervention across quintiles using a cluster approach. Because of the subgroup analysis of quintiles, the South African context was important to this study. It is for this reason that a cluster RCT was conducted to determine the answers to this questions about the CCR.

A cluster RCT was also selected for this thesis because of the recommendation to do so, based on its previous feasibility study (Badroodien, 2015). A pilot study was conducted to determine the feasibility of a cluster RCT evaluating the CCR intervention in a future study (Badroodien, 2015). The feasibility study reported that the next level of testing the CCR intervention be conducted using a large-scale methodology cluster RCT and strict planning (Badroodien, 2015). The feasibility study was additionally preceded by a series of studies in which the CCR was developed, modified and tested in small-scale pre-test post-test designs, as previously described (Badroodien, 2015; Badroodien et al., 2011; De Freitas et al., 2012; De Grass et al., 2010; Filies et al., 2009; Frieslaar et al., 2013; Kathard et al., 2014).

1.3.10. The claim of positivism – knowledge/context debate.

This thesis aims to contribute to the research literature and, consequently, SLT clinical practice. However, it is important to understand that a knowledge-context debate exists. It has been said that: "Our world view determines the decisions that we take in life and also in practice." (p. 39; Botma et al., 2016). This quote signals the need to investigate the paradigm and positionality in which the CCR intervention was developed and studied. Typically, in SLT, this includes the claim of positivism. Positivism is defined as external, and objective in terms of its ontological and epistemological factors in health, education and research (Botma et al., 2016).

SLT, rooted in medicine, subsequently has a strong biomedical influence of pathologising communication difficulties and working towards normative patterns of speech, language and communication, using a pull-out model. According to Beecham (2002) normative speech patterns differ across culture and language, as can be seen in stuttering. Irrespective of this fact, children are pathologised using labels such as "stutterers", as being "dysfluent" and having fluency "disorders". These labels are clear examples of othering CWS by

problematising their speech (and problematising them because of their speech). As such CWS are inherently taught by society (and arguably by SLTs through their approach) that they are characterised by their stutter. This is evident even in the terms that the profession uses such as "children who stutter" where the child is still identified by their stutter – emphasising the stutter as a part of their identity.

This thesis aims to alert the reader that a dominance of quantitative and biomedical studies, particularly in the scoping review paper resulting in many SLT studies falling into a positivist paradigm. While quantitative studies and positivism do not equate one another, our SLT studies typically fall into this kind of paradigm and methodology because of the nature of our field. Positivism is presented in this thesis because context matters. Context in all its complexity is important for CWS given the social and emotional components of stuttering and how the history of the SLT profession, stuttering intervention and SA has shaped how stuttering intervention is approached. This thesis aims to raise how the CCR intervention has been shaped by health-based, educational and research paradigms that are used in this study and the profession of SLT.

1.3.11. Context.

The discussion of context is an important theme in this study as interventions are tested within a context and thus the study context is relevant. Furthermore, when interventions are evaluated and implemented, it is dangerous to assume that all contexts are equal and that interventions are automatically appropriate. Contextual considerations are therefore important for this study and include geographical, socio-political, linguistic, cultural, and service delivery factors.

In terms of geographic context, this study was conducted in South Africa, in the Western Cape, at schools in quintiles two, three, four and five. The researcher will unpack the

contextual considerations according to country, province, and schools relevant to this study while highlighting the use of quintiles as part of the subgroup analysis of this study.

South Africa, often labelled as a diverse country with its multi-lingual, racial and cultural people, is shaped by its complex socio-political history of apartheid and colonialism (Coovadia, Jewkes, Barron, Sanders, & McIntyre, 2009). Apartheid South Africa was politically unequal in terms of race as well as in terms of income and wealth (Bhorat, Hanival, & Kanbur, 2006; Coovadia et al., 2009). The remnants of apartheid and colonialism have left the country with vast economic, social and geographical inequality whereby the majority Black population remains disadvantaged (Coovadia et al., 2009). The residual effects of apartheid and colonialism continue to present in the health care system where inequitable access to basic health services and resources remain a problem (Coovadia et al., 2009). This is additionally supported by statistics that show that poverty has increased post-apartheid (Bhorat & Kanbur, 2006) with serious implications for both the health and educational sectors.

Subsequently, the majority of South Africans have poor access to healthcare including SLT services, especially with the growing gap between the public and private healthcare sectors where 64% of the population depends on public healthcare (Coovadia et al., 2009). Poor service delivery, specifically the lack of access to SLT services, further disadvantages children who are consequently unable to thrive due to communication disabilities and difficulties (Kathard & Pillay, 2013). The presence of systemic issues also hinders children placed at a communication disadvantage due to disabling conditions such as poverty (Kathard & Pillay, 2013). This reality is coupled with the shortage and demographic of SLT practitioners whereby the majority of qualified SLTs are trained as Western English-speaking therapists with colonial underpinnings (Kathard & Pillay, 2013) that contribute negatively to SLT service delivery in South Africa. As a result, SLT service delivery translates to the majority population, Black South Africans, remaining under-served (Kathard & Pillay, 2013). The CCR therefore

addresses teasing and bullying while taking into account context of service delivery, violence in communities, and lack of available interventions for teachers to use.

Policies and frameworks have since been created and adopted to attempt to redress post-apartheid inequalities to promote accessible and equitable healthcare service delivery (Litaker, Koroukian, & Love, 2005). Primary Health Care (PHC) is one such example where its principles attempt to address inequality and poor access to health care in underserved communities (Coovadia et al., 2009; Kathard & Pillay, 2013). PHC aims to provide healthcare at a number of levels, including community clinics, to improve accessibility of SLT service delivery. Yet, service delivery in South Africa remains an issue in terms of access to SLT, despite these policies.

Geographically, the province in which the study is conducted is also important because it is reported that substantial inequalities remain evident within and across South African provinces (Coovadia et al., 2009). The Western Cape is one of nine provinces within South Africa and, as a result, contextual information from one province is not necessarily the same for another, even within the same country. This is evident in the education sector whereby inequality and poverty play a role in education in South Africa (Kathard & Pillay, 2013).

Literature reports that the residual and persisting effects of inequality and racial discrimination resulting from apartheid, also remains evident in the education sector (South African Department of Basic Education, 2012, 2014a, 2014b, 2014c). The effects include poor amenities, infrastructure and resources that subsequently perpetuate the marginalisation of the majority population (South African Department of Basic Education, 2012, 2014a, 2014b, 2014c). Provided examples in schools include a lack of teacher training and vulnerable children being placed at risk for further difficulties at school (South African Department of Basic Education, 2012, 2014a, 2014b, 2014c).

It is for this reason that the educational sector implemented the quintile system based on the National Norms and Standards for School Funding (NNSSF) policy (South African Department of Basic Education, 2012, 2014a, 2014b, 2014c). This means that schools are classified according to geographical location, fee per school, and resources (South African Department of Basic Education, 2012, 2014a, 2014b, 2014c). The resources and classification of schools into quintiles continues to be shaped largely by the history of socio-political injustice, meaning that schools are differently equipped within the Western Cape (South African Department of Basic Education, 2012, 2014a, 2014b, 2014c). In other words, schools within the Western Cape are differently equipped from schools in the rest of the country as well as the province. This is an important factor to bear in mind for this study as schools varied across quintiles (and subsequently so did their resources) and were included in this study to determine whether the CCR is effective within and across the subgroup of quintiles (two, three, four and five), given their differences in resources and funding.

The "White Paper 6: Special Needs Education, Building an Inclusive Education and Training system" is another education policy whereby inclusive education is prioritised (Engelbrecht et al., 2015). The white paper stipulates that learners who experience any barriers to learning should be accommodated for in mainstream classrooms, in order to work towards inclusive education (Engelbrecht et al., 2015). Barriers can include those that hinder learning development at schools caused my medical and systemic factors such as inequality because of socio-economic circumstance (Engelbrecht et al., 2015). The White paper is described here as it illustrates a few key points for this study. It shows that there is a need for inclusivity in classrooms and schools, irrespective of systemic issues, poverty and inequality. Additionally, the emphasis of a deficit-approach to inclusivity is highlighted by Engelbrecht et al. (2015) as a limitation to the implementation of the white paper. And finally, its attempts at implementation have shown the need for participatory learning that makes use of peer- and

population-based collaboration strategies (Engelbrecht et al., 2015). The call for population-based approaches in this policy is important to this study as it supports the classroom-based approach of the CCR, in addition to the literature (Kulik et al., 2015; Lancet, 2010; Pillay & Kathard, 2018; Wakefield et al., 2010).

Language is another essential contextual consideration because South Africa is a multilingual country. As a result, schools are made up of learners and teachers from different lingual backgrounds. Given the multilingual nature of South African schools, the CCR needed to be accessible for all. The CCR was developed and tested in English because the South African Department of Basic Education has stipulated that the language of learning and teaching in schools be selected. In the majority of schools in South Africa, English is selected as the language of learning and teaching from grade 4 onwards. It is important to note that within South Africa, English is often an additional language for most learners in school. Knowing this, the CCR was simplified in terms of language and literacy to be suitable for a diverse spectrum of literacy and language levels within schools across quintiles.

Lastly, for this study school culture within violent South Africa is flagged, specifically in relation to teasing and bullying. While violence is cited as a worldwide issue, South Africa is identified as one of the countries that experience a high incidence rate of violence (Fang et al., 2017) and so the context in general is characterised by violence.

Secondly, many communities within South Africa are plagued with violence. Another study conducted in the same prominent tertiary hospital in the Western Cape of South Africa as Overett and Kathard (2006) detailed violence-related injuries. Schuurman et al. (2015) found that of the 8445 patient records that were analysed, the majority were seen at the hospital for violence-related injuries (Schuurman et al., 2015). The study reported that 35% of their records showed violent trauma while 75% of the trauma victims were male. Furthermore, Fang et al.

(2017) reported violence against children in South Africa as a violation of human rights. The studies by Schuurman et al. (2015) and Fang et al. (2017) are described to illustrate that violence in communities should be considered in teasing and bullying interventions.

The South African reality highlights the need for more population-based and easily accessible SLT interventions. There is need for interventions to look beyond individual characteristics, especially when access to services in inequitable (Litaker et al., 2005). Many of the contextual challenges highlighted, while South African specific in many ways, are relevant worldwide. In fact, it is reported that the complex contextual challenges faced globally and within South Africa in healthcare should consider interventions that are transdisciplinary to offer new perspectives of service delivery (Mayosi & Benator, 2014).

This overview of a complex context has highlighted that in an unequal country where this intervention is tested, it is necessary to understand and evaluate how different populations can use this intervention. It is necessary to answer the call for assistance to manage communication in the classroom (Abrahams et al., 2016) coupled with language, literacy, teasing and bullying, and systemic concerns. The researcher wishes to highlight the need for equitable, population-based, innovative interventions that are centred around communication (Pillay & Kathard, 2018). This gave rise to the CCR that was developed and tested using a population-based approach that focuses on communication and teasing and bullying by using stuttering as an example.

1.3.12. Population, Intervention, Comparison, Outcome, Timeframe (PICOT).

The **Patient group** (or population) of this study included grade 7 peers due to their vulnerability of being teased and bullied at their age (Evans et al., 2008; Olweus, 1991), teasing and bullying being most troublesome for CWS (Farelo et al., 2015), and applicability of the CCR for this age group (De Grass et al., 2010). The CCR **Intervention**, the intervention being

tested in this study, is a single-dose intervention, that includes a social story, role-play and semi-structured discussion (see Appendix A). The CCR, is a teacher-administered classroom-based intervention. The CCR aims to reduce teasing and bullying through promoting acceptance, diversity and difference by using stuttering and communication as an example through addressing peer attitudes towards stuttering. The reduction of teasing and bullying, as well as negative feelings and attitudes, are important aspects of stuttering intervention (Blood et al., 2010). The CCR has been studied since 2009 and is modelled on the TAB bearing in mind the contextual needs of the South Africa context. As part of the RCT design, the **Comparison** was the use of control groups that did not administer the CCR and continued with their daily routines, referred to as "usual practice". The **Outcomes** measure used in this study is the SROM, a 20-item 5-point Likert Scale questionnaire. The SROM is modelled on the Peer Attitudes Towards Children who Stutter (PATCS) and therefore contains the three constructs of PSD, SP and VI. Global and construct scores are analysed in this study. The **Timeframe** of this study is 6 months whereby peer attitudes are tested post-intervention and compared to baseline attitudes. Table 1 notes the Patient group, Intervention of interest, Comparison, Outcome, and Timeframe (Y. Botma et al., 2016; Echevarria & Walker, 2014) to summary the focus of this study.

Table 2: A summary of the focus of this study using the PICOT framework

P: Grade 7 peers
I: The CCR
C: Usual care, i.e. no intervention
O: SROM
T: baseline and 6 months post-intervention

1.3.13. Conclusion of Chapter

A classroom-based intervention was selected for several reasons, namely:

1. CWS's calls for addressing teasing and bullying at school,

2. calls from teacher-led interventions, and

3. the need for population-based interventions given contextual challenges.

The CCR intervention may be considered a robust intervention tool that aims to benefit CWS, their peers and their teachers, as well as empower and facilitate a collaborative partnership with teachers. It has also considered more than its beneficiaries in its development and subsequent studies such as context and contribution to EBP. This study is a first step towards studying the effectiveness of the CCR intervention using a cluster RCT at 6 months post-intervention, overall and within PSD, SP, VI and quintiles. This thesis is also a first step for the SLT profession to think about how interventions are evaluated methodologically by offering a cluster RCT as one way of testing an intervention. Furthermore, stuttering was selected as the example of communication within the CCR because it is a well-known, easily identifiable communication difficulty and one that CWS required assistance with (Farelo et al., 2015). Moreover, stuttering is a communication disorder that calls for holistic interventions guided by the International Classification and Functioning of Disability (Word Health Organisation, 2001; World Health Organisation, 2013a, 2013b).

1.3.14. Objectives

The primary objective was to determine treatment effect of grade 7 participants of the CCR intervention versus no intervention using the global SROM score at six months' post-intervention in different school clusters.

The secondary objective was to determine grade 7 participant treatment effect on the SROM subscales PSD, SP and VI. The subgroup objective was to determine the primary objective between and across quintile clusters (lower and higher).

1.3.15. Presentation of this Thesis

This thesis is presented using a combination of chapters and published and publishable papers. Following this chapter 1, the following is presented:

Chapter two is presented as a scoping review paper. The paper provides literature on school-aged stuttering interventions in which the focus and types of interventions and intervention methodology are described. The details of the paper are as follows:

- Title: A Scoping Review of the Stuttering Intervention Literature.
- Authors: Mallick, R., Kathard, H., Thabane, L. and Pillay, M.

Chapter three is presented as a published protocol paper (in the *Trials* Journal). The paper details the methodology of this study as a RCT. The details of the paper are as follows:

- Title: The Classroom Communication Resource (CCR) intervention to change peer's attitudes towards children who stutter (CWS): study protocol for a randomised controlled trial
- Authors: Mallick, R., Kathard, H., Thabane, L. and Pillay, M.

Chapter four is presented as a paper that has been submitted for publication for review. The paper details the results of this thesis in a publishable format (submitted to the *Trials* Journal). The details of the paper are as follows:

- Title: A cluster randomized trial of a classroom communication resource program to change peer attitudes towards children who stutter among grade 7 students
- Authors: Mallick, R., Thabane, L., Kathard, H., Pillay, M. and Borhan, A.S.M

Chapter 5 is presented as a thesis chapter, much like chapter 1. The chapter details the synthesis of the study as well as limitations, recommendations and implications (clinical, research and policy related) of the study.

Chapter 2: A Scoping Review of the School-aged Stuttering Intervention Literature

Authors: Mallick, R., Kathard, H., Thabane, L., Pillay, M.

Abstract

Background: A scoping review of school-aged stuttering interventions has not previously been published. A survey of school-aged stuttering intervention studies was therefore conducted and presented with theory, and literature using the International Classification of Functioning (ICF), Disability and Health framework to describe published stuttering interventions.

Method: A scoping review was conducted using database searches, Google Scholar, grey literature and manual searching of reference lists. The timeframe for the literature search was from the inception of the databases until June 2018. The inclusion criteria included stuttering intervention studies for school-aged children 6 years to 14 years old. The data was captured and analysed using descriptive and narrative analysis.

Results: Ten school-aged stuttering intervention studies were noted in the literature, meeting the inclusion criteria of this study. All 10 studies made use of quantitative pre-test post-test designs conducted in Australia (n=3), America (n=3), Canada (n=2), Iran (n=1) and South Africa (n=1). Majority of the studies (n=8) were situated within the ICF domain of body structures and functions aimed at intervening at an individualized level targeting speech fluency level. Of the 8 studies, two facilitated environmental factors through the inclusion of communication partners at home, school and in social environments. Two studies made use of population-based classroom intervention in the domain of environmental factors to address peer attitudes.

Conclusion: The findings of the scoping review illustrated a desire to shift towards more holistic stuttering intervention while acknowledging the restrictions imposed by available

methodologies to study complex topics such as stuttering. The dilemma that the SLT profession faces, as noted in this paper, is that our interventions are integrated and complex, posing a challenge for how we approach and determine treatment effectiveness.

2.1. Overview of Chapter

Chapter two is presented as a scoping review paper written in preparation for publication. A survey of school-aged stuttering intervention studies as well as theory and literature is described, using the International Classification of Functioning (ICF), Disability and Health framework to report on published stuttering interventions. The presentation of literature and theory aims to substantiate the rationale for this study through the dissemination of literature findings (Peters et al., 2015). This paper will also contribute to the rationale by identifying gaps in the literature (Peters et al., 2015). This paper additionally aims to alert the reader to the need for the contextualising of interventions through highlighting this gap in existing intervention studies.

2.2. Rationale

The Classroom Communication Resource (CCR) uses communication, and specifically stuttering, as audible points of discrimination in teasing and bullying interventions therefore more information about stuttering interventions is required. The need for evidence of teasing and bullying interventions was established in chapter 1, while this paper examines what the evidence base is for stuttering interventions in school-aged populations for 6 to 14 year old children. This paper focuses on school-aged stuttering intervention studies and was not limited to attitudinal interventions; instead all interventions were explored. To address this need, a scoping review was conducted using the ICF framework to describe and analyse the evidence for interventions including but not limited to attitude change of peers.

2.3. Focus of the Chapter

A literature search revealed that a scoping review specifically of school-aged stuttering interventions has not previously been conducted (Peters et al., 2015). A scoping review conducted between 2013-2014 was however published which collectively examined pre-school, school-age, adolescent and adult stuttering and cluttering interventions (Baxter et al.,

2016). A handful of systematic reviews and meta-analysis studies have also been published (Adams, 1984, 1988; Andrews, Guitar, & Howie, 1980; Baxter et al., 2016; Bothe, Davidow, Bramlett, & Ingham, 2006; Herder, Howard, Nye, & Vanryckeghem, 2006; Nye et al., 2013; Thomas & Howell, 2001), while none have specifically focused on school-aged stuttering interventions. A scoping review, detailing school-aged stuttering interventions, was therefore conducted to provide an overview and synthesis of stuttering intervention literature in this age category.

The growing popularity of scoping reviews in health literature (Levac, Colquhoun, & O'Brien, 2010; Peters et al., 2015) is crucial to this paper given that the Speech-Language Therapy (SLT) profession is a developing field in which scoping reviews may collate available interventions using literature. A scoping review was subsequently selected to add to the body of literature (Kastner et al., 2011; Kastner et al., 2012; Khalil et al., 2016; Peters et al., 2015), contributing to Evidence-based Practices (EBP). This scoping review paper may therefore be useful for stuttering intervention EBP as it speaks to the need for research evidence as a guide to clinical and research practices.

2.4. Presentation of this Chapter

The layout of this paper is as follows:

This paper introduces the theory supporting this paper, after which the method of the scoping review is described. Following this, results and discussion are described to provide evidence for school-aged stuttering interventions in order to substantiate the rationale for this thesis.

2.5. Background and Introduction

2.5.1. Rationale.

The developing field of SLT, and more specifically stuttering, has undergone theoretical changes that have guided interventions in clinical practice. These theoretical

changes have influenced how stuttering is described in the literature, as well as the types of stuttering interventions that are advocated for. To date, a wealth of literature is noted regarding the nature and consequences of stuttering (Blood & Blood, 2004; Blood, Boyle, Blood, & Nalesnik, 2010; Carter & Spencer, 2006; Guitar, 2006; Langevin, Kleitman, Packman, & Onslow, 2009).

In the area of stuttering intervention, research can be traced to the 1950s where carbon dioxide was used to treat stuttering (Baxter et al., 2016; Herder et al., 2006; Nye et al., 2013). During the 1950s and 1960s, research focused on pharmacological treatments, after which behavioural interventions were explored from the 1970s onwards (Baxter et al., 2016; Herder et al., 2006; Nye et al., 2013). Behavioural interventions placed emphasis on addressing speech fluency using techniques such as prolonged speech (Guitar, 2006, 2013).

The first meta-analysis of stuttering intervention for individuals who stutter was conducted by Andrews et al. (1980), followed by Adams (1984), Adams (1988), and Thomas and Howell (2001). More recent systematic reviews and meta-analysis studies were conducted (Baxter et al., 2016; Bothe et al., 2006; Herder et al., 2006; Nye et al., 2013). Two of the reviews focused on adult and child populations who received stuttering interventions (Baxter et al., 2016; Bothe et al., 2006) and cluttering (Herder et al., 2006). However, a summary of school-aged stuttering interventions has not been published, illustrating the need for a scoping review (Peters et al., 2015).

A summary of school-aged stuttering interventions would be useful to the profession to guide clinical practice and future research. A scoping review is additionally important for this paper, thesis and the SLT profession, given that a scoping review may contribute to literature forming part of EBP, a popular approach for guiding clinical practices (McCurtin & Roddam, 2012; O'Connor & Pettigrew, 2009; Peters et al., 2015).

2.5.2. Stuttering.

Stuttering is defined in SLT literature as an idiopathic communication disorder that emerges during childhood whereby a disruption of fluency of speech is observed (Guitar, 2006). Stuttering is characterised by the presence of both observable and non-observable challenges (Baxter et al., 2016; Guitar, 2006, 2013) that influence Children who Stutter (CWS) in terms of daily functioning and quality of life (Beilby, 2014; Kathard et al., 2014; Messenger, Onslow, Packman, & Menzies, 2004; Murphy, Yaruss, & Quesal, 2007).

The way in which stuttering is understood appears to differ culturally (Spector, 2002). Stuttering, classified as a condition, may be interpreted differently across professional cultures, much like any condition in healthcare (Spector, 2002). Specifically, in the SLT profession stuttering is viewed as a speech fluency disorder, and more recently as a social communication disorder. However, in cultures, such as Arab cultures for example, it is simply viewed as a difference in communication style (Robinson & Crowe, 1998) that is God-given and should thus be accepted (Ogundare, 2012). The cultural view that professions (health and education, e.g. speech-language therapists, teachers) and communities (e.g. geographical, religious etc.) hold about stuttering would therefore shape how interventions are designed, studied and adapted.

Historically, there has been focus on speech fluency intervention as a field approach to stuttering given the magnitude of literature that exists in terms of the nature of stuttering. Recently, there has however been a shift towards exploring the social implications of stuttering (Blood & Blood, 2004; Blood & Blood, 2007; Blood & Blood, 2016; Blood, Blood, Dorward, Boyle, & Tramontana, 2011; Blood, Blood, Tellis, & Gabel, 2001; Blood et al., 2010; Boyle & Blood, 2015; Boyle, Blood, & Blood, 2009; St Louis, 2015). In addition to stuttering being viewed as a speech fluency and behavioral disorder (Bothe et al., 2006; Guitar, 2006), stuttering has recently been repositioned as a multifaceted social communication disorder (Baxter et al.,

2016; Herder et al., 2006; Langevin et al., 2009; Langevin & Prasad, 2012; Nye et al., 2013; St Louis, 2015).

The conceptual repositioning of stuttering has resulted in the recommendation that stuttering be viewed within a psychosocial model as it also encompasses challenges beyond its physical manifestations (Boyle & Blood, 2015; St Louis, 2015). These manifestations include consequences of stuttering such as stigmatising societal beliefs (Kathard et al., 2014; St Louis, 2015), negative feelings and attitudes and negative peer perceptions (Blood & Blood, 2004). Additional consequences include negative self-perceptions, social rejection, reduced academic and social interactions, teasing, bullying and difficulty with integration and acceptance of CWS into social groups at school (Blood & Blood, 2004; Blood et al., 2010; Carter & Spencer, 2006; Davis, Howell, & Cooke, 2002; Langevin et al., 2009).

The view of stuttering as a social communication disorder has foregrounded social consequences of stuttering in the literature (Baxter et al., 2016; St Louis, 2015) and for this study. It is well documented that many of these consequences are experienced predominantly within a CWS's primary schooling years (i.e. between the ages of 6-14 years) and have far-reaching consequences that extend into their adult years. Negative social consequences have far-reaching impacts for CWS including social anxiety, loneliness, low self-esteem, and depression (Ferguson, Miguel, Kilburn, & Sanchez, 2007; Hawker & Boulton, 2000).

Another layer of complexity is added when considering stuttering as a social communication disorder within contexts (home, school, and social) in which CWS live. It is for this reason that the context in which stuttering interventions are designed for and studied in are critical when considering its application to CWS. The inclusion of contextual information and application is an important factor that may influence validity and application of research from one context to another (Botma, Greef, Malaudzi, & Wright, 2016; Law, Roulstone, &

Lindsay, 2015; Tomoaia-Cotisel et al., 2013). While research strives towards generalisability, this paper (and thesis) aims to alert its readers to the need to apply interventions with consideration of context. The contextual parameters in this thesis – geographical location, socio-political factors, race, language, and culture generally and within SLT settings – are considered with this scoping review. These contextual factors are important because they influence SLT service delivery (Navsaria, 2010; Ogundare, 2012; Pascoe et al., 2010; Pascoe & Norman, 2011; Robinson & Crowe, 1998).

Despite methodological considerations for generalisability of intervention from one context to another, it is important to understand contextually specific information (Pascoe & Norman, 2011; Pascoe, Rogers, & Norman, 2013) in order to adapt and transfer interventions accordingly (Botma et al., 2016; Law et al., 2015; Tomoaia-Cotisel et al., 2013). The emphasis on context further aims to highlight, through the presentation of literature in this paper, that CWS should be viewed within a diversity continuum through frameworks and contextually important information.

The dominant focus has been on speech fluency and behavioural school-aged interventions (Guitar, 2006, 2013) which has propelled the field of stuttering exponentially (Baxter et al., 2016; Bothe et al., 2006; Herder et al., 2006; Nye et al., 2013). However, this approach has also not gone uncontested (Baxter et al., 2016). A speech fluency and behavioural intervention focus has traditionally been used within a medical model. A medical model approach encourages a focus on speech fluency and behavior in an attempt to normalise CWS's speech and classify their stutter within a disorder-based approach (Kathard, 2003). The medical model refers to the medical lens that stuttering, a condition, is viewed with – as a pathology. The pathologising of the condition often results in an impairment-based focus of health practices that "other" populations by reducing individuals to a pathology. In stuttering, CWS would be classified as "stutterers" according to the normative speech patterns (Kathard, 2003).

The classification of stuttering as a fluency disorder within a medical model by the profession has shaped how stuttering intervention has been approached (Kathard, 2003). The increasing popularity of the view of stuttering as a disabling disorder, through a medical lens, has resulted in an approach that treats the symptoms of speech fluency. For example, when stuttering is viewed as a pathology, the SLT profession questions whether it is disabling.

The view of stuttering as a speech fluency disorder made use of a medical model, while the profession has since shifted towards a psychosocial model bearing in mind social consequences of stuttering. In light of the evolution of approach to understanding stuttering and interventions towards a biopsychosocial approach which combines the influences of the medical and psychosocial models through the International Classification and Functioning of Disability Framework (ICF). This paper aims to review the current domain of evidence using the ICF framework. It should be noted that the interaction of the models is important and the ICF tried to encourage the shifting towards a biopsychosocial model.

Frameworks such as ICF (World Health Organisation, 2013a) and the Overall Assessment of the Speaker′s Experience of Stuttering (OASES) (Yaruss & Quesal, 2006) advocate for strategies to assist speech-language therapists (SLTs) with stuttering intervention (World Health Organisation, 2013a; Yaruss & Quesal, 2006). These frameworks have gained traction as they consider:

1. the complexity of stuttering,

2. its classification as a disorder with disabling factors and

3. far-reaching consequences within various areas of CWS's life.

ICF was selected as the framework used in this paper due to its popularity in the profession as it is one of the more robust frameworks proposed in SLT (Yaruss, 2007; Yaruss

& Quesal, 2004). As such, ICF is used in this paper to guide and analyse school-aged stuttering interventions.

2.5.3. The International Classification of Functioning (ICF), Disability and Health framework.

In preparation for the analysis of the stuttering interventions using ICF, background information about this framework is presented including its classifications (referred to as domains in this paper). ICF framework classifies domains of body functions, body structures and activity and participation within the realm of functioning and disability along with contextual factors as environmental and personal factors (World Health Organisation, 2013a, 2013b). ICF emphasises the need for understanding the interaction between the domains as an integral part of contextualising individuals and understanding that disability and functioning occurs within context (World Health Organisation, 2013a, 2013b).

ICF is additionally described as attempting to understand, classify and facilitate robust interventions while appreciating that health is dynamic (World Health Organisation, 2013a, 2013b). Dynamic health conditions are recommended to be explored within a biopsychosocial model (World Health Organisation, 2013a, 2013b). Meaning the ICF attempts to move away from classifying individuals as their disability and instead encourages the classification of individuals within domains (World Health Organisation, 2013a, 2013b). Thus, ICF recommends collectively drawing upon medical and psychosocial models of health (World Health Organisation, 2013a, 2013b), a shift also noted in SLT regarding stuttering.

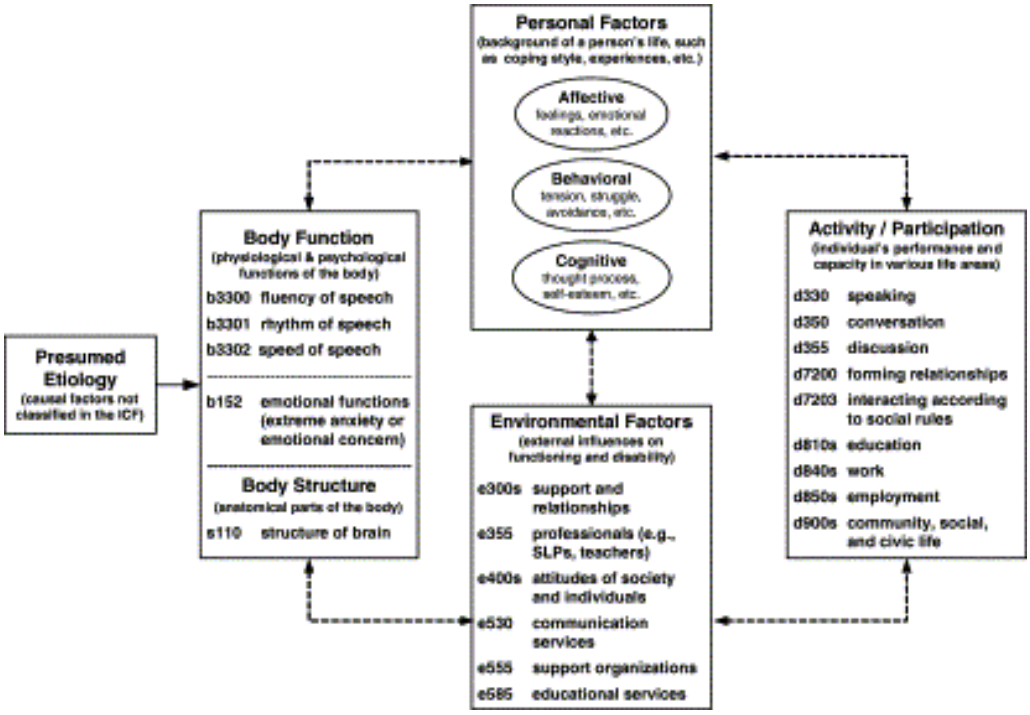

Figure 1: The ICF framework: applied to stuttering (Yaruss, 2007; Yaruss & Quesal, 2004)

In stuttering, body structures and function (including the psychological and physiological functions) examine the stutter in terms of fluency, rhythm and speed of speech (Yaruss, 2007; Yaruss & Quesal, 2004) with emphasis on the observable aspects of stuttering. This, therefore, includes the presence of core behaviours of a stutter: repetitions, blocks and prolongations (Boyle & Blood, 2015; Guitar, 2006, 2013; Yaruss, 2007; Yaruss & Quesal, 2004). Stuttering interventions that address body structures and functions – stuttering modification techniques – include assisting CWS with controlling their stutter (Guitar, 2006, 2013). Stuttering modification techniques consist of rate control, easy onsets, light contacts, continuous phonation, prolonged syllables etc. (Guitar, 2006, 2013). Historically, this has been the focus of where stuttering intervention originated and is largely practiced, drawing upon a medical model of SLT service delivery.

In the domain of personal factors (related to the background of the CWS life), affective, behavioural and cognitive components are explored (Word Health Organisation, 2001; World

Health Organisation, 2013a, 2013b; Yaruss, 2007; Yaruss & Quesal, 2004). Firstly, affective components include CWS's emotional reactions, feelings and attitudes towards their stutter (Yaruss, 2007; Yaruss & Quesal, 2004). Secondly, behavioural components include secondary behaviours of a stutter such as tension, avoidance and struggle (Guitar, 2006, 2013; Yaruss, 2007; Yaruss & Quesal, 2004). Lastly, the cognitive component includes self-esteem, perceptions and thought processes of individuals who stutter (Yaruss, 2007; Yaruss & Quesal, 2004).

Environmental factors – the focus of the CCR intervention – refer to external influences that affect CWS and includes communication partners: parents, family, peers, SLTs and teachers (Yaruss, 2007; Yaruss & Quesal, 2004). The domain of environmental factors examines support and relationships available to CWS while also encompassing organisations and educational services; and both societal and CWS' attitudes (Yaruss, 2007; Yaruss & Quesal, 2004).

The ICF domain of activity and participation refers to the capacity and performance of CWS within various contexts and environments such as at home, school, within communities, and socially (Yaruss, 2007; Yaruss & Quesal, 2004). The inclusion of activity and participation makes the link between conversation, general speaking and communication within these environments (Yaruss, 2007; Yaruss & Quesal, 2004). Activity and participation further examines how the various environments influence CWS's ability to form relationships and interact with their communication partners (Yaruss, 2007; Yaruss & Quesal, 2004).

Some stuttering interventions that target contextual factors (personal and environmental) and activity and participation have also been documented. These interventions address feelings, attitudes and teasing and bullying (Beilby, 2014; Guitar, 2006, 2013; Messenger et al., 2004; Messenger, Packman, Onslow, Menzies, & O'Brian, 2015; Murphy et al., 2007) within different social environments (Guitar, 2006, 2013; Word Health Organisation,

2001; World Health Organisation, 2013a) through examination of factors within a psychosocial model.

Yaruss and Quesal (2006) report the iceberg model described by Sheehan (1970), to portray that the majority of stuttering experiences occur beneath the surface. To illustrate the complexity of stuttering and the need for interventions to address that which is applicable to a CWS and application of ICF, a fictional case is presented below. The case is classified according to ICF domains to illustrate the need for CWS-specific intervention within the areas where difficulty is noted given the disservice it would be to simply address speech fluency and behaviour only. The case is as follows:

> Child X is 7 years old and began stuttering when they were 3 years old. They exhibit repetitions on initial sound positions where they repeat the first sound of a word, three to four times (e.g.: "t...t...t… teddy") during which they avoid eye contact and fidget. Avoidance behaviours are noted where they are aware of an oncoming moment of stuttering. It is reported that they are comfortable at home where their stutter is reduced while it is worse at school. Their parents are noted as supportive communication partners. Their stutter appears to worsen around new and unfamiliar individuals and places. As a result, they have become anxious, withdrawn and cry frequently. They were teased by their extended family for stuttering and have since become aware of their stutter. In an attempt to assist them, their teacher completes their sentences for them.

According to ICF, the presentation of the speech fluency in terms of initial sound repetitions would be classified into the domain of body structures and function while personal contextual factors would include the child's anxiety, personality, awareness of stuttering and avoidance behaviours. Environmental contextual factors would include teasing by their

extended family members, supportive parents and a teacher who completes their sentences for them. Activity and participation includes how they engage at home, school and more socially and the effects thereof on their stutter, feelings and attitudes.

As illustrated through the description of the case of Child X using ICF, this framework promotes stuttering intervention in areas of a CWS's life that require intervention. As such, SLTs are encouraged to explore the broader challenges, experiences and consequences of stuttering (Yaruss, 2007; Yaruss & Quesal, 2004) beyond that of only body structures and function and instead on CWS's intervention needs and priorities. Given that stuttering presents with several social consequences (Boyle & Blood, 2015), and is considered a multidimensional disorder, interventions should be based on the specific needs of the CWS.

In addition to the complexity of stuttering that has been highlighted, how evidence is tested and developed is important. This refers specifically to the quality of evidence that is generated and its effect on EBP practices. It is reported that the quality of evidence would dictate how much confidence clinicians may place in guidelines and studies (Group, 2004). For example, a study conducted by Law et al. (2015) to investigate SLT intervention effectiveness, found that of the 58 studies noted, only 5% were considered high quality. The consequences of quality of evidence may result in interventions being used in practice that have little supporting evidence (Law et al., 2015). As such, it is necessary to evaluate and disseminate the quality of evidence to guide clinician practices (Law et al., 2015).

The background of this paper has emphasized the complexity of stuttering, context, use of ICF and the generation of quality evidence. Additionally, it has highlighted that there have been no scoping reviews, meta-analysis and systematic reviews of school-aged stuttering interventions for children aged 6 to 14 years. It is for this reason that a scoping review investigating stuttering interventions in this age group was conducted using ICF to identify and analyse the following objectives:

2.6. Objectives

The objectives of this scoping review, as guided by the ICF framework, were to assess:

1. Types and focus of stuttering interventions that have been published,
2. Effects of these stuttering interventions for school-aged CWS using outcomes measures,
3. Geographical contexts in which the studies take place,
4. Quality of methodology used within the available evidence using Grading of Recommendations, Assessment, Development and Evaluation (GRADE).

2.7. Method

2.7.1. Study design.

A scoping review was conducted.

2.7.2. Databases.

Databases searches included: PubMed, EBSCO host, MEDLINE, PsycINFO, Academic Search Premier, Africa-wide Information, Cumulative Index to Nursing and Allied Health (CINAHL), Education Resources Information Centre (ERIC), Health Source (consumer edition), Dissertation Abstracts International, Education Resource Information Centre and The Cochrane Library (Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Methodology Register. Google Scholar and grey literature were also searched. Manual searching of reference lists was also conducted to broaden the search. Where literature exists, but access was not granted, the University of Cape Town Faculty of Health Science's library was contacted to request a copy to the literature, however two papers could not be accessed.

2.7.3. Timeframe.

The timeframe for the search was from the inception of the databases until June 2018. Given that SLT stuttering intervention is a growing field that has shifted from medical and psychosocial models of approaching intervention, it was felt that all available interventions should be included to provide a more complete picture of what exists within the literature.

2.7.4. Inclusion and exclusion criteria.

The inclusion criteria were as follows:

Randomised Controlled Trials (RCTs) and non-RCT (quantitative and qualitative) studies investigating the effects of school-aged (6-14 years) stuttering interventions. Individual and group stuttering interventions targeted at CWS, their parents, teachers and peers. The studies required data on impact on outcomes, i.e. treatment outcomes.

The exclusion criteria included:

Studies that did not address stuttering intervention for school-aged CWS within the 6-to-14-year age category, as well as those that did not assess the effects of stuttering interventions.

2.7.5. Data captured.

The data captured consisted of the number of studies that were included (n=10) as well as those excluded (n=667) with reasons for exclusion. The data captured was guided by ICF domains [i.e. body structures and body functions, contextual factors (personal and environmental), and activity and participation]. The parameters of this paper, guided by its objectives, including the: 1. types and focus of stuttering interventions using ICF domains, 2. effects of stuttering interventions for school-aged CWS using outcomes measures, 3. geographical context in terms of country in which the studies took place, 4. quality of methodology used within the available evidence using GRADE.

2.7.6. Analysis.

Descriptive and narrative analysis was conducted by summarising, organising and reporting on stuttering interventions according to the objectives of this paper. In terms of the methodology, GRADE, a widely used tool, was used to evaluate the quality of evidence (Brozek et al., 2009) of all studies. GRADE was used in this paper as it reportedly assists with adding to EBP through commenting on quality of different methodology designs of studies (Brozek et al., 2009). GRADE was used to evaluate the quality of the studies by examining the methodology of each study (Brozek et al., 2009). According to the GRADE working group (2004), the type of evidence takes into account its design (e.g. RCT is high, observational studies are low quality) and rates the quality. Thereafter the quality rating is decreased or increased based on more specific factors such as a high probability of reporting bias of a study (GRADE working group, 2004)., control groups, randomisation, type of design (e.g. RCT), and blinding etc (Brozek et al., 2009).

2.8. Results

The search retrieved a total of 677 titles with 310 titles excluded as they were duplicated items. Of the 367 abstracts that were retrieved, 252 were excluded based on abstract, 115 based on full-text and 103 for not including the target population (6-14-year-old school-aged children) and 2 due to an inability to access full papers. As such, 10 articles met the inclusion criteria. See Figure 2: Flow diagram for study selection attached in Appendix D.

2.8.1. Study Characteristics.

As seen in table 1, a total of 10 school-aged stuttering intervention studies met the inclusion criteria of this study. The included studies (n=10) included quantitative pre-test post-test designs conducted in Australia (n=3), America (n=3), Canada (n=2), Iran (n=1) and South Africa (n=1). The primary focus of the interventions was predominantly on the domain of body structures and functions (n=8) aimed at speech fluency of CWS.

Table 1: Characteristics of included studies reporting on countries, target population and focus of intervention using ICF domains

Author details	Country	Target population	Focus of intervention: ICF domains
(1) Craig and Cleary (1982)	Australia	CWS	Body structures and function using electromyograph (EMG).
(2) Budd, Madison, Itzkowitz, George, and Price (1986)	America	CWS and parents in a supportive role.	Body structures and function using: controlled speech rate, continuous phonation, delayed auditory feedback Environmental factors were facilitated by encouraging carryover of SLT stuttering modification techniques facilitated by parents through home-based therapy activities and CWS who practiced techniques in social settings
(3) Gagnon and Ladouceur (1992)	Canada	CWS	Body structures and function: using awareness training, modified regulated breathing and easy speech
(4) Wagaman, Miltenberger, and	America	CWS and parents in a supportive role	Body structures and function: using awareness training, and competing response training

Arnndorfer (1993)			
(5) Koushik, Shenker, and Onslow (2009)	Australia	CWS and parents in a supportive role	Body structures and function: using Lidcombe program in SLT and through parental feedback on speech fluency
(6) Bakhtiar and Packman (2009)	Iran	CWS and parents in a supportive role	Body structures and function: using Lidcombe program in SLT and through parental feedback on speech fluency
(7) Harasym and Langevin (2012)	America	CWS and parents and peers who stutter in supportive roles	Body structures and function: using prolonged speech, easy onsets, light contacts, breathing patterns Environmental factors facilitated through training of support staff and discussions with peers who stutter and parents around teasing and bullying
(8) Langevin and Prasad (2012)	Canada	School peers with the teacher as the interventionist.	Environmental factors using: the Teasing and bullying behaviour (TAB) program.

		Indirectly targets CWS	
(9) Kathard et al. (2014)	South Africa	School peers with the teacher as the interventionist. Indirectly targets CWS	Environmental factors using: the Classroom Communication Resource (CCR) intervention.
(10) Andrews et al. (2016)	Australia	CWS and parents in a supportive role	Body structures and function: using Syllable-timed speech (STS)

An overview of ICF domains yielded the following:

Interventions focused chiefly on body structures and functions (n=8) administered by SLTs, while some of these studies also included aspects of environmental factors (n=2). Environmental factors and activity and participation were not directly targeted in the majority of the studies (n=9). However, communication partners were included in supportive roles and not targeted as the focus of the intervention within the home, school and social contexts that facilitated the domain of activity and participation and environmental factors. Similarly, the studies that targeted environmental factors (n=2) indirectly facilitated activity and participation through the inclusion of communication partners of teachers and peers.

2.8.2. Geographical context.

Context described here relates to country and setting of the study. As seen in table 1, studies were conducted in Australia (n=3), America (n=3), Canada (n=2), Iran (n=1) and South Africa (n=1). The studies detailed the following contextual information:

One study reported and described the country in which the study took place including Bakhtiar and Packman (2009) who described Iran as a linguistically and culturally diverse context. Some studies reported and described country as well as context of intervention (n=4). For example:

1. Koushik et al. (2009) described in text that the study took place in Canada at a fluency centre,
2. Budd et al. (1986) reported states in America where participants resided but that intervention took place with a school SLT,
3. Langevin and Prasad (2012) reported that the study took place in schools in the Western Canadian province and,
4. Kathard et al. (2014) reported that the study took place in schools in South Africa.

Three studies reported the intervention context but not country which included:

1. Andrews et al. (2016) who reported that participants were referred from a university research clinic,
2. Wagaman et al. (1993) who reported that participants were referred from a school SLT and,
3. Gagnon and Ladouceur (1992) who reported that participants were referred by SLTs.

The remaining two studies including Harasym and Langevin (2012) and Craig and Cleary (1982) did not describe or name its country or intervention context.

2.8.3. Types of intervention.

2.8.3.1. Body structures and function.

As described and noted in table 1, the majority of the studies focused on addressing the domain of body structures and functions using stuttering modification techniques. Stuttering modification techniques within the domain of body structures and function included: controlled

speech rate, continuous phonation, prolonged speech, easy onsets, light contacts, and syllable-timed speech (STS). Additionally, techniques included modified regulated breathing, delayed auditory feedback, and awareness and competing response training (included within the Lidcombe program). It is important to note that the Lidcombe program is typically used as a guide for parents to manage stuttering at home for pre-school aged CWS, however, two studies interrogated whether it would be a viable intervention for older school-aged CWS. Given the numerous studies of the Lidcombe program and absence of a more age-specific intervention, these studies investigated the use of this established home-based intervention for school-aged CWS with parents as communication partners.

2.8.3.2. Environmental factors.

Environmental factors – external influences including communication partners, support, relationships organisations, educational services, and societal – and CWS' attitudes (Yaruss, 2007; Yaruss & Quesal, 2004) are described in table 2. Environmental factors were directly targeted in two studies (Kathard et al., 2014; Langevin & Prasad, 2012) and facilitated in another two (Budd et al., 1986; Harasym & Langevin, 2012).

Table 2: Intervention approaches of included studies reporting on focus of intervention using ICF domains of environmental factors

Author details	Stuttering intervention tasks and techniques: ICF domain of environmental factors
Budd et al. (1986)	Facilitated intervention through parental training and forum
Harasym and Langevin (2012)	Facilitated intervention through training of support staff and discussions with peers who stutter and parents around teasing and bullying

Langevin and Prasad (2012)	Directly addressed through the Teasing and bullying behaviour (TAB) program administered by teachers to target school peers' attitudes of CWS
Kathard et al. (2014)	Directly addressed through the Classroom Communication Resource (CCR) intervention administered by teachers to target school peers' attitudes of CWS

The studies that directly targeted environmental factors included Langevin and Prasad (2012) and Kathard et al. (2014). Both studies targeted environmental factors using classroom-based interventions administered by teachers for school peer attitudes of CWS. The TAB (Langevin & Prasad, 2012) and CCR (Kathard et al., 2014) addressed peer attitudes towards CWS as well as teasing and bullying, as seen in table 3. The teacher administered the TAB and CCR interventions while the SLT acted within a supportive role. The outcomes measured used in these studies included 5-point Likert scales to measure peer attitudes at baseline and post-intervention, the Peer Attitude Towards Children who Stutter (PATCS) by Langevin and Prasad (2012) and the Stuttering Resource Outcomes Measure (SROM) by Kathard et al. (2014).

Two other studies that directly targeted and measured the domain of body structures and functions also facilitated environmental factors through inclusion of communication partners (Budd et al., 1986; Harasym & Langevin, 2012). For example, Budd et al. (1986) measured speech fluency using observations and audio- and video-recording showing a focus on body structures and function. However, Budd et al. (1986) facilitated environmental factors by providing parent training on how to manage stuttering to support carryover of skills at home

using the stuttering modification techniques used in SLT and a forum in which parents could connect and share their experiences of having CWS.

Harasym and Langevin (2012), on the other hand, measured both body structure and function, and environmental factors. In the domain of body structures and function, speech fluency was measured by calculating the percentage of syllables stuttered and, syllables per minute), as well as severity ratings that were completed by SLTs and parents to determine speech fluency severity. In the domain of environmental factors, reports were completed by CWS, their parents and teachers to determine the impact of stuttering at home and at school. Environmental factors were facilitated by the training of school support staff on how to manage stuttering using stuttering modification techniques targeted in SLT. Environmental factors were additionally facilitated by encouraging the CWS to discuss the topic of teasing and bullying with their parents and peers who stuttered by drawing upon personal experiences.

In these two studies (Budd et al., 1986; Harasym & Langevin, 2012), environmental factors were facilitated by using communication partners within supportive roles in school, home and social contexts. While both studies facilitated environmental factors, only Harasym and Langevin (2012) measured environmental outcomes using the Self-Rating of Effects of Stuttering – Children (SRES-C). The SRES-C was used to measure the effects of stuttering in different environments (e.g. home, school) at baseline and post-intervention (Harasym & Langevin, 2012).

2.8.3.3. Activity and participation.

Activity and participation was not directly targeted or measured as treatment outcomes by any of the studies. However, it was hypothesized that by targeting the domains of body structures and functions, and environmental factors, activity and participation could potentially be facilitated as a by-product of the intervention provided in 9 out of the 10 studies. The studies, however, did not claim to facilitate activity and participation in any way.

Kathard et al. (2014) and Langevin and Prasad (2012) provided intervention in the domain of environmental factors through targeting peer attitudes towards CWS using teacher administered classroom-based interventions. These interventions (TAB and CCR) were targeted at school and consequently addressed peer attitudes, teasing and bullying which has the potential to facilitate CWS's activity and participation at school – however not reported in these studies. Furthermore, of the studies (n=7) that focused on body structures and functions (C. Andrews et al., 2016; Bakhtiar & Packman, 2009; Budd et al., 1986; Gagnon & Ladouceur, 1992; Harasym & Langevin, 2012; Koushik et al., 2009; Wagaman et al., 1993), activity and participation could possibly have been facilitated through the inclusion of parental communication partners at home, school and social settings. Communication partners thus acted in supportive roles as they reinforced fluency change as agents who maintained the process of intervention and were not treatment targets. Yet, activity and participation was not the target of the intervention or outcomes measures.

2.8.4. Effects of stuttering interventions.

The effects on treatment outcomes relate to treatment effect of a study and explored the time frame in which treatment outcomes were measured, as seen in table 5. It was found that the majority of the outcomes measures and treatment effects were typically related to the domain of body structures and functions (n=8) whereby the stuttering word percentage (%SW), stuttering syllable percentage (%SS), Syllables per minute (SPM), and severity ratings were reported and analysed using audio-recordings (Andrews et al., 2016; Bakhtiar & Packman, 2009; Budd et al., 1986; Craig & Cleary, 1982; Gagnon & Ladouceur, 1992; Harasym & Langevin, 2012; Koushik et al., 2009; Wagaman et al., 1993). Two studies used only questionnaires (Kathard et al., 2014; Langevin & Prasad, 2012) within the domain of environmental factors to target attitude change of peers of CWS. Overall, the outcomes were measured from as early as 10 days to 17 months where the 7 studies were measured from 6

months onwards.

Table 3: The time frame and effects on outcome using GRADE ratings of the included studies

Author details	**Time frame**	**Effects on outcome**	**GRADE Rating**
Craig and Cleary (1982)	9 months	Reduction in stuttering 60-80%	Low
Budd et al. (1986)	6 months	Systematic reductions in stuttering	Low
Gagnon and Ladouceur (1992)	1 and 6 months	Statistically significant result	Low
Wagaman et al. (1993)	10 – 13 months	• %SS decreased below 3% • Stuttering reduced by 89% • No change in SPM • Parents found intervention credible and acceptable	Low
Koushik et al. (2009)	10 days	• %SS: 9.2 to 1.9 • SPM: 145.8 to 179.3	Low
Bakhtiar and Packman (2009)	10 Months	• Less than 1 %SS • No presence of stuttering post-intervention	Low

Harasym and Langevin (2012)	17 Months	• %SS: 59.25 to 6.35 at SLT; 28.9 to 1.3 at home • SPM of 33.4 to 149.75 • CWS gained confidence	Low
Andrews et al. (2016)	10 Months	• Group mean of stuttering reduction was 77% • 18 CWS were more satisfied with their speech, 11 reported a reduction in avoidance of speaking situations, rhythmicity of speech reduced to 1.3, CWS sounded less rhythmic after intervention	Low
Langevin and Prasad (2012)	3 – 4 weeks	Practical and statistically significant improvements in peer attitudes	Low
Kathard et al. (2014)	1 month	Positive shift in peer attitudes	Moderate

2.8.5. Quality of intervention studies.

GRADE rating was used to evaluate the quality of the studies through investigation of methodological designs such as control groups, randomisation and blinding. The GRADE rating is applicable to all study designs and was subsequently used across all included studies.

In terms of design, all studies (n=10) were found to be quantitative pre-test post-test designs. Interestingly, only 1 study reported on control groups (Kathard et al., 2014). Two studies (Andrews et al., 2016; Koushik et al., 2009) were titled as clinical trials, however the paper did not report on control groups, a trial registry number and methodological requirements, such as randomisation, as per the Consolidated Standards of Reporting Trials (CONSORT) statement. Thus, as seen in table 3, the quality of evidence was found to be generally poor from a methodological perspective as the GRADE-rating-tool rated studies as having moderate to low quality evidence.

2.9. Discussion

Overall, a key finding was that limited literature is available on stuttering interventions (n=10) for school-aged CWS within the 6-to-14-year age group, despite the wealth of literature that exists around the nature and cause of stuttering. In addition to this finding, the profile of the literature in terms of year of publication, geographical context (country) and methodological study design provided useful information. It highlighted where the dominance of the literature is positioned and subsequently where the research gaps exist, as expected in a scoping review (Peters et al., 2015). For example, the research was conducted between 1982-2016 where 4 studies were conducted between 1982 and 1993 and 6 studies between 2009 and 2016. This information is important because it illustrates that, while extensive stuttering research has been conducted, there has been little focus on intervention studies since the inception of databases.

The fact that more studies were recently conducted is a positive factor as it aids in the implementation of EBP by using current and new research (Ratner, 2006). However, it is concerning that across the span of 34 years, only 10 stuttering intervention studies have been published. Interestingly, school-aged children make up the largest proportion of SLT clientele,

more so than adults and pre-school CWS. Despite being the largest proportion, few studies have been conducted using school-aged stuttering interventions. These findings collectively emphasize that the field of stuttering intervention is still a developing field.

Geographical context of the literature showed that the studies were not widespread as they were mostly conducted in Western countries including Australia, America and Canada while there was only one Eastern and one African study conducted in Iran and South Africa. As mentioned in the results, few studies reported geographical context and/or context of intervention. Of the studies that reported geographical context and/or context of intervention, information was limited. Limited and/or lack of information around geographical context and context of intervention context may lead to the decontextualization of a study and its intervention (Tomoaia-Cotisel et al., 2013).

Context is highlighted in this paper because it is an important factor to consider as part of ICF (Word Health Organisation, 2001; World Health Organisation, 2013a, 2013b), when evaluating the evidence and its application of intervention to different contexts. According to Tomoaia-Cotisel et al. (2013), while research is viewed as scientific and objective, if a health phenomenon or intervention is separated from its context, it poses great limitations to further applicability of an intervention into another context.

The implication of decontextualisation of research is that it does not consider context as essential in supplementing and guiding the use of generated knowledge and literature of a complex health phenomenon (Tomoaia-Cotisel et al., 2013) such as stuttering. It is further reported that decontextualising studies hinders further research and practices due to the lack of information about applicability, internal and external validity from one context to another (Botma et al., 2016; Tomoaia-Cotisel et al., 2013). This gap in the literature has consequently prompted this thesis to examine the required parameters of context. For example, the need to include information about context-specific attributes, service delivery and policy influenced by

economic, social and political climate, culture and language is highlighted as a gap in the studies included in this scoping review. These are all vital factors to consider in any study, especially as communication will be influenced by the context (Pascoe & Norman, 2011; Pascoe et al., 2013) and thus influence a CWS' lived experience. It is also important to include such information because each context and country is different and thus one stuttering intervention is not automatically suitable for another without adaptations. This is important for the profession to note as stuttering is a condition which has cultural interpretation and against other problems may not be prioritized for intervention (Ogundare, 2012; Pascoe et al., 2010; Pascoe & Norman, 2011; Pascoe et al., 2013; Robinson & Crowe, 1998).

In terms of methodology for testing interventions, studies are required to uphold and comment on generalisability of an intervention (Botma et al., 2016). However, transferability of the interventions is reduced by excluding essential information that could facilitate the use of intervention in another context (Botma et al., 2016). The dominance of decontextualised research practices also speaks to the approach towards stuttering intervention as a scientifically and medically studied topic.

In the SLT field and its knowledge production, there are different paradigms that underpin it. The claim of positivism as a knowledge and context debate is relevant to this paper because the SLT profession is largely positioned within a positivist paradigm which explains the dominance and use of the type of studies that are often conducted (i.e. quantitative studies). Positivism places emphasis on objectivity, external and observable facts, and assumptions that determine the type of research data, design etc that examines the nature of science (Aliyu, Bello, Kasim, & Martin, 2014; Bonell, Moore, Warren, & Moore, 2018; Botma et al., 2016). Our studies fall into this kind of paradigm and methodology because of the nature of our field.

Positivism is thus a dominant paradigm within quantitative research because of its ability to quantify and measure using hypothesis testing while the researcher is the observer

who measures, controls, describes and predicts the phenomenon of the study (Botma et al., 2016). While positivism and quantitative research are typical of each other, within SLT, it is important to note that they do not equate one another. This scoping review supports this claim as it illustrates that many of our SLT studies fall within the quantitative design and positivist paradigm.

The focus on measures of treatment outcomes in quantitative studies for stuttering intervention showed a dominance towards quantifying stuttering and potentially reducing its personal and complex components. This was illustrated through the use of only statistical findings which may be limiting in itself to how stuttering interventions are approached. The issue is more about positivism than about quantitative methods and statistics, although the two are linked. There is a need to examine SLTs selection and study of stuttering interventions from a place of privileged theoretical knowledge. This refers to knowledge in terms of what is considered "effective" intervention as guided by mainly quantitative data. It is acknowledged that this thesis also makes use of a quantitative design using randomisation and control groups; while qualitative studies could be explored for future stuttering intervention studies. This is especially important in the absence of including people who stutters' lived experiences (Kathard, 2003) within the development and study of stuttering intervention.

For the included studies, the GRADE rating of methodological designs found the quality of evidence to be moderate to low due to methodology and reporting. Moderate to low quality evidence is concerning as more methodologically sound designs are required to guide EBP. The medical focus – mainly speech fluency interventions – was studied using quantitative and objective studies. This links back to the positivism debate.

Despite the shift in literature from the medical model to psychosocial model of viewing stuttering more socially, speech fluency remained the focus of intervention. There was a shift towards measuring attitude in two of the studies which showed a move towards the domain of

environmental factors. These findings show that overall, the complex phenomenon of stuttering continues to be reduced and quantified. It is therefore necessary to develop approaches to intervention studies further, considering the complexity of stuttering.

It should however be acknowledged that stuttering intervention is complex to study and that there may be methodological limitations to how it is studied. For example, it may be challenging to have control groups because of ethical concerns such as withholding or providing a standard intervention (versus specialized) within a control group. It may also be challenging to conduct mixed method designs or large-scale studies. It is possible that the studies noted in this chapter were likely more manageable for SLT practitioners to participate in research using small group designs and small cases. Further challenges may arise because stuttering is a personal communication disorder with social implications. Thus, it is possible that focus was placed on one type of intervention methodology given stuttering complexity.

It is worth noting that while this paper questions if there is place for qualitative and other possible designs etc., this thesis made use of a RCT. While RCTs are widely regarded methodologies, it remains quantitative. It has been reported that several issues remain prevalent when evaluating complex interventions (Craig et al., 2008). RCTs, however, can also become challenging when needing to evaluate multiple outcomes (Mayo-Wilson et al., 2017; Tyler, Normand, & Horton, 2011). While multiple outcomes can be measured, it can result in a conflation of what contributed to the effectiveness of an intervention (Mayo-Wilson et al., 2017; Tyler et al., 2011). This paper therefore acknowledges the difficulty with studying complex interventions, in an already complex area of stuttering.

As repeatedly emphasised in this chapter, stuttering is a complex condition because it affects the function of communication and so the methodology of how interventions are studied is influenced. This paper signals that perhaps the SLT profession tries to fit itself into available scientific methodologies and that there are thus implications of how it is studied and how the

quality of evidence is viewed. While it remains unclear whether the positivist approach or medical model led to the frequent use of quantitative studies, the fact remains that intervention studies remain focused on the domain of body structures and function.

As a growing scientific field, SLTs continuously strive to provide evidence for our practice within the area of stuttering intervention. In school-aged children there has been a variety of approaches to stuttering intervention over time, while International Classification and Functioning of Disability framework (ICF) was used in this paper to map out the included intervention studies. Targeting body structures and functions is supported but should be accompanied with interventions in other ICF domains for comprehensive management (Word Health Organisation, 2001; World Health Organisation, 2013a, 2013b). This was supported by a few studies that showed the shift towards the inclusion of communication partners within supportive roles which subsequently facilitated other domains of ICF such as environmental factors as part of a medical-psychosocial approach.

While it is true that the majority of stuttering interventions remain situated in the domain of body structures and function despite the wealth of literature around social and subjective dimensions of stuttering (Blood & Blood, 2004; Blood et al., 2010; Carter & Spencer, 2006; Langevin et al., 2009), it comes back to the available methodologies that may be used to test stuttering interventions.

It is for this reason that stuttering interventions must continue to navigate itself in the literature to develop truly robust and comprehensive approaches. In essence, no one method of study can cover all domains of ICF comprehensively because stuttering intervention would need several interventions and outcomes which cannot all be tested within one study. As such, the question should shift from "is the profession studying stuttering intervention in limited ICF domains?" to "how are methodologies restrictive to stuttering intervention studies?". It is for this reason that this thesis aimed to test an intervention within one domain of ICF

(environmental factors) using an RCT to explore the efficacy of the CCR intervention in hopes of adding to SLT EBP.

This study makes a contribution through questioning whether or not the profession can re-imagine how stuttering intervention can be approached more holistically. However, it is important to note that because stuttering is complex, so too is intervention. Due to the complexity of stuttering interventions, it is challenging to study all domains of ICF within one study. It is therefore possible that perhaps different research studies focus on different domains of stuttering and ICF because of the challenge of studying complex interventions. This study aims to bridge that gap by shifting its focus to the environmental factors domain of ICF using an RCT as one way of the many available methodologies to test the CCR intervention. While RCT studies have been praised, it has its strengths and limitations – much like any other methodological designs. A RCT has been used in this thesis because its strengths lie in its rigorous method to include large sample sizes and clusters. As such, this thesis aims to bring value to the SLT profession through offering a perspective of testing a stuttering intervention. However, this study acknowledges that RCTs have been critiqued in the SLT profession. This thesis made use of a cluster RCT as a stringent and suitable method for testing the CCR, despite some critiques of RCTs.

2.10. Conclusion

The majority of the stuttering intervention literature included in this paper remains focused on the domain of body structures and functions while they facilitated domains such as environmental factors through the inclusion of communication partners within the home, school and social environments. Almost all of the studies focused on individualised speech fluency stuttering interventions, using a pull-out model within the realm of quantitative studies underpinned by positivism. There were however two studies that made use of population-based intervention in the domain of environmental factors. The findings of the scoping review

illustrated a desire to shift towards more holistic stuttering intervention while acknowledging the restrictions imposed by available methodologies to study complex topics such as stuttering. The dilemma that the SLT profession faces, as noted in this paper, is that our interventions are integrated and complex, posing a challenge for how we approach and determine treatment effectiveness. This thesis aims to add to the body of literature by considering an intervention, the CCR, which aims to change peer attitudes using a cluster RCT.

Abbreviations

% SW	Stuttering word percentage
%SS	Stuttering syllable percentage
CWS	Children who Stutter
CCR	Classroom Communication Resource
CENTRAL	Cochrane Central Register of Controlled Trials
CINAHL	Cumulative Index to Nursing and Allied Health
CONSORT	Consolidated Standards of Reporting Trials
EBP	Evidence-based Practices
EMG	Electromyograph
ERIC	Education Resources Information Centre
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
ICF	International Classification of Functioning Disability and Health framework
OASES	Overall Assessment of the Speaker′s Experience of Stuttering
PATCS	Peer Attitudes Towards Children who Stutter

RCT	Randomised Controlled Trials
SLT	Speech-Language Therapy
SPM	Syllables per minute
STS	Syllable-timed speech
SRES-C	Self-Rating of Effects of Stuttering – Children
SROM	Stuttering Resource Outcomes Measure
TAB	Teasing and Bullying behaviour

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Chapter 3

"The Classroom Communication Resource (CCR) intervention to change peer's attitudes towards children who stutter (CWS): study protocol for a randomised controlled trial"

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Abstract

Background: Children who stutter (CWS) are at a high-risk of being teased and bullied in primary school because of negative peer attitudes and perceptions towards stuttering. There is little evidence to determine if classroom-based interventions are effective in changing peer attitudes towards stuttering. The primary objective is to determine the effect of the Classroom Communication Resource (CCR) intervention versus usual practice, measured using the Stuttering Resource Outcomes Measure (SROM) 6-months post-intervention among grade 7 students. The secondary objective is to investigate attitude changes towards stuttering among grade participants on the SROM subscales.

Methods: A cluster randomised controlled trial (RCT) will be conducted with schools as the unit of randomization. Schools will be stratified into quintile groups, and then randomized to receive the CCR intervention or usual practice. Quintile stratification will be conducted in accordance to the Western Cape Department of Education classification of schools according to geographical location, fee per school and allocation of resources and funding. Participants will include primary schools in the lower (second and third) and higher (fourth and fifth) quintiles and children aged11 years or older in grade 7 will be included. The study will consist of the CCR intervention program or usual practice as a no-CCR control. The CCR is a classroom-based, teacher led intervention tool including a story, role-play and discussion. The grade 7 teachers allocated to the CCR intervention, will be trained and will administer the

intervention. The analysis will follow intention-to-treat (ITT) principle and generalized estimating equations (GEE) to compare groups on the global SROM and its subscales to account for possible clustering within schools. The subgroup hypothesis will be tested by adding an interaction term of quintile group x intervention.

Discussion: This study is designed to assess whether the CCR intervention versus usual practice in schools will lead to positive shift in attitudes about stuttering at 6-months post-intervention among grade 7 participants.

Trial registration: The trial number is NCT03111524. It was registered with clinical trials.gov Protocol registration and results system (PRS) retrospectively on 9 March 2017.

Keywords: Stuttering, classroom-based, interventions.

3.1. Background

3.1.1. Children who stutter.

Children who stutter (CWS) are placed at risk for being teased and bullied in primary school due to negative peer attitudes and perceptions [1–4]. Negative attitudes and interactions result in CWS being viewed as different or disabled, leading to social rejection [3]. Social rejection may lead to long term negative consequences such as reduced academic and social interactions, depression, and negative self-perceptions [5, 6] which are harmful if not urgently addressed. These consequences are particularly prevalent in the adolescent population due to stress and rapid changes of emotion at this age [3].

3.1.2. Attitudes and attitude change.

Attitudes and perceptions overlap [7] which is important to consider as negative peer attitudes may lead to negative perceptions towards CWS [1–4]. While the relationships between attitudes, attitude change and behaviour change are complex and multifaceted [8], this study focusses on attitude as the precursor for behaviour change [9] but does not focus on behaviour change. The underpinning of attitudes for this study considers how literature characterises it. Attitudes are described as an individual's evaluation of issues, objects and other individuals [8]. As such, the evaluation of another person or object can be positive or negative [10]. It is additionally reported that attitude formation is known to continuously change over time, [11] as it is learnt and shaped [7].

3.1.3. Stuttering intervention.

The International Classification and Functioning of Disability (ICF) framework [12] considers holistic management of the CWS. It advocates for classroom-based interventions to reduce teasing and bullying [12–14, 15] because children spend a large amount of time with their teachers [16]. Classroom-based interventions therefore aims to advocate for CWS and to

empower teachers as communication partners of Speech-Language Therapists (SLTs) and CWS as guided by population-based stuttering interventions.

International public education is another population-based campaign that was studied. It addresses stuttering-related stigma [9] through reducing the debilitating nature of stuttering and improving social environments and reactions [17]. These publicised campaigns have, however, not documented effectiveness [9]. Despite these findings, the potential for classroom-based interventions to change attitudes towards stuttering are emerging [18–22] and supported by the following studies: the Public Opinion Survey of Human Attributes- Stuttering (POSHA-S) internationally and in South Africa and the Teasing and Bullying: Unacceptable Behaviour (TAB). The international POSHA-S study showed that negative attitudes are in fact prevalent in school-aged children [23]. A follow-up study conducted in South Africa, using the POSHA-S, showed that teachers were also requesting assistance with managing negative attitudes towards stuttering [24]. Another tool used to address peer negative attitudes towards stuttering was the TAB which included teacher administered activities and yielded positive results pre- and post- intervention [14, 15, 25]. The TAB was, however, not suitable for South African classrooms due to time and technology constraints as well as contextual, cultural and linguistic differences.

This led to the development of the South African specific intervention, the CCR intervention. It was developed and has been refined since 2009 as part of a series of the University of Cape Town (UCT) projects. The CCR intervention yielded positive results at 1 month post-intervention within the lower and higher quintile population respectively [18, 26] and more so at 6 months' post-intervention [19]. The feasibility of a future Randomised Controlled Trial (RCT) study additionally reported potential effectiveness of the CCR intervention at 1 and 6 months' post-intervention as well as procedural aspects [19]. The findings were however inconclusive as it called for a more rigorous design method [19]. It was

also reported that a RCT was feasible despite concerns regarding the retention of participants as stringent methods could be put in place [19]. A RCT was thus recommended as the next stage in these projects [19].

The CCR intervention addresses pro-social behaviours and skills, including but not limited to the promotion of positive behaviour change, peer support and resilience through intervention [16] in the areas of Positive Social Distance (PSD), Verbal Interaction (VI) and Social Pressure (SP) in the CCR intervention and SROM. The areas of PSD, VI and SP are additionally measured using the SROM. PSD represents the overall ease, acceptance of and comfort a child feels when around CWS [14, 15] e.g. 'I would let a child who stutters hang out with us'. VI evaluates peer's negative thoughts, emotions and feelings, e.g. frustration experienced towards a CWS [14, 15]. SP evaluates general thoughts regarding CWS through examining social pressure and subjective norms [13]. An example is 'I would be ashamed to be seen with a child who stutters'. The promotion of these pro-social behaviours and skills may facilitate the prevention of anxiety and depression [16] especially as CWS are placed at a high-risk of being teased and bullied due to their stutter [1–4].

3.2. Objectives

3.2.1. Primary objective.

This study aims to determine the treatment effect of the CCR intervention versus usual practice (i.e. no CCR) using the SROM global score at six months' post-intervention among grade 7 participants in different schools.

It is hypothesised that the CCR intervention will result in a positive shift in the treatment effect in the intervention groups at 6 months' post-intervention. The intention of the CCR intervention is to improve the participants' attitudes around stuttering, teasing and bullying while encouraging the acceptance of the diversity amongst peers.

3.2.2. Secondary objectives.

The secondary objective is to determine the treatment effect on attitudes towards stuttering among Grade 7 participants based on the SROM subscales of PSD, SP and VI.

It is hypothesized that there may be an improvement in each subscale but it is unknown which will show a greater improvement. These subscales will be compared to the control group treatment effect. This study will also evaluate the areas of interaction between peers that exist and may be self-perceived.

The subgroup analysis objective is also to determine the primary objective between and across the lower and higher quintile school clusters. Previous studies have shown that the lower quintile schools are more negative than the higher quintile schools initially [19]. It is hypothesized that both quintiles in the intervention groups will yield positive shifts in treatment effects when compared to the control group while it is unknown which quintile will be most positive, or where the greatest shifts will occur.

3.3. Methods

3.3.1. Trial design.

This study will make use of a stratified cluster randomised controlled trial with the schools as the unit of randomisation. Using a 1:1 allocation ratio, schools will be stratified into two quintile groups (lower versus higher). The quintiles will be randomised, to receive the CCR intervention or usual practice, to eliminate selection bias and to control for any extraneous variables. This will also allow each lower and higher quintile school an equal opportunity to be included (See Additional file 1: Figure S2).

3.3.2. Overview of the South African and study context.

3.3.2.1. Study setting and participants.

The South African educational study context is influenced by its socio-political history. Post-apartheid schools remain unequal, particularly in relation to resources. In an attempt to address this inequality, a system based on the National Norms and Standards for School Funding (NNSSF) policy was developed to classify schools in relation to resources, [27, 28] fee per schools, funding and geographical location. For example, lower quintile schools one, two and three are classified as no fee-paying schools [29, 30] while higher quintile schools four and five are feepaying schools that are better resourced [29, 30]. This study therefore aims to compare the treatment effect in the lower and higher quintile schools, explored as a subgroup in this study, to ensure that the schools are representative of the country's educational context.

Participants from public schools, in lower and higher quintiles, within the Western Cape metro urban area, in South Africa are therefore included. Schools with an onsite SLT will not be included as they may have already addressed teasing and bullying related to CWS in the school context.

3.3.3 Eligibility criteria.

Eligible participants for the primary objective of this study include grade 7 mixed-gender participants aged 11 years and older attending public schools within the Cape Metro urban area across the lower (two and three) and higher (four and five) quintiles where the Language of learning and teaching (LoLT) is English. Participants will not be compensated financially for their time. All schools who participate in this study, will be provided with a copy of the CCR intervention. The exclusion criteria for this study will include private primary schools in the Cape Metro urban area, and schools that do not have mixed-gender participants.

3.3.4. Intervention.

The CCR intervention consists of a social story, roleplay, and a semi-structured teacher-led discussion. It will be administered by the class teacher and will require active participation of learners. The teacher will be required to read the story to the class. Thereafter, she will select students in her class to perform the role-play. The role-play contains the same story plot of the story that she will have read to the class. This was purposely done in this manner in order to physically put the study's participants in the characters "shoes". The teacher-led discussion will include guidelines on which topics should be covered, however, teachers may also explore these topics in greater depth if they would like to.

The CCR intervention will be administered to the intervention groups only. While the CCR intervention is aimed to be largely self-sufficient and user friendly, it is a supported guide and thus teacher training will be required. Training will be required specifically around the discussion activity as teachers may require assistance with targeting the issues around diversity, difference, race and culture in the area of communication and stuttering. Queries and concerns will be addressed as part of the training. Teachers in the intervention groups will be encouraged to answer questions that arise from participants around the CCR intervention, discuss the questions and make notes in a logbook for the researcher.

The CCR intervention will only be administered once, as it is a single-dose intervention tool. The researcher will observe how teachers administer the CCR intervention and take notes during this time. The teacher will be left to administer the CCR intervention as she was trained and without interference from the researcher at this stage. The teacher may provide voluntary feedback at that stage. The teacher will also be given the opportunity to discuss their experiences with the researcher after the 6 months' post-intervention data is collected.

3.3.5. Control.

The participants that are randomised to the control group, will not receive any intervention. Teachers' in the control group will be encouraged to continue with their daily activities as normal, without drawing attention to stuttering discussions. However, if questions arise from participants, they are to answer the questions and make notes of any discussion that occurs related to stuttering, teasing and bullying. Control groups will receive a copy of the CCR intervention and will be provided with training once the study is complete.

3.3.6. Outcome measure.

3.3.6.1. Sampling and enrolment.

Continuous sampling is impractical as this study is concerned with participants at 6 months' post-intervention. Thus once-off randomised sampling will occur to track treatment effect from pre-intervention to 6 months post intervention using the same participants.

3.3.6.2. Primary outcomes.

The primary outcome endpoint of this study will be to observe a positive shift, in magnitude and direction, of the treatment effect at 6 months post intervention from pre-intervention in the intervention groups only. This will be calculated by using the SROM to compare the ratings of peer attitudes at pre-intervention and at 6 months post intervention. This will also be explored in terms of the subscales of the SROM as well as the comparison of the lower quintile- to the higher-quintile schools. The SROM will be able to evaluate the primary objective as well as the secondary objectives related to the treatment effect in subscales and the subgroup analysis between quintiles.

The SROM was developed as a South African specific outcomes measure as a modification of the Peer Attitude Towards Children who Stutter (PATCS). The PATCS met

the suggested criterion reliability [14, 15] and so did the SROM [18]. Evidence of the validity and reliability of the SROM was conducted and reported through a number of UCT thesis manuscripts that are available online [18, 20–22]. After a research panel of SLTs selected questionnaire items [20], cognitive debriefing sessions were held with grade-7 participants [20, 21] and the SROM was tested and finalised [22]. The reliability and validity of the SROM was evaluated where the following was noted: construct validity yielded a shift in the intervention group only after the intervention was administered; the internal consistency reliability score was 0.94; and the test-retest reliability was found to be 0.84.

The SROM consists of a 5-point Likert Scale including 20 items and four unrelated practice items. It includes three psychometrically approved constructs, as previously discussed – PSD, SP and VI – that represent attitudes [4]. PSD refers to the comfort, overall acceptance and ease that a child feels around a CWS [14, 15]. An example of an item found in the PSD construct is 'I would let a child who stutters hang out with us'. An example of a SP item is 'I would be ashamed to be seen with a child who stutters'. As illustrated by the example, SP refers to the general thoughts about a CWS through evaluating subjective norms and social pressure [4]. VI, refers to negative feelings, thoughts and emotions that are experienced towards a CWS. This could include frustration [4]. For example, a question in this subscale includes 'listening to a child who stutters would annoy me'.

3.3.7. Participant timeline.

The data collection procedure will include enrolment, interventions after baseline (pre-intervention) and assessments at pre-intervention and 6 months post intervention (see Additional file 2: Standard Protocol Items: Recommendations for Interventional Trials (SPIRIT) Checklist, the SPIRIT Figure (Fig. 1) and Additional file 1: Figures S2, S3 and Table S1).

	Enrolment	Allocation	Post-allocation
TIMEPOINT**	***Prior to baseline***	**Baseline**	***6-months***
ENROLMENT:			
Eligibility screen	X		
Informed consent	X		
Allocation		X	
INTERVENTIONS:			
Classroom Communication Resource (CCR) intervention			
Usual Practice			
ASSESSMENTS:			
Student demographics		X	
Classroom Characteristics		X	
Stuttering Resource Outcomes Measure		X	X

Figure. 1. Timeline for trial activities, interventions and assessments

3.3.8. Enrolment.

Following ethical approval and permission being obtained, schools will be contacted to be recruited to participate. Once all schools agree to participate, randomisation will occur.

3.3.9. Interventions.

All participants will view a video of a CWS and stuttering will be defined in order to ensure that all participants are provided with a uniform definition of a CWS in terms of how it looks and sounds. A 1-h training session (administration guidelines, purpose and aims, discussion ideas, addressing questions) will be held with the teachers in the intervention groups

only, once they reviewed the CCR intervention. Teachers will be given a 2-week period to review the CCR intervention again before they administer it. Control groups will not receive the CCR intervention during this phase.

3.3.10. Assessments.

The SROM will be administered at pre-intervention and again at 6 months post intervention. The limitation of using the SROM repeatedly over the 6-month period is acknowledged. In the absence of an equivalent validated measure, the SROM will be used as there will be a time lapse between administrations reducing potential re-intervention bias. Once the data is collected, teachers from the control groups will be provided with the CCR intervention and will be offered training.

3.3.11. Sample size with power analysis.

The sample size calculation was based on previous CCR intervention studies [18, 19, 26]. With the proposed sample size of $n = 350$ students ($k = 10$ schools) in each of the two groups (i.e. assuming a 1:1 allocation ratio), the study will have the power of 80% to yield a statistically significant result using a generalised estimating equations (GEE) model (assuming an intention-to-treat (ITT) principle for the analysis) of the difference between mean in SROM global scores at 6-month adjusting for baseline (pre-intervention) SROM global score at alpha = 0.05. This computation is based on a pilot study [19] which assumes that SROM global scores are normally distributed, the mean difference is 5.25 (corresponding to mean of 77.91 (for the intervention group) versus 72.66 (for the control group)) and the common within-group standard deviation is 11.90 and an ICC (intra-school correlation coefficient) of 72.70.

3.3.12. Recruitment.

To achieve adequate enrolment of participants, school recruitment will be conducted which is scheduled to commence on 19 January 2017. Thereafter, the returned consent and assent forms will determine whether the target sample size was achieved. If it has, then no more schools will be recruited.

3.3.13. Assignment of interventions.

3.3.13.1. Allocation: sequence generation, allocation concealment mechanism and implementation.

The statistician will generate the computerised allocation sequence. The random allocation ratio will be 1:1 while the randomisation will be stratified into 2:1 where the lower quintile has a higher number of assignments of participants per school when compared to the higher-quintile schools. The written allocation of the assignment of participants will be sealed in an envelope which contains identification numbers. These identification numbers will be distributed across the lower- and higher-quintile schools. A sufficient number of schools will be included to meet the targeted sample size. The researcher will open the envelope to determine the allocation of schools. The stratification of the sample will occur in the following order; mixed-gender schools, schools within quintiles 2 and 3 and 4 and 5 and finally according to the eligibility characteristics and restrictions.

3.3.13.2. Blinding.

The principal investigator will be fully blinded to the study. The primary researcher will complete the following: obtain permission from the relevant individuals; recruit participants; recruit research assistants; assist research assistants with training of intervention group teachers to use CCR intervention and; observe the administration of the CCR

intervention only along with research assistants. A team of research assistants will be utilised to assist with randomisation and blinding of the primary researcher regarding the administration and data capturing of the SROM.

3.3.14. Data collection, management and statistical analysis.

3.3.14.1. Data collection.

As mentioned, the SROM will be administered pre- intervention and will be administered 6 months post intervention to all participants. Participation retention will be promoted through rigorous planning of arranging data collection at times and dates most convenient for the schools.

3.3.14.2. Data management.

The Consolidated Standards of Reporting Trials (CONSORT) Statement will be used when reporting on the trial. Imputation will be included related to the missing data according the cause for missing data such as absenteeism. Raw data will be captured on a Microsoft Excel spreadsheet using allocated coded numbers that will be used during data collection. Control and intervention groups will be captured on two separate spreadsheets and within each group, each quintile will be included. Answers for each question will be included on the spreadsheet using a number between 1 and 5 (strongly disagree = 1, disagree = 2, not sure = 3, agree = 4 and strongly agree = 5). Negative items will be reversed scored (e.g. strongly disagree will be 5). Total SROM mean scores, i.e. global scores, will be calculated at this point. Data will be cross-checked between the research assistants and then rechecked independently by another research assistant to minimise errors. Discrepancies in the data capturing will be reviewed and rechecked and corrections will be made where applicable. According to the Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa, it is

recommended that the data be kept for 15 years after the formal discontinuation of the trial [31]. The principal investigator will be responsible for securely storing the data as well as discarding the data.

3.3.15.1. Statistical methods.

The analysis will follow the intention-to-treat (ITT) principle and will be reported according to CONSORT guidelines [32]. The GEE will be used to compare the groups on global SROM and subscales to address the primary objective. Assuming an exchangeable correlation structure within a school, GEE will allow for possible clustering within a school to be accounted for. The unit of analysis will be the grade-7 student. The results will be reported as estimate of the difference between groups, 95% confidence interval and associated *p* value. All *p* values will be reported to three decimal places with those less than 0.001 reported as $p < 0.001$. The criterion for statistical significance will be set at alpha = 0.05. The subgroup hypothesis will be tested by adding an interaction term of the quintile group (lower versus higher) × intervention (CCR versus usual practice) in the model. Similarly, this analysis will be used to address the secondary objective by analysing the PSD, VI and SP constructs on the SROM. The subgroup analysis will use this method of analysis to address the subgroup analysis between and across the quintiles. See Additional file 1: Table S1 for a summary table of the objectives, outcomes, hypotheses and methods of analysis.

3.3.15.2. Subgroup analyses.

Subgroup analyses between quintiles and cluster analysis between the sample has been explored in a previous feasibility study [19]. It was found that schools behaved as clusters and thus it was appropriate to administer and evaluate participants within clusters [19], supporting

a group-based approach. There are no findings between quintiles using the CCR intervention in such a large-scale trial and thus this study aims to include this aspect of analysis.

3.3.16. Nested studies.

A few challenges were highlighted in the previous study such as poor retention of participants [19]. It is unknown what other challenges may arise. It is for this reason that the researcher, research assistants and teachers will be required to have logbooks in which detailed accounts and experiences are documented.

3.3.17. Monitoring.

3.3.17. 1. Data monitoring and auditing.

The data will be captured, audited, monitored and secured by a team of research assistants along with a statistician who will form the Data Monitoring Committee. The research assistants and statistician have no competing interests.

3.4. Discussion

3.4.1. Harms.

The teacher will be consulted prior to data collection to identify whether there is a CWS in the classroom. The CWS may choose to not participate or to not have the intervention run in their classroom. Teachers will also be asked to note any concerns. Any participants requiring counselling will be referred to a psychologist by the researcher. However, in all the previous studies, no concerns or need for counselling have been identified or required [18, 19]. In fact, the studies showed minimal improvements in the ratings of attitudes at 1 month post intervention while more prominent results were observed at 6 months post intervention [18, 19]. Other benefits include access and training to the CCR intervention for all schools and

teachers. The benefits, therefore, outweigh any potential risks that may be experienced. The data will be collected at schools where participants are comfortable, and the use of logbooks will be vital in informing if any harms are noted.

3.4.2. Ancillary and post-trial care.

Post-trial care will include the provision of the CCR intervention and training to control group teachers. No other harms are anticipated, as mentioned previously.

3.4.3. Dissemination policy.

The primary researcher will provide findings of the study to each school, principal and its teachers. The researcher will provide this in a format that is most suitable and preferential for each school (e.g. written report, face-to-face meeting, email or telephonic). They will also be given access to the article once the final findings are published.

3.4.4. Trial status.

This is protocol version 5 on 28 June 2016. The protocol was reviewed by the departmental and divisional reviewers at UCT. Following feedback, a rebuttal was submitted. Once the protocol was approved by the departmental and divisional reviewers, the protocol was sent to the FHSREC to obtain ethical approval. The protocol has, therefore, undergone a number of reviews. Recruitment began on the 31 January 2017.

3.4.5. Abbreviations

CCR: Classroom Communication Resource

CONSORT: Consolidated Standards of Reporting Trials

CWS: Children who stutter

FHSREC: Faculty of Health Sciences and Research Ethics Committee

GEE: Generalised estimating equations

ICF: International Classification and Functioning of Disability

ITT: Intention-to-treat

LoLT: Language of learning and teaching

NNSSF: National Norms and Standards for School Funding

PATCS: Peer Attitude Towards Children who Stutter

POSHA-S: Public Opinion Survey of Human Attributes-Stuttering

PRS: Protocol registration and results system

PSD: Positive Social Distance

RCT: Randomised controlled trial

SP: Social Pressure

SPIRIT: Standard Protocol Items for Reporting in Trials

SROM: Stuttering Resource Outcomes Measure

TAB: Teasing and Bullying: Unacceptable Behaviour

UCT: University of Cape Town

VI: Verbal Interaction

3.5. Declarations

3.5.1. Acknowledgements.

We would like to acknowledge the University of Cape Town, South Africa, the National Research Fund, South Africa, and the Carnegie African Diaspora Fellowship Programme (CADFP) for its contributions to this study.

3.5.2. Funding.

Funding was obtained from the National Research Foundation (NRF) Research and innovation support and advancement (RISA) and was granted to the primary researcher as a doctoral bursary. This funding was awarded to pay the university fee. The funding does not extend to publishing or any additional costs. Additional internal research funding was applied for, and awarded for, the data collection costs only. Some support was thus received for data collection, analysis costs through a Programme for Enhancement of Research Capacities (PERC) grant made available to the supervisor Prof. H. Kathard. The costs of the data collection are high, and the funds will be utilised for this purpose, leaving no remaining funding to assist with publishing. The roles and responsibilities will be extended only with regards to funding.

3.5.3. Availability of data and materials.

The raw data will be made available to the authors, research assistants and statistician only. The raw data will not be made available to the public due to the stipulations by the UCT FHSREC to securely store data and ensure that confidentiality be upheld. The findings will be made available in a journal article. The CCR is attached in this journal.

3.5.4. Authors' contributions.

HK is the primary investigator and will be blinded to the study. She is the PhD supervisor for RM who will be conducting this study. LT will be assisting with methodological

and statistical planning as well as co-supervision of this study. MP is an additional author who gives input regarding writing. All authors reviewed manuscript drafts for content and approved the final version of this manuscript. Researcher, research assistants and statistician roles are described above.

3.5.5. Ethics approval and consent to participate.

3.5.5.1. Research ethics approval.

Ethical approval was obtained from the FHSREC at UCT. The ethical approval number is 523/2016.

3.5.5.2. Consent and assent.

Permission was also obtained from the Western Cape Education Department, and will be collected from school boards, principals and teachers. Thereafter, parental consent will be obtained from all participants. Finally, assent will be collected from all participants at pre-intervention and 6 months post intervention. The permission, consent and assent will be collected using written forms. All consent and assent will be collected in writing. The permission, consent and assent letters have been reviewed by numerous people as part of the departmental review, ethical approval process and by the Department of Education. Additionally, personal participant information will be kept confidential using a coding system to allow the identity of participants to remain anonymous. The findings may be published as all relevant parties were informed that statistical findings will only be reported on and no identifying information will be included.

3.5.5.3. Consent for publication.

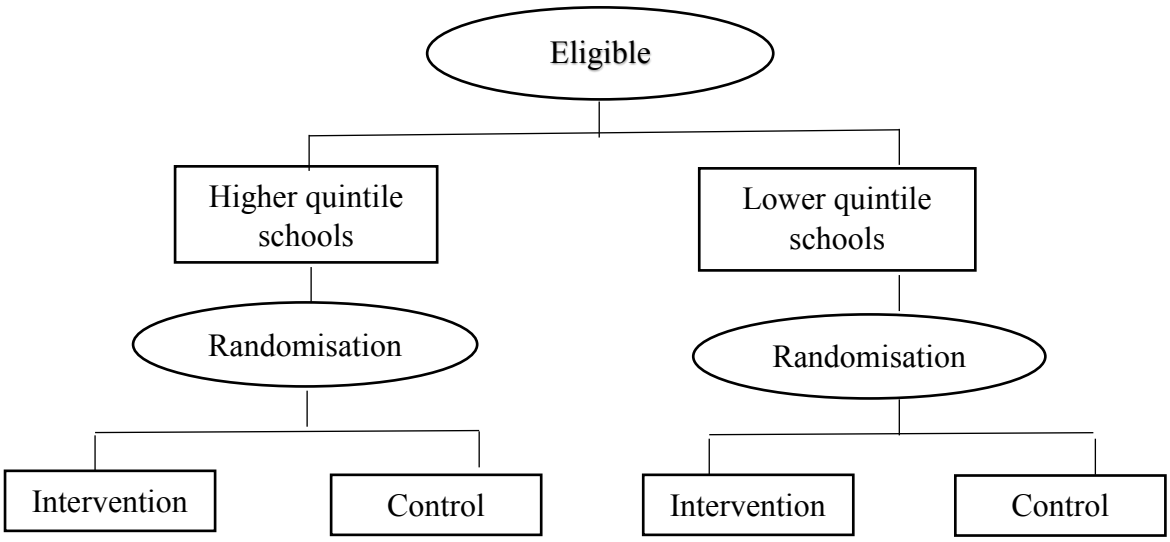
Consent for publication was given by Western Cape Education Department, school governing bodies, school principals and teachers as well as participants and UCT, departmental and divisional reviewers.

3.5.6. Competing interests

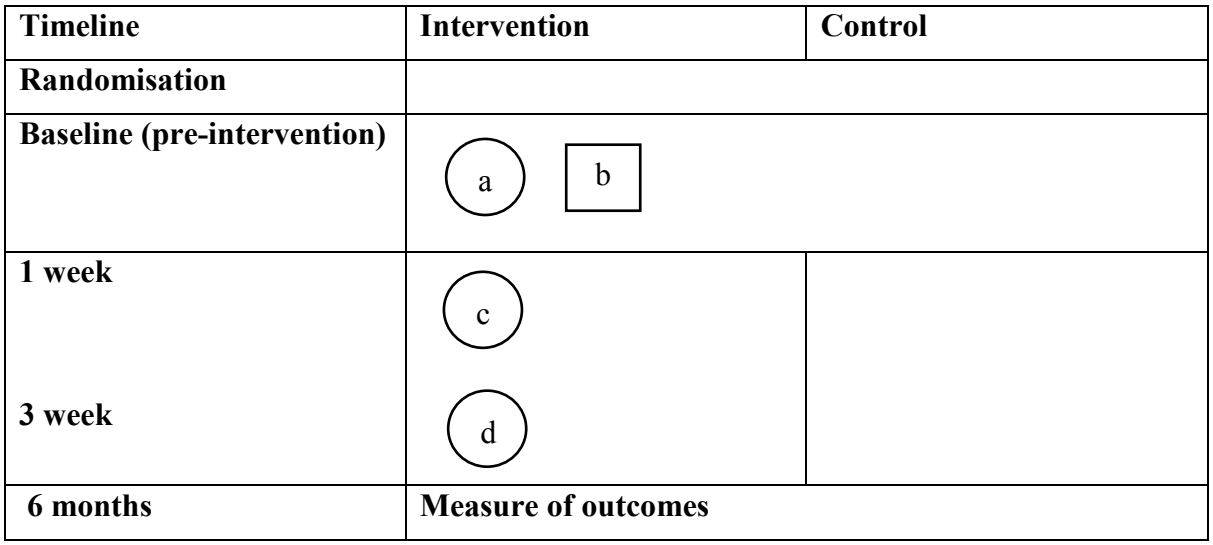
The authors declare that they have no competing interests.

3.6. Appendices

3.6.1. Additional file 1: Figure S2. School stratification and randomisation procedures.



3.6.2. Figure S3. Graphical representation of the data collection procedure.



a	A video of a CWS will be viewed by all participants to ensure that they all have a clear understanding of what stuttering looks and sounds like.
b	The SROM will be administered to all participants.
c	Teacher training will occur, and teachers will be given a two-week period to prepare for the administration of the CCR intervention.
d	The teacher will administer the CCR intervention (the story, role-play and discussion).

3.6.3. Table S1. Summary of the objectives, outcomes, hypotheses and methods of analysis

Objectives	Outcome	Hypothesis	Method of Analysis
Primary: determine the effect of the CCR vs usual practice (i.e. no CCR) on attitudes around stuttering among grade 7 students at 6-months	Global SROM score	CCR scores will be better than those of usual practice	Generalized estimating equations [GEE] (assuming exchangeable correlation structure within a school)
Secondary: the effect on attitudes towards stuttering based on SROM subscales	Positive Social Distance (PSD), Verbal Interaction (VI); Social Pressure (SP)	CCR scores will be better than those of usual practice	GEE
Subgroup: We will also explore subgroup differences between the lower and higher quintile schools.	Global SROM, PSD, VI and SP scores	Effect of CCR vs usual practice will differ by quantile group	GEE with an interaction term of quintile group x intervention
Tertiary: to conduct a focus group of experts to help with interpreting the trial results.	All outcomes	Not applicable	Qualitative analysis

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Chapter 4

A cluster randomized trial of a classroom communication resource program to change peer attitudes towards children who stutter among grade 7 students

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Abstract

Background: Classroom-based stuttering intervention addressing negative peer attitudes, perceptions, teasing and bullying of children who stutter (CWS) is required as part of holistic stuttering management because of its occurrence in primary school. This study was conducted in 2017, in 10 primary schools in the Western Cape, South Africa within lower (second and third) and higher (fourth and fifth) quintiles.

Methods: Grade 7 participants aged 11 years and older were assigned randomly to control and intervention groups according to school and subgroup (quintile) clusters. Teachers received an hour of training before administering the single-dose Classroom Communication Resource (CCR) intervention over a 60–90 minute session. The CCR intervention included a social story, role-play and discussion. All participants viewed a video of a CWS and stuttering was defined at baseline. The Stuttering Resource Outcomes Measure (SROM) measured peer attitudes at 6 months post-intervention. Randomisation was stratified by quintile group using a 1:1 allocation ratio. Full blinding was not possible, however measures were put into place to ensure validity of this study.

Results: Ten schools were randomly allocated to control (k = 5) and intervention groups (k=5), with n =223 participants allocated to intervention and n= 231 to control groups. A total of 454 participants completed the SROMs in control (n=231) and intervention (n=223) groups and were analysed at baseline and 6 months post-intervention. There was no statistically significant

difference on the global SROM score (mean difference: -0.11 [95% confidence interval: -1.56, 1.34]; p = 0.88). There were also no significant differences on SROM subscales: PSD (1.04 [-1.02,311]; p =0.32), SP (-0.45 [-1.22, 0.26]; p=0.21) and VI (0.05 [-1.01, 1.11]; 0.93). Additionally, there was no significant subgroup effect on the global SROM score (lower vs higher quintile subgroups) [interaction p-value = 0.52]. No harms noted or reported.

Conclusion: No statistically significant differences were noted. It is possible that the time-frame was too short to note changes in peer attitudes and that further study is required to confirm the findings of this study.

Registration: Clinicaltrials.gov: NCT03111524

4.1. Background

Culture, climate, ethos, [1] and the ecological school system [2] may influence perceived scholastic experience with consequences on social and academic performance and functioning. These experiences vary within schools and classrooms. For example, school culture may be toxic for children who experience teasing, bullying, depression, reduced social and academic interactions [3, 4] and social rejection [5]. Teasing, bullying and general unacceptable behaviour at school, as listed above, has been studied extensively within the school context due to the grave consequences children face due to negative peer interactions [1,2, 3, 4, 5]. Factors including age, race, learning difficulties, disabilities and health status are reported as predictive factors of teasing and bullying [2] including stuttering. Given the reported literature, the focus of this study is on peer attitudes, teasing and bullying, while using stuttering as an example of a vulnerable population.

The consequences reported above are commonly reported by children who have negative experiences of stuttering at school, caused by negative perceptions [3, 4] attitudes and interactions between children who stutter (CWS) and their peers [3, 6, 7, 8, 9]. It is for this reason that peer attitude and attitude change be addressed within the school context because of the damaging effects of negative peer attitudes on peer perceptions towards CWS [5, 6, 7, 8]. Furthermore, it is reported that the basis of attitudes, formed by beliefs and knowledge, may be a predictive factor in behaviour [10]. It is, therefore, understood that there is a possibility of improving attitudes if underlying beliefs are targeted [10]. This is possible while acknowledging the complex and multifaceted link between attitudes, attitude change and behaviour change [11, 12]. For this reason, this study placed focus on attitude as the precursor to behaviour change [13] using a stuttering intervention tool while behaviour change itself was not studied.

Traditionally, CWS often receive individualised speech therapy sessions that targets speech fluency with focus on reducing core and secondary behaviours of the stutter. However, this study is concerned with another dimension of stuttering intervention, group interventions for peers with focus on environmental factors, as part of holistic stuttering intervention, guided the International Classification and Functioning of Disability (ICF) framework [14]. Classroom-based stuttering interventions are recommended because CWS and their peers spend majority of their day together with their teachers [15], supporting this study of peer attitudes within school clusters. It is also recommended that classroom-based interventions may empower teachers in the South African (SA) context who requested help to address negative attitudes towards stuttering in the classroom [16]. Classroom-based stuttering interventions to address peer attitudes, teasing and bullying are thus encouraged within the school context [14, 17, 18] as part of robust stuttering intervention. To date, the Teasing and Bullying: Unacceptable Behaviour (TAB) showed positive results in Canada when managing peer attitudes towards stuttering through teacher administered activities. Due to the TAB not being appropriate for SA, given its contextual needs (language, culture, time and technological differences) it gave rise to a SA equivalent tool, the Classroom Communication Resource (CCR) intervention, the intervention of interest in this study.

4.2. Objectives

The primary objective was to determine treatment effect of grade 7 participants of the CCR intervention versus no CCR using the global Stuttering Resource Outcomes Measure (SROM) score at six months' post-intervention in different school clusters. The secondary objective was to determine grade 7 participant treatment effect on the SROM subscales Positive Social Distance (PSD), Social Pressure (SP) and Verbal Interaction (VI). The subgroup objective was to determine the primary objective between and across quintile clusters (lower and higher).

4.3. Methods

The design and methods description for this trial is described below, while further details can be found in Mallick et al [19].

4.3.1. Trial design.

A stratified cluster randomised controlled trial (RCT) was conducted using a 1:1 allocation ratio whereby schools were the unit of randomisation and were stratified into two quintile groups (lower vs higher quintile groups). No changes were made to the methods after the trial commenced as a previous pilot study [20] guided this study.

4.3.2. Participants and schools: eligibility criteria and study setting.

Participants were in grade 7, aged 11 years and older, and attended public lower and higher quintile schools with English as the language of learning and teaching within the Western Cape (WC) Metro urban area. Both lower and higher quintile schools were included to ensure a representative school sample of the WC considering the continued socio-political resource and funding disparities that form part of its current reality [21, 22]. A variety of schools, as stipulated by quintile classification, were additionally included given that experiences and peer attitudes may differ according to school and quintile groups.

4.3.3. Intervention.

Teachers were trained over an hour session and given a two-week period to review and prepare for the administration of the single-dose CCR intervention. Teachers administered the intervention over a 60-90 minute lesson. Teachers read the social story, participants acted out the role-play, and teachers facilitated a discussion around communication and communication difficulties, teasing and bullying, acceptance, diversity and difference. Observational notes were made by the researcher and assistants while the CCR was administered.

4.3.4. Control.

Usual care was followed, i.e. no activities described in the intervention was completed in control groups.

4.3.5. Outcome measure.

The primary outcome endpoint of this study was to observe a positive shift in treatment effect (magnitude and direction) using the SROM to track participant peer attitudes from baseline to 6 months post-intervention using global and subscale scores. The SROM, was developed for SA, based on the Peer Attitude Towards Children who Stutter (PATCS) which met its criterion reliability [15, 18]. The SROM was also psychometrically tested and found to be valid and reliable [16, 23, 24, 5]. The repeated use of the SROM in this study is acknowledged, however there is no other available equivalent validated outcomes measure. Furthermore, the time lapse between baseline and 6 months post-intervention measures may have reduced re-intervention bias. No changes were made once the trial commenced.

4.3.6. Sample size.

A sample size of $n = 350$ students ($k = 10$ schools) in the two groups was proposed while a sample size of n= 454 was included in this study (k=10 schools). This study aimed to yield a statistically significant result with 80% power at alpha = 0.05, assuming an intention-to-treat (ITT) principle for analysis. A generalised estimating equations (GEE) model was implemented using 6 months post-intervention (adjusting from baseline) mean global SROM scores. Sample size and computation was guided by previous studies [16, 20, 26] assuming normally distributed global SROM scores with a mean difference of 5.25 (77.91 intervention group and 72.66 control group), ICC (intra-school correlation coefficient) of 72.70 and a common within-group standard deviation of 11.90.

4.3.7. Randomisation.

4.3.7.1. Allocation: sequence generation, allocation concealment mechanism and implementation.

A once-off computerised allocation sequence was generated and placed in envelopes by a statistician with a 1:1 random allocation ratio and 2:1 randomisation stratification for quintiles. School stratification took place according to mixed-gender, quintile (2, 3, 4, 5) and eligibility criteria.

4. 3.8. Blinding.

While blinding was not possible, some procedures were put into place to uphold the validity of this study. This included the primary researcher being partially blinded in terms of the capturing of the SROM and the use of a team of research assistants for all processes (SROM administration, capturing and rechecking as well as teacher training and observations). The team ensured that those who administered the SROMs, did not capture the data and those who captured data, did not recheck the same SROMs. All research assistants who captured and rechecked data were blinded as each SROM was coded.

4.3.9. Statistical methods.

The grade 7 participant was the unit of analysis. The ITT principle was followed, and GEE method was used to compare groups and subscales of the global SROM, which accounted for clustering within schools assuming a within-school exchangeable correlation structure. Results were reported as an estimate of difference between groups, as per the Consolidated Standards of Reporting Trials (CONSORT) Statement, along with a 95% confidence interval and associated *p*-value (three decimal places). Multiple imputation was also used to impute missing data and 5 datasets were generated. Moreover, subgroup analysis was performed and analysis of constructs, determined by an interaction term (e.g. quintile group (lower versus higher) × intervention (CCR versus usual practice)). Subgroup analysis is supported by a

previous study which showed schools behaving as clusters and as quintiles [20], while no large-scale findings have been reported.

4.4. Results

4.4.1. Recruitment.

Ten schools were recruited for adequate participant enrolment. Recruitment commenced on 19 January 2017, baseline data was collected 6-13 February 2017, and all follow up data on 1-6 August 2017 when the trial closed.

4.4.2. Baseline data and numbers analysed.

The total sample analysed was n=454 with n=223 in the intervention group and n=231 in the control group with 42% and 43% males in each group respectively. There were 5 clusters (schools) in each group (intervention and control) while six clusters were from the higher quintile and four from the lower quintile. Baseline characteristics were as follows:

Table 1: Baseline characteristics of study participants by intervention and control group

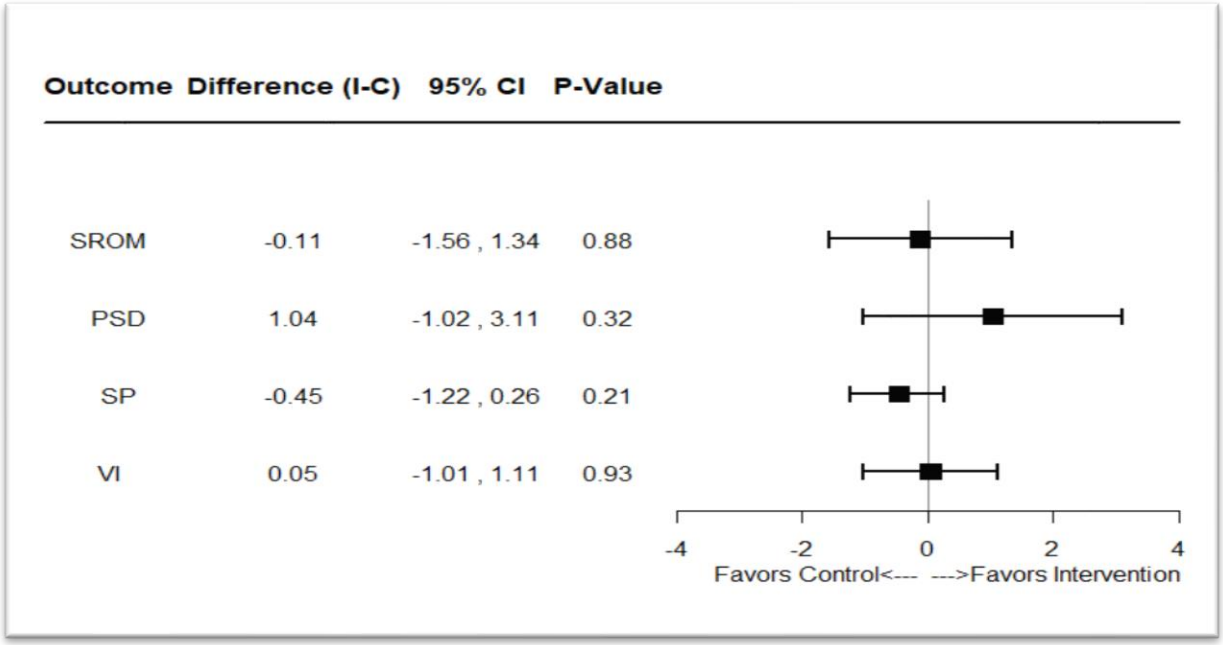
	Intervention (n=223)	**Control** (n=231)
No of cluster	5	5
Cluster size Mean (min, max)	45 (30, 54)	46 (18, 68)
Quintile; n (%) Higher Lower	115 (52) 108 (48)	118 (51) 113 (49)
Gender; n (%) Male	95 (43)	96 (42)
Age (in years) Mean (SD)	13 (0.76)	13 (0.84)
Baseline Score Mean (SD) SROM PSD SP VI	 60.55 (7.13) 39.31 (7.62) 12.22 (3.54) 9.02 (3.22)	 60.67 (7.86) 39.71 (8.44) 12.20 (3.37) 8.77 (3.19)

4.4.3. Outcomes and estimation: Primary (ITT) Analysis.

Figure 1 shows no statistically significant differences on the global SROM score (mean difference: -0.11 [95% confidence interval: -1.56; 1.34]; p = 0.88). Similarly, no statistically significant differences were observed in the constructs of PSD (1.04 [-1.02,3.11]; p- 0.32), SP

(-0.45 [-1.22, 0.26]; 0.21) and VI (0.05 [-1.01, 1.11]; 0.93). The results remained robust when sensitivity analysis was conducted using complete case, per protocol analysis.

Figure 1: Forrest plot graph showing difference (I-C), 95% confidence intervals and p-values for the SROM and its constructs PSD, SP and VI at 6 months post-intervention using different outcomes for ITT analysis.

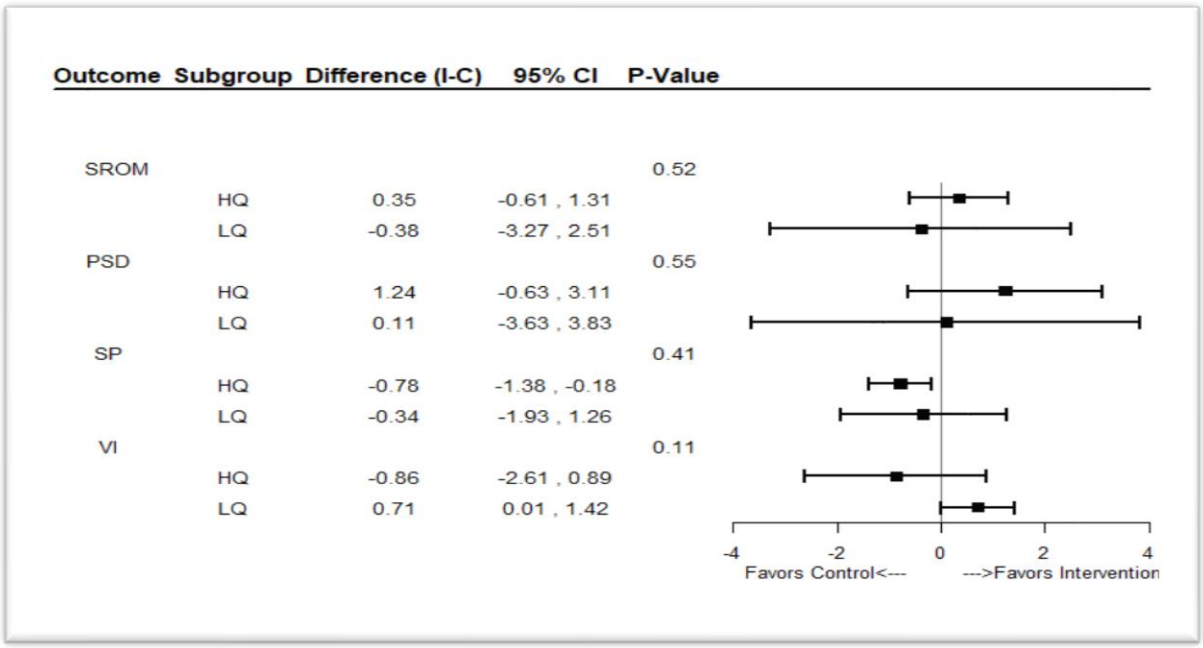


4.4.4. Ancillary analyses: Subgroup analysis.

Subgroup analysis was pre-specified as a previous study showed that participants behaved as clusters [19]. The subgroup analysis findings showed no statistically significant difference of the SROM subscales where no significant subgroup effect on the global SROM score of lower versus higher quintile subgroups was noted with an interaction p-value of 0.52.

No statistically significant differences were noted within the constructs of PSD scores (interaction p-value 0.55), SP (interaction p-value 0.41) and VI (interaction p-value 0.11). Sensitivity analysis based on per protocol approach showed similar results.

Figure 2: Forrest plot graph showing difference (I-C), 95% confidence intervals and p-values for the SROM and its constructs PSD, SP and VI at 6 months post-intervention in quintile subgroups using different outcomes for ITT analysis.



4.4.5. Harms

Teachers were consulted for this study before baseline data collection began to identify CWS in the class to determine if they wished for the study to commence in their class. No concerns or need for counselling was reported.

4.5. Discussion

4.5.1. Limitations.

A key limitation to this study is that there is no published information about the psychometric properties of the SROM. The only information available regarding the validity and reliability of the SROM has been cited in Mallick et al [19]. Given the findings of this study, it is felt that further studies are required to consider SROM sensitivity and explore other potential tools due to the complexity of studying attitudes [12]. As described in the discussion, time frame and contextual difficulty was another limitation to this study.

4.5.2. Generalisability.

The generalisability of this trial should be interpreted with caution. This trial provides valuable findings for the WC lower and higher quintile schools but may not accurately reflect other provinces in SA.

4.5.3. Interpretation.

Overall, there were no statistically significant differences noted on the global SROM as well as within the constructs (PSD, SP, VI) although on subscales, the results seemed consistent. The results however showed that the direction of change of the treatment effect was consistent with the hypothesis, with a difference of as large as 3.30—which is the upper limit of the 95% CI for the difference in the global SROM score. There were additionally no statistically significant differences in quintile subgroups and, sensitivity analysis showed similar results with ITT. While no significant subgroup differences were noted, there appears to be variation in p-values. The direction of the treatment effect change was consistent with the hypothesis while the magnitude showed a minimally clinically important difference. Despite contextual discrepancies in the schools included in this study, the CCR intervention showed that the lower and higher quintile schools behaved similarly. This result is interesting given the contextual complexities of schools in the WC and the use of quintile classification. It signals that the CCR intervention may be useful for both quintiles in future planning related to this study and possibly to guide future teasing and bullying related school policy.

A cluster RCT conducted with grade 7 learners in peer attitudes towards disability in France noted that the study of cognitive, affective and behavioural components is important when measuring peer attitudes [27]. This finding supports the use of the SROM which includes these components within the constructs of PSD, SP and VI. Despite the inclusion of these components, it is possible that the SROM is not sensitive enough to pick up changes in

attitudes. However, in the absence of another outcomes measure, the SROM was used given the available data on the reliability and validity testing so far [16].

A similar study targeting classroom-based peer attitudes through teacher administered activities and videos for peers with Tourette's syndrome also used the condition as an example to improve general attitudes and beliefs towards disabling conditions [10], much like the CCR intervention. The study of peer attitudes towards Tourette's syndrome recommended that baseline and post-intervention findings yield important results but that classroom observations should also be considered because of the changing nature of attitudes over time, i.e. to see if any attitudinal changes persist over time [10] and manifest beyond that of the outcomes measure.

In addition to the potential reduced sensitivity of the SROM to measure peer attitudes, it should also be considered that attitude and attitude change is cited as being a complex topic to study [11, 12]. In fact, it is reported that quantifying, measuring and exploring attitude is challenging and that there is no one way of doing so [12]. It is particularly complex to measure attitude knowing that the formation of attitude and attitude change, changes over time because attitude is learnt [28]) as a continuous process [29]. As such, it is possible that 6 months was too short to allow for attitudinal change to be measured. Perhaps this CCR intervention study should consider two things: 1. thoughts and beliefs cannot solely be measured using questionnaires and so additional observational data may be needed; and 2. there is no one optimal time frame in which attitude can be measured. It is important that when complex topics (such as peer attitude) are being studied, other measures and methods of commenting on the effectiveness of interventions are drawn upon without solely relying on statistically significant results.

Another crucial factor to consider is the time frame challenges that were experienced in this study due to the context of school-based research. Firstly, school-based research comes

with its own challenges such as time constraints that research imposes on schools as well as those stipulated by the Western Education Department (WCED), schools and teachers. Given the busy academic schedule, research can only be conducted when and where the school is able to accommodate the research. As mentioned, the WCED has strict regulations around when school-based research may take place and as such it was stipulated that the research could only be conducted between 01 February and 29 September 2017. These dates however do not consider school holidays, other school-specific commitments and the time needed to setup research. The tasks needed to setup the research required careful planning and included recruitment, obtaining permission, consent and assent from schools, principals, teachers, parents and participants, as well as arranging suitable dates and times for baseline data, teacher training, administration of the CCR and follow-up dates for the 6 months post-intervention data. As illustrated by the details of the logistics of the research processes in schools, this meant that the data were unable to be collected over the 8-month period as stipulated by the WCED. As a result, the 6-month period after the administration of the CCR intervention was the longest possible time frame that could be made available for this research. The research could also not be extended as the participants moved to the next grade and or school in January 2018 and thus there could be no way of including all participants beyond September 2017. In conclusion, this study could therefore be improved by replicating its findings, further study of the CCR intervention, publishing the findings around the sensitivity and psychometric properties of the SROM and, considering additional other measurement tools such as observations.

4.6. Conclusions

While no statistically significant differences were noted, it is possible that these findings were yielded because of the short time-frame to measure changes in peer attitudes. It is therefore required that further studies be conducted to confirm the findings of this study. This study is the first speech-language therapy (SLT) cluster stratified RCT, specifically in

teasing and bullying classroom-based stuttering intervention for peers of CWS in SA. This study has thus shown that a RCT is feasible, despite challenges of conducting school-based research. For this reason, it is felt that other RCTs are needed to replicate the results of this trial in different settings (not just in the WC in SA) subject to rigorous processes. Replicating this study would be instrumental in producing more substantive findings to guide policy when working with the WCED. There is also a need for further RCTs given that teachers have requested assistance with managing stuttering and communication in the classroom. Through replicating the findings, evidence-based practices may be developed which may inform SLT practices in the future.

4.7. Trial registration

The trail number is NCT03111524 (https://clinicaltrials.gov/ct2/show/NCT03111524) which was registered on 9 March 2017 with clinicaltrial.gov protocol registrations and results system (PRS).

4.8. Protocol

The protocol was published in 2018 and may be accessed on the *Trials* journal.

4.9. Abbreviations

CCR: Classroom Communication Resource

CONSORT: Consolidated Standards of Reporting Trials

CWS: Children who stutter

FHSREC: Faculty of Health Sciences and Research Ethics Committee

GEE: Generalised estimating equations

ICF: International Classification and Functioning of Disability

ITT: Intention-to-treat

LoLT: Language of learning and teaching

NNSSF: National Norms and Standards for School Funding

PATCS: Peer Attitude Towards Children who Stutter

POSHA-S: Public Opinion Survey of Human Attributes-Stuttering

PRS: Protocol registration and results system

PSD: Positive Social Distance

RCT: Randomised controlled trial

SP: Social Pressure

SPIRIT: Standard Protocol Items for Reporting in Trials

SROM: Stuttering Resource Outcomes Measure

TAB: Teasing and Bullying: Unacceptable Behaviour

UCT: University of Cape Town

VI: Verbal Interaction

4.10. Declarations

4.10.1. Ethical approval and consent to participate.

Ethical approval was obtained from the University of Cape Town's Faculty of Health Sciences Human Research Ethics Committee (ethical approval number: 523/2016). Thereafter, permission was obtained from the Western Cape Education Department, school principals, teachers and parents of participants. Assent was additionally collected from participants at baseline and at 6 months post-intervention.

4.10.2. Consent for publication.

The Western Cape Education Department, school governing bodies, school principals, teachers, parents of participants, participants, the University of Cape Town departmental and divisional reviewers provided consent for publication.

4.10.3. Availability of data and material.

The raw data was made available to all authors but could not be made available for the public as specified by University of Cape Town's Faculty of Health Sciences Human Research Ethics Committee.

4.10.4. Competing interests.

The authors and research assistants declare that they have no competing interests.

4.10.5. Funding.

The NRF Research and innovation support and advancement (RISA) provided funding to the primary researcher as a doctoral bursary towards her university fee. The Programme for Enhancement of Research Capacities (PERC) grant, an internal research fund was awarded to the principal investigator to fund data collection costs. The awarded funding did not extend to publishing costs.

4.10.6. Authors' contributions

RM is the PhD candidate, primary researcher and corresponding author of this paper. HK is the PhD supervisor of RM and the primary investigator. SB analysed the results of this paper. LT is the PhD co-supervisor and guided the methodological and statistical planning, analysis and writing of this paper. MP was a consultant on this paper. This paper was approved and reviewed by all authors. The roles of the researcher, statistician and research assistants are described in the paper.

4.10.7. Acknowledgements

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Chapter 5: Synthesis and conclusion of study

5.1. Introduction

Once the RCT was complete, teachers from the intervention groups who had administered the CCR were interviewed in a sub-study. This chapter aims to extend the discussion on the main findings of this study by drawing on the trial findings together with results of the sub-study to offer teacher perspectives. The interviews have undergone preliminary analysis for the purpose of this thesis (while further analysis will occur for publication). The preliminary analysis of interviews with teacher who administered the CCR in the RCT is drawn upon to explore, supplement and explain the main trial findings (see Appendix E). Throughout this chapter, a complimentary approach to analysis is described by collating statistical significance and clinical importance results. Additionally, the following is described: teacher perspectives, the complexity of stuttering, teasing and bullying interventions, time frame of SROM, dosage of the CCR, teacher collaboration, context, and the claim of positivism – knowledge/context debate. Furthermore, conclusions, recommendations and implications for clinical practice, research practice, and policy implications are described.

5.2. Statistical and Clinical significance: A Complementary Approach to Analysis

As previously described, statistical significance reports on the effectiveness of the CCR while clinical significance (interchangeably referred to as clinical importance) reports on the meaningfulness and applicability to the clinical use of interventions (Bauer et al., 2004) as well as the need to include contextual information (Thompson, 2002). There is therefore a need to collectively use statistical significance and clinical importance findings for more robust comment on the CCR and its trial findings.

Another reason that this thesis reported on both statistical significance and clinical importance was to provide a complimentary approach to analysis, especially with the

preliminary analysis of teacher interviews (sub-study) to supplement the findings of this study (see Appendix E). The teacher interviews are a new layer of qualitative data which perhaps offers some explanatory potential of the clinical importance findings noted in the RCT. In drawing on statistical significance and clinical importance, comment was made on the strength of evidence. The magnitude of the observed treatment effect may also be explored (Pocock, 2006) with implications on clinical practice, research and policy.

The findings of this thesis showed that, despite no statistically significant results being observed in this study, a clinically important difference was noted. If this study only considered the statistical significance, the conclusion would be that the CCR is not effective in shifting treatment effect. However, closer examination of findings contributed to the clinical importance of this study such as hypothesis testing, magnitude, direction, treatment effect, confidence intervals and subgroup analysis (Akobeng, 2005; Hojat & Xu, 2004; Pocock, 2006).

Firstly, the hypothesis that a positive shift would occur in terms of the magnitude (extent of shift) and direction of treatment effect towards a more positive direction was noted. Also, the fact that the CCR was found applicable and appropriate across school quintiles also contributed to the clinical importance of this study. Thus, clinical importance showed that there is merit to the CCR in Cape Town in the Western Cape, South Africa.

As illustrated by the use of hypothesis testing, subgroup analysis, and the magnitude and direction of treatment effect, clinical importance is not merely a subjective observation of the study. In fact, it too uses the study's findings of confidence intervals. While each aspect of clinical importance may be useful, collective analysis provides a more robust finding. For example, with findings being consistent with the hypothesis it was found that the shift in treatment effect magnitude, within the constructs (PSD, SP, VI), both in confidence intervals

and subgroup analyses collectively supported the comment on the clinical importance of this study.

5.3. Teacher perspectives

It was also important to note the meaningfulness of the shift in treatment effect related to its stakeholders (Finn, 2003). In this study, stakeholders included teachers and peers (participants) of CWS where benefits were noted after the administration of the CCR. On the one hand, peer attitudes showed a positive shift in treatment effect – despite the shift not being statistically significant – while on the other hand, teachers reported benefits of using the CCR. Teacher-reported benefits included using the CCR to engage with topics that are often difficult to discuss such as diversity, difference, teasing and bullying.

> *"And this is what I wanted to achieve in any lesson. Whatever the theme, whatever you are aiming for because getting them talking, thinking, about what it is that they are talking about and really sort of engaging with the teacher and each other."*- Teacher who administered the CCR at a higher quintile school.

While this study makes no claim to behaviour change, the reports and observations of teachers are useful to substantiate the statistical findings of this study. Teacher observations of benefits were also reported in terms of participant attitudes and behaviour. Teachers reported that participants initially laughed upon viewing the video of a CWS and when hearing their teacher read the stuttered parts of the social story. However, teachers reported a shift in attitude and behaviour in terms of how the participants engaged more seriously and interactively with the CCR. For example, the laughter diminished, and participants openly and honestly actively engaged in discussions around topics of stuttering, communication, diversity, difference,

teasing and bullying. It was also reported by teachers that participants appeared more accepting of peers and questioned others when they laughed at and teased their peers.

"I will tell you there is one learner, whom they know in grade 6 – in one of the classes I teach is also a learner who stutters. I could see the way they were relating to him it was different. You know, they were people who were informed, unlike before." - Teacher who administered the CCR at a lower quintile school.

"Things have changed. They're very patient with him and they listen more when they speak to him. They understand that he has this challenge but it's something that can also be helped." - Teacher who administered the CCR at a lower quintile school.

Therefore, clinical significance indicated the CCR, as a classroom-based intervention, is valuable to explore communication and, more broadly, teasing and bullying. It is possible that the structured opportunity, using the CCR, in the classroom may have facilitated learners' social skills using participatory learning with peers and modelling of positive interactions with peers (C. A. Rose & Monda-Amaya, 2012). More specifically, teacher observations were that bullying interventions that include personal qualities such as empathy, build of respect, and acceptance of diversity and difference are essential to intervention (Raskauskas & Modell, 2011), much like the CCR did.

"The story would be a good starting point to bring certain values home to the children. Not only one but more – respect; respect for self, for others, acknowledging that everybody's different, everybody's not the same perseverance. I think there was a bit of perseverance in there. You could use this for so many values. The story can be used to introduce a lot, of

perseverance as I said, also honesty, integrity, how to overcome obstacles, overcome what you see, or the child sees [as] a disability so there's various things for which the story can be used for". - Teacher who administered the CCR at a higher quintile school.

5.4. Complexity of stuttering

However, due to the complexity of stuttering, communication, and teasing and bullying, it may be challenging to see statistically significant treatment effect changes in 6 months using a single dose intervention. It may be challenging to quantify changes in treatment effect because of the focus of stuttering of the SROM while teachers viewed the CCR as having a communication and teasing and bullying focus, described in limitations below. This is supported by Heal et al. (2017) who report that there may be several methodological challenges that arise when testing complex school interventions, especially where many potential outcomes could be measured such as attitude, behaviour, thought processes etc (Heal et al., 2017). There could be several outcomes because many intervention components may interact with each other and/or the context in which interventions are implemented (Heal et al., 2017). To alleviate the problem outlined by Heal et al. (2017), a two-stage trial is recommended in order to ensure that the trial is conducted in conjunction with process evaluations. While process evaluations were not completed in this study, they were measured in the preceding feasibility study (Badroodien, 2015; Mallick et al., 2018).

5.5. Teasing and bullying interventions

The clinical importance of the CCR could be supported by the guided method of using the CCR to discuss teasing and bullying among peers and teachers, which teachers had reported to be beneficial. However, the use of the CCR was discussed in conjunction with school-based campaigns. This study therefore contributes alongside other school-run teasing and bullying

campaigns. This is usual practice in both intervention and control-group schools, as indicated by teachers.

> *"However, in school we are busy with on-going awareness program of bullying. I'm sure if you walk around you'll see the posters up about bullying, all the hand signals and things learners should be aware of. There is a lot of that type of awareness going on within the school."* - Teacher who administered the CCR at a higher quintile school.

The fact that the CCR contributed to other school-run campaigns, illustrates that teasing and bullying interventions are needed and valued, as supported in the literature (Blood & Blood, 2016; Blood et al., 2010; Hobbs et al., 2016). The assumption that only schools should be held responsible for addressing bullying at school, because of its high occurrence at school, is problematic (Vanderbilt & Augustyn, 2010). In fact, Vanderbilt and Augustyn (2010) recommend that paediatric providers, such as SLTs, should also play a role in intervening with and advocating against bullying. It is thus imperative that interventions such as the CCR be implemented in schools for school-aged children to attempt to minimise the damaging effects of teasing and bullying, in conjunction with school campaigns, particularly within vulnerable populations such as children with communication disorders. This was supported by teacher interviews where the prevalence and concern around the consequences of bullying were emphasised.

The use of school campaigns and the CCR could also be classified as proactive school-based interventions. The use of proactive school-based interventions is advocated for as a method to decrease bullying perpetration, as well as improving social awareness and creating positive school environments (Rose et al., 2011). School environments and values should be considered because it has the potential to contribute both positively and negatively to teasing

and bullying, as debated in the literature (Swearer et al., 2010). It is therefore important that school-based interventions consider factors beyond the intervention itself as potential predictors of peer attitude and behaviour. These factors may include how peers function together, teacher attitudes, school climate, and school policies (Swearer et al., 2010).

The use of the CCR as a method of discussion and thinking around teasing, bullying, communication, and stuttering was targeted through dialogue. It is through dialogue that students could make meaning of the CCR through talking and asking questions during a lesson. As such this was identified as a positive attribute of the CCR, while it could be extended to impart subject and personal learning.

> *"I especially liked the discussion part because that's where you are really drawing out their ideas, their thoughts, how do they feel, [concepts of] acceptance and diversity and many of them still struggle to express themselves. They might have a very valid point that they want to make but they don't know how to. Again, it's the communication so that is nice in the sense that the exercise itself lends itself towards that, helping them to communicate effectively and express yourself correctly."*
> - Teacher who administered the CCR at a higher quintile school.

The findings of the CCR as a teasing and bullying intervention is supported by literature described in chapter 1 in the following ways:

1. the effectiveness of group-based and public interventions,

2. that they act under the assumption that the social consequences of stuttering may be improved by providing information to populations about stuttering (St Louis, 2015).

Similarly, classroom-based interventions draw upon the principles of public interventions of group approaches to intervention (Cornelius et al., 2014). Additionally, the

importance of school- and classroom-based interventions, described previously, is useful to this study as teacher involvement and training to use interventions has been found pivotal in preventing bullying (Blank et al., 2009).

5.6. Timeframe of Stuttering Resource Outcomes Measure (SROM)

Initially, this study raised important questions around the timeframe of 6 months post-intervention because it was unknown if this was sufficient time for peers of CWS to internalise their learning. This study subsequently questioned whether repeated outcome measures were required, or if 6 months post-intervention was too short of a timeframe to measure peer attitudes, while acknowledging the challenges with school-based research. Challenges include time constraints that make repeated measures difficult and limitations by the South African Department of Basic Education as to when research can take place. However, many teachers felt time frame of the SROM was sufficient in terms of when the SROM was administered (baseline and 6 months post-intervention) and the length of time it took to administer the outcomes measure (roughly 20 minutes depending on the literacy of the learners in the classroom).

5.7. Dosage of the Classroom Communication Resource (CCR)

Teachers felt that the timeframe of the CCR was insufficient as it was a single dose intervention. Teachers reported that it would be better to administer the CCR over a consolidated block at school, meaning that over a term or a few weeks, one theme could be targeted within different activities. In other words, a consolidated block was recommended so that the learners could be exposed to the content over time and as a theme and not simply over a 60 – 90 minute lesson.

"Now for us, it will be like you came in, you did it and now it is just out of nowhere you come back with a questionnaire. So, there's no continuity." - Teacher who administered the CCR at a higher quintile school.

Teachers raised the issue of a once-off single dose intervention as a possible limitation to this study and consequently recommended that the CCR be implemented over a longer timeframe. They felt that a few lessons covering CCR activities would be far more effective, as opposed to a single-dose intervention in one lesson, to allow for consolidation of learning as school learning occurs in this manner. Therefore, it would be important to use the CCR in a meaningful way, through several lessons and themes for participants according to the structure of curriculum-based learning. In doing so, teachers felt that the effects of the CCR intervention could be long-lasting.

"A repeated learning, or not even necessarily repeated but there is a block. Do you know what I'm saying? I'm focusing on that as a theme so that I can bring my children back to "remember when we focussed on the theme of communication"." - Teacher who administered the CCR at a higher quintile school.

One of the prominent examples of this was the inclusion of the CCR using a curriculum-embedded approach using subject learning. For instance, parts of speech, grammar and writing tasks using the social story, role-play and discussion to elicit English-language specific tasks. Or it could be used in the subject of Life Orientation.

"For instance, if I need to cover language aspects, I will then build it (CCR) into the story that I'm using or [in] the comprehension [task] so I will then take that as my theme and then set a

comprehension on it. Whereas you just had a discussion. So, I will do a discussion that will be part of my listening and speaking [tasks]. Then I have to have a comprehension component and a language component, so I'll base my language lesson on the sentences and things you use. For instance, I want to teach compound and complex sentences and your passage (in the story) lends itself to a lot of those examples then I will use of those sentences to build into mine." - Teacher who administered the CCR at a higher quintile school.

"There's a lot of stuff, and language that I can cover that I will definitely try and solicit out of this. Even during revision when I go to certain aspects of grammar, I can use this. One other thing that we can do is the direct and indirect speech on the role play." - Teacher who administered the CCR at a lower quintile school.

"I would actually use it with the Life Orientation [lesson]" - Teacher who administered the CCR at a lower quintile school.

"The nice thing about this, this could work across curriculum because it would fit in beautifully with an English lesson and it would fit in beautifully with a Life Orientation lesson as well, and probably even lend itself to yeah, some other kind of subjects where that type of discussion comes up. So, I think for now strongly across English and Life Orientation and that there is a nice tie-in with that, with[in] those two subjects." - Teacher who administered the CCR at a higher quintile school.

The recommendation by teachers for the CCR to be included in the school subject of Life Orientation is supported by literature whereby personal and social development forms part of learning outcome in schools (Durlak et al., 2011). In fact, the CCR was originally developed to increase learning opportunities within the topics of stereotypes, abuse, relationships, abuse, compassion, and conflict (Filies et al., 2009).

However, these teacher recommendations contrast to health promotion literature where ongoing interventions are found to not always be effective (Wakefield et al., 2010). Instead, episodic and once-off interventions, for which the CCR was originally designed, are generally found to be more effective (Wakefield et al., 2010). Perhaps, there is need for also drawing upon behavioural and cognitive theory in addition to health promotion, to understand school-based interventions and learning – especially in our complex school context.

5.8. Teacher collaboration

Participatory health promotion literature may also offer insight into this study as it was also found to be critical in terms of teachers who administer intervention (Adamowitsch et al., 2017). In fact, teacher participation in interventions develops during the phases of intervention: adoption, installation, planning and administration (Adamowitsch et al., 2017). And so, while teachers are not a focus in this study, their role as interventionists has the potential to influence the study to some extent, despite randomisation.

Not only are teachers advocated for as key players in teasing and bullying intervention, and health promotion, they shape learners every day and are best suited as interventionists with school contexts. In doing so, the CCR positively contributes to teacher professional development (Rose & Monda-Amaya, 2012). The professional development may take place in terms of teachers understanding bullying victimization, risks and perpetration in their classrooms (and across school populations) within the development and use of intervention strategies (Rose & Monda-Amaya, 2012). In addition to professional development, collaborative partnerships may be fostered, and buy-in can be improved (Rose & Monda-Amaya, 2012). This is especially important because teachers may be able to provide input into school policies (Rose & Monda-Amaya, 2012). The acknowledgement of the important role of the teacher in this study may also facilitate partnerships and capacity building. For example, teacher qualifications and experience are considered influential in teasing and bullying

intervention at school (Rose et al., 2011). Teachers play a key role in the classroom, its culture, and learning, and as such their role as interventionists is important because they form part of the methodology of this study. Teachers, as part of the school environment, therefore influence peers who are also part of communication partners that influence the environment of CWS.

In terms of partnership, teachers were asked if they would be willing to use the CCR. The teacher was the interventionist which positioned the teacher as a big support to SLT. In terms of methodology, the study would not have been able to be conducted without teachers, but in terms of clinical practice, it shows that this level of teacher collaboration is possible. These findings illustrate a partnership model between teachers and SLTs, especially when using supported interventions such as the CCR. The need for partnership was also documented in the literature (Abrahams et al., 2016; Hobbs et al., 2016; Penn et al., 2009) supporting the findings of this study. The partnership was observed by considering teacher challenges, consolidating the partnership through training, testing, perceptions, and how they viewed any potential future use. It is clear from the literature that collaboration has gained some traction, however, research-based evidence needs to be generated to understand the underpinnings of collaborative partnerships and how practices are put into place (Hartas, 2004).

5.9. Context

Context was not simply limited to the subgroup analysis of quintiles or geographical location. Instead, this study considered many contexts such as geographical, socio-political, linguistic, cultural, service delivery factors, and schools. The collective consideration of these contextual factors and information is thus argued especially when it has been maintained that research is made meaningful through theory and relevant frameworks to improve generalisability of findings in order to apply findings to different contexts (Botma et al., 2016). It is further argued that context is interconnected and having this understanding would aid SLTs with understanding how best to adapt the CCR (and interventions in general) for future use. It

was reported that the contextual information is important for both research and clinical practice (Ciccia & Threats, 2015). It is for this reason that this thesis has stated that the findings should be interpreted with caution as they may not be automatically applied across contexts. The implementation of the CCR would therefore require consideration of context-specific factors.

While context considerations are vital to implementing interventions, one of the key strengths of this study was that the lower and higher quintiles behaved similarly despite the contextual complexities of schools in the Western Cape. The fact that quintiles behaved similarly is significant to this study because it means that the CCR intervention can be used across both lower and higher quintiles. This is significant given the resource and lingual discrepancies across quintile schools (South African Department of Basic Education, 2012, 2014a, 2014b; Mestry & Ndhlovu, 2014). In other words, the CCR does not discriminate against lower quintile schools in terms of language and literacy; a finding that is crucial to the framing context as an integral theme to this study.

This finding also shows that this study meets the requirement of equitable intervention from EPIC framework (Pillay & Kathard, 2018) in that the CCR is equitable and appropriate for both lower and higher quintiles. As mentioned, SLT traditionally uses pull-out models of practice while this study shifts towards an Equitable, Population-based, Innovative, Communication (EPIC) approach (Pillay & Kathard, 2018).

Table 3: The Classroom Communication Resource (CCR) within the EPIC framework

The CCR uses the EPIC approach (Pillay & Kathard, 2018):
Equitable: because the CCR takes into account poor service delivery and, lack of access to SLT. In doing so the CCR aims to make SLT services available at schools
Population-based: using a classroom-based approach. The CCR looks at peer attitudes as opposed to individualised SLT with Children who Stutter (CWS).
Innovative: because the CCR targets stuttering while thinking more broadly about concepts of diversity, difference and acceptance. The CCR also uses a social story, role-play and discussion that is administered by teachers. The CCR intervention therefore draws upon SLT and education.
Communication-centred: the CCR draws upon communication and stuttering as the examples within teasing and bullying. It therefore focuses on social aspects of communication and not only the physical aspects.

The CCR was additionally useful in supporting the call for population-based interventions given service delivery challenges – and, as such, the intervention principles of the CCR that were developed and studied in accordance with the context of South Africa in mind. This means that the CCR aims to be equitable by being appropriate and effective across quintiles and empowering teachers with an intervention that could be used as required. The CCR also aspires to act as a population-based intervention because it is a classroom-based intervention for peers of CWS and can thus include a larger number of participants. This means that while the CCR is administered to peers, it may benefit a large number and many stakeholders.

A population-approach also includes peers who may have a shift in attitude which has a knock-on effect for CWS as peers may interact more positively and may be less likely to tease and bully. In doing so, the CCR draws upon the attitudinal literature, described previously, in several ways. Firstly, peer attitude and perceptions are targeted under the premise that attitude is the precursor to behaviour change (Foster, 2006). Secondly, the CCR is underpinned by the principle that attitude is learned – learning is a continuous process and therefore can be changed (Foster, 2006). The CCR is additionally fortified by the fact that recurrent positive experiences and learning, using rational theory (Scott, 2000), may result in a positive shift in treatment effect. And, thirdly, the CCR targets affective, cognitive and behavioural components which are found to be central to interventions that address social and emotional learning (Blank et al., 2009; Durlak et al., 2011).

The CCR is also appropriate across quintiles, showing a population focus across the Western Cape, with teachers as interventionist partners. The use of a population-based focus also aims to benefit teachers by providing them with a supported intervention to use. This emphasised the importance of teacher collaboration, also emphasised previously. The teacher is repeatedly positioned as a collaborative partner to the CCR in this study, on the basis that partnerships between teachers and SLTs may facilitate classroom-based intervention by drawing upon the expertise of both professionals. Collaborations and partnerships with teachers, using a population approach, also means that the CCR may be more accessible.

It is important to note that because of SLT service delivery challenges in South Africa, this population-based approach shows the need for the scarce resource (SLTs) in schools. It also shows that this approach may be an effective way of addressing the service delivery challenges using limited SLT resources.

Its innovative nature, whereby peers are meant to be active participants in the CCR – social story, role-play and discussion – also adhered to the framework to improve service delivery (Pillay & Kathard, 2018). Lastly, the framework is adhered to as the CCR is communication centred by providing opportunity for teachers and peers to engage in communication-based activities using the intervention to grapple with topics related to stuttering, communication, teasing, and bullying.

The key message here is that findings are contextually shaped by a set of realities and there is therefore a need for the researcher to describe the context. For example, realities of classrooms are critical especially when they vary vastly across quintiles. The implementation of the CCR would therefore depend on several factors and the key to implementation may be collaboration of teachers with SLTs.

Another positive aspect to this study, given all its contextual complexities, was that the CCR was a supported (by SLTs) intervention. This means that while teachers were trained to use the CCR in a particular manner, each teacher would still administer it slightly differently because of their individual teaching style which may create more sustainability and long-term capacity building of teachers and SLTs. This would not bias this study because uniform teacher training was conducted and classroom observations were made to ensure that the CCR was administered homogeneously across the study.

5.10. The claim of positivism – knowledge/context debate

As a researcher reflecting on this study, issues of knowledge and context with paradigmatic assumptions are questioned and explored. Having completed this cluster RCT, the researcher's questions and personal discomforts continue, despite the learning that has occurred. For example, the researcher questions how stuttering interventions can be more encompassing of communication given the calls for holistic and robust intervention in terms of

intervention targets and methodological considerations. The researcher does so by questioning paradigmatic underpinnings of the profession, RCTs and this study.

Paradigms, philosophical assumptions (i.e. recognized set of values and belief systems) guiding research (Aliyu, Bello, Kasim, & Martin, 2014; Bonell, Moore, Warren, & Moore, 2018; Bunniss & Kelly, 2010; Guba & Lincoln, 1994; Krauss, 2005) are recommended as important to acknowledge and explore prior to data collection. It is recommended as it defines the topic of study, the selection and study of aims and objectives (the what and how of the study), and interpretation of findings (Aliyu et al., 2014; Bonell et al., 2018; Bunniss & Kelly, 2010; Guba & Lincoln, 1994; Krauss, 2005). Research paradigms underpinning a study are important because ontological, epistemological and methodological frameworks would have shaped the selection of the research aims and strategies of this study (Aliyu et al., 2014; Bonell et al., 2018; Bunniss & Kelly, 2010; Guba & Lincoln, 1994; Krauss, 2005).

Given that an RCT was conducted, this study inevitably drew on positivist paradigmatic assumptions (Bonell, Fletcher, Morton, Lorenc, & Moore, 2012; Bonell et al., 2018). Usually, within RCT, assumptions are positivist. However, as a researcher producing knowledge, the assumptions made through ontology, epistemology and methodology are reflected on. These reflections have deepened the researcher's understanding of where this study is located. By making the paradigmatic assumptions of the RCT explicit, the researcher is questioning how such a paradigm can both enable and constrain research when interventions in the domain of communication – a complex phenomenon – is considered.

While paradigms are not typically discussed in RCTs, the philosophies underpinning a positivist research paradigm were important because they guided the nature in which this study explored its scientific knowledge (Bonell et al., 2012; Bonell et al., 2018). The RCT was positioned within a positivist paradigm because it is typically the preferred paradigm within

quantitative healthcare research (Bonell et al., 2018; Botma et al., 2016; Bunniss & Kelly, 2010; Golafshani, 2003; Krauss, 2005). It is preferred because of its emphasis on observable facts and ability to quantify, measure, control, describe and predict phenomena (Bonell et al., 2018; Botma et al., 2016; Bunniss & Kelly, 2010; Golafshani, 2003; Krauss, 2005).

Ontology, epistemology and methodology are described below, based on positivism. Ontology refers to the reality and characteristics of what is being studied by examining the nature of reality and human beings (Bonell et al., 2018; Botma et al., 2016; Bunniss & Kelly, 2010; Guba & Lincoln, 1994; Krauss, 2005). In the area of school-aged stuttering intervention, the nature of the reality is that CWS report teasing and bullying and negative peer attitudes and perceptions as their biggest concern and barrier to living with a stutter (Farelo et al., 2015). The RCT used these concerns reported by CWS and situated the related literature by conducting a series of studies (Badroodien, 2015; Badroodien et al., 2011; De Freitas et al., 2012; De Grass et al., 2010; Filies et al., 2009; Frieslaar et al., 2013; Kathard et al., 2014; Mallick et al., 2018; Walters, 2015) as the objective truth regarding the reality of CWS. And so, reality, truth and scientific methods are the parameters of positivism.

Within positivism, a "universal" reality would be led based on its paradigmatic assumptions. Findings would be generalised without being context or time bound because of their parameters of rational, external factors that shape their nature of human beings (Bonell et al., 2018; Botma et al., 2016; Bunniss & Kelly, 2010; Guba & Lincoln, 1994; Krauss, 2005). However, the researcher alerts readers to the fact that the "truth" cannot be "universal" because it is influenced by context. In fact, this study emphasises the important of context, especially when adapting interventions to different environments.

Epistemology refers to the nature of knowledge, the role of theory, theory building and testing, the role of the researcher, research findings as true, and of common sense (Bonell et

al., 2018; Botma et al., 2016; Bunniss & Kelly, 2010; Guba & Lincoln, 1994; Krauss, 2005). For example, if the researcher examines the nature of the knowledge, a positivist paradigm recommends that it be described systematically by examining laws and facts that can be verified through hypothesis testing as a means of observing knowledge (Bonell et al., 2018; Botma et al., 2016; Bunniss & Kelly, 2010; Guba & Lincoln, 1994; Krauss, 2005). Thereby the knowledge generated is seen as probabilistic, certain and accurate (Botma et al., 2016; Guba & Lincoln, 1994). This RCT adhered to this epistemological assumption by conducting a scoping review and literature review to show the school-aged stuttering and teasing and bullying interventions that have been studied and to situate this study within the literature. The role of the theory was used to describe causal relationships within the literature, scoping review and trial results of this study, an important aspect of examining the role of theory (Bonell et al., 2018; Botma et al., 2016).

However, there are limitations to this too and the researcher questioned how contextualised literature is. The study's findings and the researcher's personal learning were also questioned to see if they could guide how this RCT can add to EBP within the field of stuttering interventions for CWS through testing a hypothesis without making assumptions devoid of context.

Theory building and testing builds upon the role of theory in this RCT. For example, this study aimed to prove a theory of using stuttering interventions by observing peer attitudes to reject or confirm the hypothesis of this study. An important factor that fits within positivism and RCTs is that the theories are tested within controlled settings so that the findings can be reported on empirically (Botma et al., 2016). The role of the researcher within epistemology differs from ontology in that here it is concerned with how the researcher describes, predicts and controls phenomena using science and reality (Bonell et al., 2018; Botma et al., 2016; Guba & Lincoln, 1994). In this paradigm, the researcher is seen as a vehicle for this study and it is

predicted that if the findings were measured and observed using stringent methods – RCT in this study – and can be replicated the research findings may be considered true (Botma et al., 2016; Guba & Lincoln, 1994). There is therefore no role for common sense or interpretation because of the use of deductive reasoning as guided by the research findings (Botma et al., 2016). Hence, the consideration of the qualitative interview findings to provide the input of the teacher to expand the researcher paradigmatic influence.

Methodology is another key aspect to positivism where it is defined as the procedures that need to be followed to acquire knowledge through research (Botma et al., 2016; Guba & Lincoln, 1994; Tuli, 2010). The methodology of this study was strictly guided by RCT methodology and the CONSORT statement. The methodology adhered to this paradigm by ensuring the quantification of results (Botma et al., 2016; Guba & Lincoln, 1994; Tuli, 2010). Again, the role as researcher was viewed as separate to the research whereby the researcher was objective and independent from the participants of this study because the researcher was expected to control the study (Botma et al., 2016). In this RCT, research assistants were used to ensure that this was upheld.

The knowledge-constitutive interest of positivism, proposed by Habermas (Pusey, 1984), is technical. This aligns with RCTs because of the focus on controlling and manipulating the environment, using empirical laws that guide rule following, its ability to predict, and the emphasis on using an instrument to judge effectiveness and efficacy (Pillay, Kathard & Samuel, 1997).

For this study, it would have been useful to use more interpretive and paradigm-shifting elements, but there are limitations of the study given its strict methodology and focus on treatment effect measurements. This fact was illustrated by the feasibility study that preceded this RCT. Additionally, the researcher experienced discomfort and resistance to conducting

interviews as it did not align with the paradigmatic assumptions of positivism and the methodology of RCT.

Despite the discomfort about including a qualitative aspect to this study, and even though only preliminary analysis of the sub-study was used, it was invaluable to this study. In fact, the qualitative findings of interviews assisted with adding meaning to the quantification of the RCT. It complimented the findings of the cluster RCT by providing contextual relevance and contributing to the meaningfulness of this study and, so, its clinical importance.

The struggle is with the subjective perspective of interventions, which is known to be important even in EBP, but not always considered in our interventions because of the paradigm and methodology being used. Research should interrogate what success of interventions are based on beyond that of quantified measures (Simpson & Freeman, 2004). For example, in this study no statistically significant results were noted, yet teachers reported that the learners had exhibited some changes in how they approached their peers. And so, it is important to ask what qualitative data does to add to this and general studies. It adds important information about the perceptions of treatment effect changes, and of the interventions being studied. It can even provide insight into the critical pedagogy of the content and process of health promotion in schools through subjective and qualitative perspectives used to guide teacher approaches (Simpson & Freeman, 2004).

This study also shows a potential shift in the emphasis of what is studied as well as how this study looked at attitudes within the realm of fluency – instead of solely focusing on speech fluency and behaviour components of SLT. Furthermore, it allowed the researcher an understanding of the importance of context.

5.11. Concluding comments

Overall, this study showed that testing an intervention using stringent methodologies is possible and that its findings may guide further research. It is also important to note that an RCT is one methodology selected and offered in this thesis. Perhaps other methodologies can be explored to supplement the findings of this study. For example, more in-depth analysis of the sub-study of this thesis, whereby teachers were interviewed about their views and perceptions of the CCR following this study, may collectively guide EBP and the direction of future research. Furthermore, this study showed that population-based approach across diverse school quintiles is possible. Additionally, the CCR is potentially effective as a population-focused intervention using a classroom-based approach. It is also contributing to the SLT profession by offering an alternative population-focus intervention with teachers as the interventionists – contributing to the available SLT intervention options. Furthermore, the CCR meets the communication criteria by addressing teasing and bullying, using stuttering, communication, acceptance, diversity, difference and attitudes. This is a favourable outcome in the area of clinical significance as it answers the international and South African call for SLTs to assist teachers with managing communication, stuttering and teasing and bullying in the classroom, alongside school campaigns. The importance of context is emphasised throughout as an issue to consider when using stringent methodologies such as RCTs.

5.12. Limitations

Critical reflections by the researcher are important as they may add value to the findings of this study, especially when considering limitations and implications of a study. One of the key limitations to this study was the use of a single-outcomes measure. Despite the SROM being a validated outcomes measure (Walters, 2015) it was used at baseline and 6 months post-intervention. Furthermore, its use as a stuttering-outcomes measure was potentially limiting when taking into account that teachers viewed the CCR as a communication and teasing and

bullying resource that used stuttering and communication as examples. This means that perhaps the true effects of the CCR might have been limited by the SROM; an additional outcomes measure may be appropriate or the SROM could be modified to include broader questions around teasing and bullying within the constructs of PSD, SP and VI.

Additionally, while this RCT was stringent and ensured its scientific rigour to draw conclusions (Botma et al., 2016; Pocock, 2006), several challenges were noted. This may be linked to the paradigmatic framework of positivism as well. In terms of methodology, the use of such a strict and standardised methodology given the complexity of topics covered in the CCR (stuttering, communication, teasing, bullying) as well as school-based research should be considered. For example, this study was dependent on how teachers administered the CCR which had the ability to influence the findings of the study. While randomisation and uniform basic teacher training occurred to minimise these effects, the teachers' skills and relationships with the learners would inevitably vary across teachers. Teachers largely administered the CCR in a uniform manner because of the stipulations of RCT, while teachers proposed valuable recommendations and reflections on how to improve administration and implementation procedures. Additionally, this study hinged on teachers administering the CCR. In the social process of teachers volunteering, RCT did not allow the researcher the scope to request particular teachers based on classroom observations. This meant that the adherence to RCT specifications were socially limiting at times, despite the great need for teachers and the researcher to develop and foster a relationship. A relationship is important because of the emphasis of collaborative partnerships in this chapter. In this study, the teacher was trained and administered the CCR. This may also be possible when implementing the CCR outside of a study, either initiated by the teacher or SLT. This is not to say that it was impossible to engage with teachers. It is merely stated as a concern around flexibility in research because of the context of school-based research.

5.13. Recommendations

There are several recommendations that may be explored for future study. As stated in the results paper, another RCT may be conducted to replicate its findings to guide policy when collaborating with the WCED (also referred to as the Basic Education Department). It would be useful when replicating this study to collect information regarding teacher attitudes and perceptions towards CWS, as well as teaching experience prior to the administration of the CCR. This study should be further considered alongside the qualitative sub-study exploring teacher perceptions of the CCR. An exploration of learner perceptions is also recommended. Given the limitations of this study, adaptations to RCT is recommended to suit the needs of subsets of participants and replicating this study with control groups using a cross-over design. Other methodologies are also recommended to explore interventions such as observational studies where the researcher observes how teachers would use the intervention and compare its findings to this study. Perhaps a pragmatic trial should also be considered as it has gained traction in the literature due to its ability to compare two or more interventions with a focus on real-world applicability (Ware & Hamel, 2011). A pragmatic trial would additionally evaluate the CCR within everyday and routine practice (MacPherson, 2004) for SLTs and teachers. Mixed-method designs could also be considered to include both qualitative and quantitative approaches such as post trial interviews.

Interviews with control group teachers about the CCR, SROM and research process is recommended. Additionally, interviews with intervention participants would also be useful to explore and describe peer perceptions and thoughts of the CCR and SROM. This was challenging to explore in this study because of the time constraints and demands of the research on schools. Focus groups of peer participants would also be insightful and are therefore recommended. Additionally, more than one outcomes measure should be considered in future such as interviews, observations, questionnaires etc.

Recommendations to the CCR itself are guided by the teachers, such as using the CCR over a prolonged period within many classroom lessons. Another key recommendation by teachers was the inclusion of the CCR as a curriculum imbedded approach. In terms of the SROM, more general communication, teasing and bullying-related items could be included.

5.14. Implications

Implications are described in terms of research, clinical practice and policy.

5.14.1. Research.

Firstly, the CCR offers one way of intervening with teasing and bullying through peer attitudes with a positive shift in treatment effect. While it may not be statistically significant, the CCR is useful as a first layer of study using an RCT and may be modified accordingly given the findings of this study. Secondly, the finding that quintiles behaved similarly signalled that the CCR intervention may be useful for both quintiles in future research planning as well as possibly guiding future teasing and bullying-related school policy.

The RCT methodology was useful as it showed that:

1. large group designs are feasible
2. group designs were possible.

The design element provides an opportunity to test interventions in larger groups, as completed in this study. With group designs, it showed that school randomisation is possible while individual randomisation is not possible as there can be cross-contamination of participants within the same school. However, since this study used a classroom-based and cluster focus, the inability to complete individual participant randomisation did not hinder the rigour of this study in any way. The use of a cluster RCT also showed that it is possible to study more population-oriented interventions, in light of SLT service delivery issues.

Another instrumental finding of this study is that while there are not many studies of classroom-based interventions, this study revealed that it is possible to measure the individual learner but administer population-based intervention using clusters. And so, issues of methodology are important to this study.

Additionally, as a novice researcher who has conducted this RCT, it was found that conducting RCTs are expensive and time-consuming. It was time-consuming for schools and the researcher due to the large sample size, logistics and administration. It was also a large-scale study that is not commonly used by SLTs. It was felt that the strict RCT guidelines took away some of the spontaneous intervention strategies that teachers may have naturally implemented in addition to the CCR intervention had they been given the freedom to do so.

However, with that said, it is felt that this RCT was valuable in terms of providing valuable information about the CCR, use of classroom-based intervention, the researcher's learning and direction for the next layer of research that may take place using the CCR. It has therefore signalled that perhaps the methodology is challenging to explore interventions for complex conditions such as stuttering as the use of several outcomes measures cannot be implemented. As highlighted in this paper, this thesis explored one aspect of the ICF within the domain of environmental factors. These factors aim to highlight the challenges experienced by the SLT profession and that this might be a contributing factor to the limited stuttering interventions studies noted in the literature.

This study also shows that school-based research is possible, despite the numerous challenges noted in this field of research. Additionally, it shows the need to contextualise research and its interventions. This study also showed that it was useful to study peer attitudes in group settings, more specifically within the classroom (and subsequently social group). The study of cluster methodologies is useful to SLT in clinical practice when classroom-based work is completed.

Because clusters allow group study, more opportunity to study clusters and consequently apply its findings are useful.

5.14.2. Clinical practice.

This thesis encourages the idea of stuttering and extends beyond the symptomatic elements to being viewed more broadly in terms of its impact on communication and willingness of CWS to communicate. Thus, challenging the view of stuttering being viewed within a medical model and subsequently narrowly as simply a fluency disorder. Additionally, this study shows that collaborative partnerships are useful and possible between teachers and SLTs whereby they can work within structures and systems of school and research. The CCR also offers an opportunity to illustrate one method of collaboration with teachers, different to that of the traditional pull-out model of practice. Instead the use of the CCR shows the importance of viewing the teacher as the interventionist, and not the SLT, within a collaborative partnership. Furthermore, no harm was reported through the study series and so, while statistical significance was noted, the use of the CCR would not be harmful. Also, while it may be useful for teachers to be supported by SLTs, teachers were able to use the CCR on their own and this reflects its design.

5.13.3. Policy implications.

School policy implications – related to curriculum approaches and teasing and bullying campaigns – are explored. This study's finding showed that quintiles behaved similarly which poses the question of whether the CCR may be used as a curriculum-imbedded intervention. It should be considered within curricula, as per teacher recommendations in future planning of the CCR. This study could also contribute to school policy around teasing and bullying by providing findings of using a classroom-based approach. Policies that could be considered for the CCR to contribute to include the National Policy for the provision and management of

learning and teaching support material, child and adolescent mental health policy (South African Department of Basic Education, 2018).

In terms of SLT education, this study could guide curriculum in terms of the current pull-out model of training and examine more closely the training needed for how classroom-based teasing and bullying stuttering interventions are approached. Additionally, teacher training, collaboration and the skills to do so, as a complimentary approach to the pull-out model, could have curriculum implications for SLTs.

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Appendices

Appendix A: The Classroom Communication Resource (CCR) intervention

Introduction for teachers

What causes stuttering?

Stuttering can be influenced by genetics and often run in families. Stuttering is the result of interaction between physical composition and the environment. A child will not begin to stutter by copying someone that stutters.

It usually begins in the time that children develop most of their language (age 2 – 5 years). In most cases more boys are affected than girls. Stuttering can often become more severe if the child is excited or nervous.

What does stuttering sound like?

Stuttering can present in different ways. Not all of these behaviours need to be present for a child to be diagnoses with stuttering.

- Repeating whole words: “The the the”
- Repeating parts of words: “mo- mo- mommy”
- Prolonging sounds: “nnnnno”
- Silent blocks: getting stuck on a word or not getting the word out

What can I do as a teacher?

As a teacher there are guidelines you can follow when interacting with the child. Some of the following behaviours are often observed.

- Avoid reacting to the child’s stuttering in a negative way, e.g. “Stop stuttering” or “Try to say that properly”.

- Try not to give advice about how not to stutter, e.g. “First think about what you want to say before you speak.” Or “Take a breath before you start again.”
- Limit any negative body language when the child stutters, e.g. frowning or looking away.
- Try not to ignore the child’s difficulty, e.g. pretending that it is not happening when he expressed difficulty.

Suggestions:

- Listen to the child and give them enough time to communicate their ideas.
- Be patient and reflect an attitude of acceptance for their difficulties.
- Try not to draw attention to how the child speaks as we want them to feel that it is easy to speak.
- Children become more anxious if they pick up on negative body language. Try to look at the leaner patiently as they are communicating with you.
- If the child expresses concern about their difficulty it is best to communicate acceptance

Guidelines to Teacher on how to use the CCR intervention

Please do not do any other activities once we have left the room to educate the learners about stuttering, diversity or difference because we won’t know if it was our resource or your other activity that changed the children’s attitudes.

If the learners ask questions once we are gone, it would be best if you give as brief an answer as possible and get them to write the question down. When we come back next week we can follow that question through with the learners.

Three years ago, a Classroom Communication Resource (or the CCR intervention) was developed by a group of UCT students for the South African context. It was designed to change attitudes of children towards other learners who stutter and to be more tolerant of

communication diversity. We are currently doing a study to see how effective the CCR is in the hope that it will be widely distributed and beneficial to many teachers and learners.

We would like you to familiarise yourself with the resource before our next visit, just to read through it. Because this is a study, we would appreciate if you could administer the resource as it is and not make any changes. However, when you use it again in the future you are more than welcome to adapt it and change as you see fit.

There are three parts to the resource. The first is a social story. For this part, you must have the learners seated and read the story out loud to them. Allow children to do role play and others to watch.

The instructions for the last part, which is a brainstorming session and a discussion, are clearly outlined in the resource. It would be best for our results if you could stick as closely possible to these guidelines. If the discussion happens to go off track, you should try to bring it back to the outline.

Please only do the resource when we are here to observe. After that we will be doing the questionnaire again.

Social Story: The Band of Differents

"Attention, School: a talent competition will be held next Friday," announced Mrs Smart, the school principal. "Anybody is welcome to perform, so all interested learners please sign up soon." This was the announcement that led to the success of the Band of Differents.

What is this Band of Differents, you ask? Well, let us meet the band: Thabo plays the tambourine, Lilly plays bass guitar. Rajesh plays the lead guitar. Little Thandi controls the drums and Marsha rocks the keyboard.

Thabo, also known as "Tubs", leads the band. He founded the group a year or two ago while on a school outing. It was the yearly hike and two hours into the hike, this particular group of people found themselves in a bit of a pickle… they were lost on the mountain. Bored, concerned and hungry, music-making became their comfort and joy. That unexpected day on the mountain changed the course of their lives. From that day on, music was the force that drew them together. Ever since then, they meet at Thabo's house for band practice every weekend.

Tubs is the outgoing and charming band leader, who loves to snack on junk food and show off his afro hairstyle. This does not help his chubby figure, but this certainly helps him jiggle along to the ting of the tambourine.

Lilly is the quiet, shy character that comes from a wealthy family. She is always dressed in the most fashionable clothes on casual days at school. Lilly's passion is playing the guitar but her parents do not support her in this because they want her to focus only on her school work. When Lilly is with the band, she feels she can be herself.

On the outside, Little Thandi appears to be skinny, small and seems insignificant to others. But when given half the chance, her feisty, no-nonsense attitude shines through. This determination makes her the best player on the netball court.

Rajesh is the “genius” child with shaggy dark hair. He is a bit of a daydreamer because school does not interest him. He prefers to spend his days playing chess and watching documentaries on ‘National Geographic’.

Marsha is the ‘mommy’ of the group. She is the mediator and has a knack for resolving arguments within the group. She loves singing, but she cannot keep a tune. She tends to break into song at any time during practise, disrupting the band’s flow. But no one else can play the keyboard like Marsha can. However, something is missing in the band.

After hearing the school announcement that afternoon, everybody rushed out of class talking about the upcoming event. Even though the band was very excited about the concert, they were in a bit of a dilemma. The band was still incomplete so they couldn’t enter the concert yet.

They had previously held auditions to fill this missing gap but nobody had that special something to add to their unique sound.

While walking home from school they heard a funky melody.

“Where is it coming from?” someone shouted. “It’s coming from the trees,” answered Rajesh.

“Look, its Peter, the one who talks funny.”

Peter was the quiet student in the class, who always got on with his work and got good marks. Most of the time he chose to keep to himself.

That afternoon, Peter decided to climb up his favourite tree, the one with the view of the sea in the distance. Peter would sit in this tree and daydream and sing all day long. It was a place where he could forget all his troubles.

“Wow, Peter, that’s an awesome sound you got there. Come down”, said Tubs.

He unwillingly climbed down from the tree and stood uncomfortably in front of the group.

“We didn’t know that you could sing so well…” said Lilly. “Why didn’t you try out for our band?”

“Well guys, it’s obvious - it’s because he talks llllikethththis – he is a stutterer,” said Thandi.

“Jjjjjusttt because I stutter doesn’t mean I have no other talents”, replied Peter while he began to walk away.

Then Marsha piped up: “Hold on guys, my brother also stutters but that hasn’t stopped him from being good at sport and having lots of friends – it’s not a big deal. He doesn’t allow his stutter to stop him from doing what he wants to do.”

“Yes, that’s true. He even helped me do a presentation on the new environmental society that I am starting up at school,” said Rajesh.

“We all have things we can and cannot do well. Like you, Thandi. You are a good netball player and Rajesh is good at chess. But you would not be any good at chess, and Rajesh would not be any good at playing netball,” explained Marsha. “And Peter may be better at singing than he is at talking. I think Peter would be great for our band. How about we ask him to join?”

“I do not think so. I do not think he would be good enough to be in our band,” Thandi added.

“I think he would be perfect! And his voice is just what we need to complete our band,” said Lilly. “Then we can enter the talent concert!”

The group called him to come back and they asked him to join their band. Peter was surprised that they would ask him to join. He had always struggled with his speech and this had stopped him from making friends and talking to people. He therefore keeps to himself and tries to avoid talking in class.

Peter was unsure about whether he wanted to join the band, but realised that this was a chance to make some friends and he could show people that just because he stutters, it does not mean that he cannot sing.

A week later, after long hours of practise, the band was ready to take part in the talent concert.

It was finally the night of the concert. As they walked on stage to set up, the band heard whispers coming from the crowd.

“Why is Peter up there?”

“He‘s the boy who talks funny.”

Peter and the band could hear the comments in the background. But they continued to set up the stage. They waited for Thandi to give the drum count to start the first song, but there was no sound. Thandi sat there; not moving. She felt like her body had frozen; she feared the crowd of people before her waiting for her to perform under the blinding lights of the stage. The band did not know that she suffered from stage fright, as they had never performed on stage in front of an audience before. She could hear the band members shouting at her to start playing:

“Thandi! What are you doing? We are ready to start!”

“Thandi, hit the drums!”

“We cannot start without you!”

Just as she was about to run off the stage, Peter began to sing. The first lines of the song echoed throughout the school hall. The people sat silently; amazed. The rest of the band blended in with their instruments and soon enough, Thandi was drumming along too.

The teachers and pupils who knew Peter could not believe that the boy who stutters was the one who could sing so beautifully.

After the competition, the band huddled together in excitement backstage.

“Peter, if you had not started singing, we probably would not have played at all!” Tubs said while munching down on his chocolate bar.

Marsha noticed that Thandi was unusually quiet and withdrawn. Before Marsha had a chance to reassure her, Peter was already by her side.

“I do not know what happened tonight. I have never felt so scared before,” said Thandi.

“But Ttttthandi, in the end, you managed to play and gave a great performance,” said Peter.

“We all have something that we are afraid of. For me; it’ssssss talking, and for you; it’s being on stage in front of an audience,” Peter added.

“But Thandi, you are always so tough, and nothing ever seems to get you down,” Rajesh commented.

“But guys, just because someone seems tough, it does not mean that they cannot ever feel scared” Lilly added.

Peter continued: “You tttttook the first step to overcoming your fear by playing those drums tttttonight and not walking off the stage. For me, being part of your group was difficult because I am a sstttutterer – I had to face my fear of speaking to other people.

By changing our own negative feelings and reactions toward other people, it opens our eyes to the fact that these differences are actually what make us unique. In the end, this is what gives us character”.

“Ok guys, enough talk… I say we celebrate over a round of milkshakes. That performance really took it out of me… I’m starving” said Tubs.

“But hold on a minute! The new National Geographic documentary starts in the next ten minutes.” shouted Rajesh.

“RAJEEEESH!” they all shouted.

THE END

Role-play: The Band of Differents

Characters: Narrator 1 and Narrator 2, Mrs Smart, Tubs, Lilly, Rajesh, Peter, Thandi and Marsha.

Extras: 3 people in crowd at the talent concert.

Mrs. Smart: Attention School! A talent competition will be held next Friday. Anybody is welcome to perform so all interested learners please sign up soon.

Narrator 1: After hearing the school announcement that afternoon, everybody rushed out of the class talking about the upcoming event. Even though the band was very excited about the concert, they still had a bit of a problem…the band was still incomplete so they couldn't enter the concert yet.

They had previously held auditions to fill this missing gap but nobody had that special something to add to their unique sound.

While walking home from school they heard a funky melody.

Band members (Rajesh, Tubs, Thandi, Lilly and Marsha): Where is it coming from?

Rajesh: It's coming from the trees!

Thandi: Look, its Peter, the one who talks funny.

Narrator 2: Peter was the quite student in the class, who always got on with his work and got good marks. Most of the time he chose to keep to himself.

That afternoon, Peter decided to climb up his favourite tree, the one with the view of the sea in the distance. Peter would sit in this tree and daydream and sing all day long. It was a place where he could forget all his troubles.

Tubs: Wow Peter, that's an awesome sound you got there. Come down!

Narrator 1: He slowly climbed down from the tree and stood uncomfortably in front of the group.

Lilly: We didn't know that you could sing so well. Why didn't you try out for our band?

Thandi: Well guys, it's obvious…it's because he talks llllikethththis – he's a stutterer.

Peter: Jjjjjust because I stutter it doesn't mean that I don't have other talents!

Narrator 1: Peter began to walk away.

Marsha: Hold on guys, my brother also stutters but that hasn't stopped him from being good at sport and having lots of friends – it's not a big deal. He doesn't allow his stutter to stop him from doing what he wants to do.

Rajesh: That's true. He even helped me do a presentation on the new environmental society that I am starting up at school.

Marsha: We all have things we can and cannot do well. Like you, Thandi. You are a good netball player and Rajesh is good at chess. But you would not be any good at chess, and Rajesh would not be any good at playing netball. And Peter may be better at singing than he is at talking. I think Peter would be great for our band. How about we ask him to join?

Thandi: I do not think so. I do not think he would be good enough to be in our band.

Lilly: He would be perfect! His voice is just what we need to complete our band. Then we can enter the talent concert!

Narrator 2: The group called him to come back and they asked him to join their band. Peter was surprised that they would ask him to join. He had always struggled with his

speech and this has stopped him from making friends and talking to people. He therefore keeps to himself and tries to avoid talking in class.

Narrator 1: Peter was unsure about whether he wanted to join the band, but realised that this was a chance to make some friends and he could show people that just because he stutters, it does not mean that he cannot sing.

A week later, after long hours of practice and lots of hard work, the band was ready to take part in the talent concert.

It was finally the night of the concert. As they walked on stage to set up, the band heard whispers coming from the crowd.

Person 1 from crowd: Why is Peter up there?

Person 2 from crowd: He's the boy who talks funny.

Narrator 2: Peter and the band can hear the comments in the background. But they continue to set up the stage. They wait for Thandi to give the drum count to start the first song, but there was no sound. Thandi sat there, without moving. She felt like her body had frozen. She feared the crowd of people before her waiting for her to perform under the blinding lights of the stage. The band did not know that she suffered from stage fright, as they had never performed on stage in front of an audience before. She could hear the band members shouting at her to start playing:

Tubs: Thandi! What are you doing? We are ready to start!

Rajesh: Thandi, hit the drums!

Lilly: We cannot start without you!

Narrator 1: Just as she is about to run off the stage, Peter begins to sing. The first lines of the song begin to echo throughout the school hall. The people sat silently; amazed. The rest of the band blended in with their instruments and soon enough, Thandi was drumming along too.

The teachers and pupils who knew Peter could not believe that the boy who stutters was the one who could sing so beautifully.

After the competition, the band huddled together in excitement backstage.

Tubs (while munching down on his chocolate bar): Peter, if you had not started

singing, we probably would not have played at all!

Narrator 2: Marsha noticed that Thandi was unusually quiet and withdrawn. Before Marsha had a chance to reassure her, Peter was already by her side.

Thandi: I do not know what happened tonight. I have never felt so terrified before.

Peter: But Ttttthandi, in the end, you managed to play and gave a great performance. We all have something that we are afraid of. For me, it'sssss talking, and for you, it's being on stage in front of an audience.

Rajesh: Thandi, you are always so tough, and nothing ever seems to get you down.

Lilly: Guys, just because someone seems tough, it does not mean that they cannot ever feel scared.

Peter: You ttttook the first step to overcoming your fear by playing those drums tonight and not walking off the stage. For me, being part of your group was difficult because I am a sttttutterer – I had to face my fear of speaking to other people.

Narrator 1: By changing our own negative feelings and reactions toward other people, it opens our eyes to the fact that these differences are actually what make us unique. In the end, this is what gives us character.

Tubs: Guys, enough talk already… I say we celebrate over a round of milkshakes. That performance really took it out of me… I'm starving.

Rajesh: But hold on a minute! The new National Geographic documentary starts in the next ten minutes.

All band members (Tubs, Thandi, Lilly, Marsha and Peter): RAJEEESH!

THE END OF ROLE-PLAY

Discussion

Class Activity

Brainstorm around the theme of communication:

1. What does communication mean? (Includes talking to people, understanding what other people say and expressing your ideas and feelings).

2. What communication difficulties can people have? (E.g. hearing loss, cleft lip and palate, lisp, reading and writing problems)

3. Which character in the story had a communication difficulty?

4. What was this difficulty?

Activity 1: "In Peter's Shoes"

Goal: To encourage positive feelings and to explore negative attitudes toward differences amongst peers in the classroom.

(Focus mainly on communication and communication difficulties, and then on general differences among people)

Method:

First, the teacher will lead the class in a discussion about general differences among people (for example, differences in personality and appearance)

Then, the class will brainstorm what they may be teased about in class (for example, being very tall/short, being sporty / artistic, or being studious / lazy)

The class will brainstorm how they would feel if they were a person who stuttered (had a communication difficulty) and how people might react to them

Then, brainstorm the different reactions that Peter could have shown toward the teasing comments (both negative and positive)

Appendix B: Stuttering Resource Outcomes Measure (SROM)

Positive Social Distance (*PSD*), *Social Pressure (SP)*, and *Verbal Interaction (VI)* are the three psychometrically-approved constructs evaluated by the SROM that represent attitudes (Langevin et al., 2009).

Items of the SROM According to Subscales

Item No.	Item	Subscale PSD	SP	VI
1.	I would like having a child who stutters live next door to me.	PSD		
5.	I would enjoy doing a class project with a child who stutters.	PSD		
7.	I would introduce a child who stutters to my friends.	PSD		
8.	I would be happy to have a child who stutters for a friend.	PSD		
10.	In class I would like to sit next to a child who stutters.	PSD		
12.	I would like a child who stutters to talk for my group in class.	PSD		
14.	I would let a child who stutters hang out with us.	PSD		
15.	I would enjoy being with a child who stutters.	PSD		
16.	I would be best friends with a child who stutters.	PSD		
18.	I would like having a child who stutters in my class.	PSD		
20.	I would spend time at break with a child who stutters.	PSD		
2.	I would avoid a child who stutters.		SP	

3.	Children who stutter are like normal children.	SP
4.	I would be ashamed to be seen with a child who stutters.	SP
6.	Children who stutter are weird.	SP
9.	I would not go to the shop with a child who stutters.	SP
11.	I would be frustrated listening to a child who stutters.	VI
13.	Listening to a child who stutters would annoy me.	VI
17.	I would be embarrassed to be with a child who stutters.	VI
19.	Children who stutter should not play games that involve talking.	VI

Note. PSD = Positive Social Distance. SP = Social Pressure. VI = Verbal Interaction

Stuttering Resource Outcomes Measure (SROM) Coded number: _____

Adapted from the PATCS- 36 scale (Langevin & Hagler, 2004).

School code: _____

Age: _____

Circle: Girl Boy

Class: _____

Do you know a person who stutters? (Circle) Yes / No

If yes, how do you know this person?

_____

Practice items:

Read each statement silently while I read it aloud. Then indicate how much you disagree or agree with the statement. There are five choices. Circle the choice that is **best for you**. There are no right or wrong answers.

1. I would eat earthworms.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

2. Bryan Habana is a great rugby player.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

3. I would enjoy playing soccer.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

4. I would not go to the movies.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

5. I would not play in the rain.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

6. I would not want a present.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

Read each statement silently while I read it aloud. Then indicate how much you disagree or agree with the statement. There are five choices. Circle the choice that is **best for you**. There are no right or wrong answers

1. I would like having a child who stutters live next door to me.

   Strongly Disagree Disagree Not Sure Agree Strongly Agree

2. I would avoid a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

3. Children who stutter are like normal children.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

4 I would be ashamed to be seen with a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

5. I would enjoy doing a class project with a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

6. Children who stutter are weird.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

7. I would introduce a child who stutters to my friends.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

8. I would be happy to have a child who stutters for a friend.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

9. I would not go to the shop with a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

10. In class I would like to sit next to a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

11. I would be frustrated listening to a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

12. I would like a child who stutters to talk for my group in class.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

13. Listening to a child who stutters would annoy me.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

14. I would let a child who stutters hang out with us.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

15. I would enjoy being with a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

16. I would be best friends with a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

17. I would be embarrassed to be with a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

18. I would like having a child who stutters in my class.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

19. Children who stutter should not play games that involve talking.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

20. I would spend time at break time with a child who stutters.

Strongly Disagree Disagree Not Sure Agree Strongly Agree

Appendix C:

Table 1: The Classroom Communication Resource (CCR) and outcomes measure study history

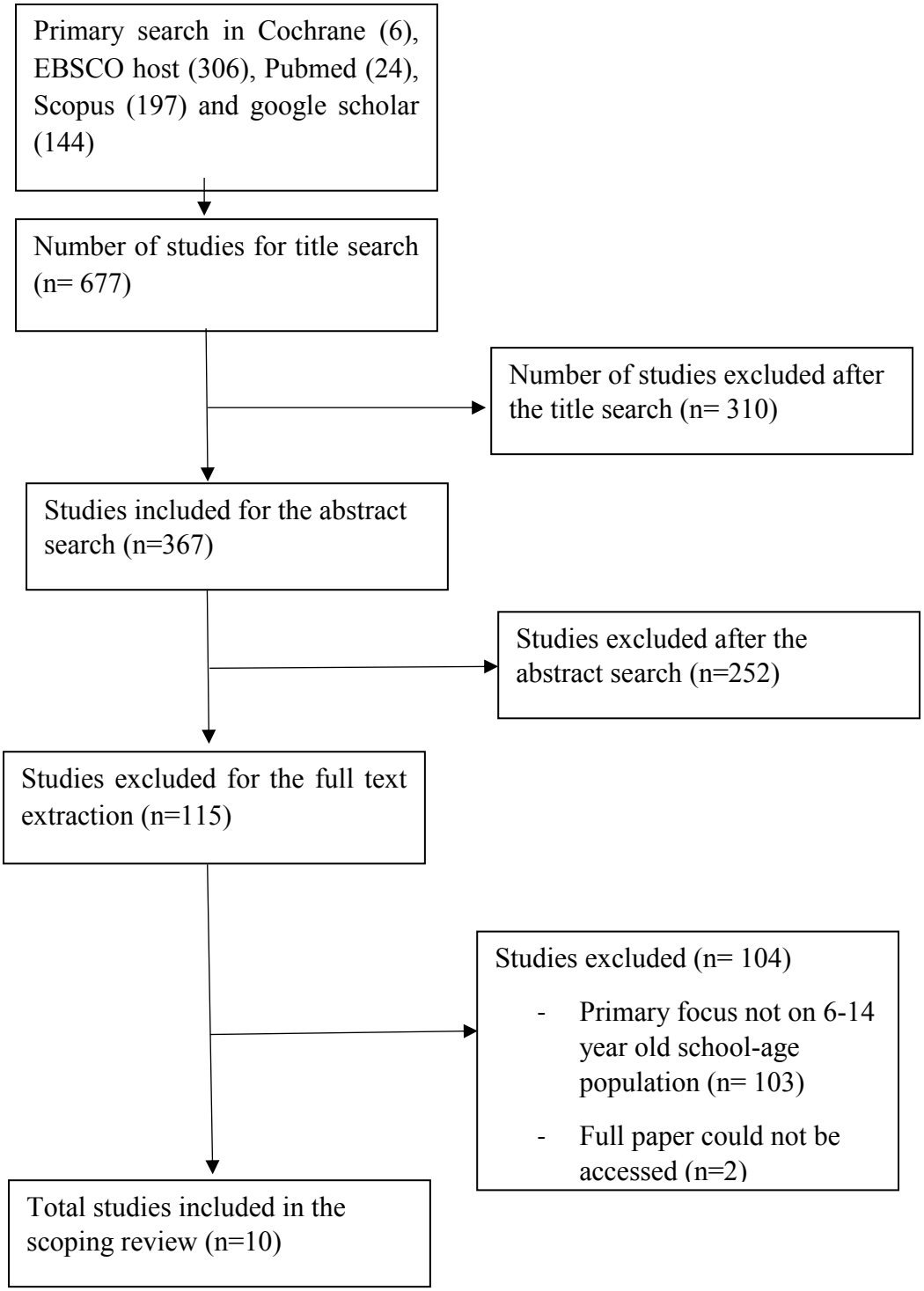
Author (year)	**CCR**	**Outcomes Measure**
Filies et al. (2009)	The CCR was studied in Grade 6 classrooms to determine teacher and peer responses towards the intervention – the CCR structure, presentation and perceived learning outcomes. The CCR was shortened and adapted to be more culturally appropriate and diverse. The CCR was found to be more suitable for Grade 7 peers.	A questionnaire about the CCR structure, presentation and learning outcomes was used as well as teacher interviews.
De Grass et al. (2010)	The CCR was tested in a small-scale study. The CCR was shortened and a teacher protocol was recommended.	An adapted Peer Attitude Towards Children who Stutter (PATCS) was used. A statistically significant shift from mildly positive to moderately positive attitudes was noted.
Badroodien et al. (2011)	The CCR was tested to determine its effectiveness overall, between genders and quintile (lower versus higher) schools. The CCR was	The Stuttering Resource Outcomes Measure (SROM) subscales are the same as the PATCS – PSD, VI and SP.

	modified and a teacher protocol was developed.	As such, the SROM was able to measure peer attitudes towards CWS within the domains of PSD, VI and SP. A cognitive debriefing session resulted in modifications to the PATCS. Statistically significant results were noted overall with no differences between genders. Higher quintile schools were more positive at baseline, while the lower quintile showed a greater shift in attitude after the CCR.
De Freitas et al. (2012)		
Frieslaar et al. (2013) Kathard et al. (2014)	The CCR was tested in lower quintile schools and explored gender differences and exposure to stuttering. A pilot and feasibility study was used.	The SROM was used at baseline and one-month post-intervention. It yielded a shift in attitudes at one month and showed no differences in attitude between gender. Peers with exposure to

		individuals who stutter were more positive at baseline and subsequently at one month post-intervention
Walters (2015)	The CCR was tested in lower quintile schools and explored gender differences and exposure to stuttering. A pilot and feasibility study was used.	The SROM was validated. The SROM was used at baseline and one month post-intervention which yielded a positive shift in attitudes. It showed that females were more positive. Peers with exposure to individuals who stutter were more positive at baseline and subsequently at one month post-intervention.
Badroodien (2015) (Mallick et al., 2018)	A pilot and RCT feasibility study was conducted to determine procedural aspects and attitudes were measured one and 6 months post-intervention. A RCT was found to be feasible and several recommendations were made to ensure a more robust large-scale study. The challenges of school-based research was also highlighted.	The SROM was used and found a positive shift in attitude at 6 months post-intervention. A statistically significant result was noted in the construct of VI.

Appendix D

Figure 2: Flow diagram for study selection



Appendix E: Addendum to results: Preliminary Analysis of Teacher Interviews of the Sub-study.

Introduction

Once the trial was complete, teacher interviews were conducted, as a sub-study, to describe the experiences and perceptions of teachers from both lower and higher quintiles who administered the CCR. A summary of views of the CCR are described using preliminary analysis. The preliminary analysis of the teacher interviews has been included here, to supplement the main trial results, and is being developed for publication. Teacher views, perceptions and experiences described in the area of administration process, components of the CCR (social story, role-play, discussion), discussions, topics, learning and any effects such as behaviour change that emerged after the intervention, recommended modifications to the CCR intervention and potential future use of the CCR intervention. Key findings from the interviews are as follows:

Overview

Stuttering was used as the case to illustrate discrimination based on communication. Stuttering as the specific instance of communication difference/disorder foregrounded the general issue of communication and its importance in everyday meaning-making. The focus on communication as a topic and process was valued by teachers. The use of communication as a central theme was favoured, especially given that some students display difficulty expressing themselves and so the CCR provided an opportunity to practice communicating with peers and teachers. Hence the CCR provided the opportunity to create awareness of the multiple dimensions of communication over and above the issue of stuttering. A teacher, reporting on the intervention, found the CCR useful for practicing and developing communication skills.

"I especially liked the discussion part because that's where you are really drawing out their ideas, their thoughts, how do they feel, [concepts of] acceptance and diversity and many of them still struggle to express themselves. They might have a very valid point that they want to make but they don't know how to. Again, it's the communication so that is nice in the sense that it is even, the exercise itself lends itself towards that, helping them to communicate effectively and express yourself correctly." - Teacher who administered the CCR at a higher quintile school.

The methodology used i.e. role play, discussion and storytelling provided opportunity for engagement between teachers and learners which assisted gaining deepening their understanding of communication and communication difficulties.

"*Now as a lesson, I would say that the way you (researcher) set it worked well because of the repetition. Because there was the story that was told and then the learners could then at that point, when we brought in the role-play, they knew where [and], what the story was about. They had an idea about the character that they had to assume [the role of]. I think [that] the learners enjoyed that (role-play). That worked well and of course because it touches on the theme of stuttering, they could then relate completely once the discussion started. And even with some of them, if they hadn't thought about interacting with learners that type of - I don't know if you call it "disability"? A "speech impediment" more like it? - a communication difficulty then they could relate and put themselves in that particular situation."* - Teacher who administered the CCR at a higher quintile school.

"And then because of the repetition and [the fact that] they're (the learners) exposed to that type of the thing (intervention), the process is more solidified, in terms of what you are trying to achieve - you are trying to make the learner aware of problems in communication, how can

we look at ways to solve that etc." - Teacher who administered the CCR at a higher quintile school.

Teachers viewed the CCR as a useful resource to mediate discussion and learning around topics of teasing and bullying, that are generally challenging to discuss.

"I found that most of them at first- the very first time that you were here - they thought that it was like a joke but it (CCR activities) actually made them, after we did the [CCR] activity, it (CCR activities) made them aware that it (stuttering, communication, teasing and bullying) is actually a real problem. I let them do a few things (activities) where I made them feel what it's like for someone who stutters. Yeah, I did a few activities with them (referring to the CCR) and I did a role-play where they had to be the person." - Teacher who administered the CCR at a higher quintile school.

As such, teachers felt that the CCR provided a valuable and concrete method as one method of engaging in discussions about teasing and bullying issues. Teacher noted the value in the CCR being included as a lesson and theme.

"Now as a lesson, I would say that the way you (researcher) set it worked well because of the repetition. Because there was the story that was told and then the learners could then at that point, when we brought in the role-play- they knew where [and], what the story was about. They had an idea about the character that they had to assume [the role of] that [character]. So, I think [that] the learners enjoyed that (role-play)."- Teacher who administered the CCR at a higher quintile school.

The repetition and progression within the CCR administration process viewed favourably. This was illustrated by the use of the social story that preceded the role-play which was useful to provide background to the role-play. Also, each aspect built on one another and so the CCR as a whole was relatable and made sense for the class. By bringing awareness to issues around

communication and teasing and bullying through a tangible discussion also allowed students to participate, think about it, sift through their feelings, attitudes and verbalise these thoughts. The story created awareness, while the role-play put students in the characters shoes and discussion allowed them to process their learning and try to navigate this learning with peers and teachers.

"The fact that it actually made them aware of things that they never actually thought of before. And that it's actually a lesson that they could carry with them into adulthood and with them because you never know if it's something that they will have to deal with when they are parents or [if] they will come across it in their careers. And so, on but it was, I think, a life lesson that they learnt." - Teacher who administered the CCR at a higher quintile school.

Overall, the inclusion of personal qualities such as empathy and respect as a key focus of the CCR within promoting acceptance, diversity and difference is an aspect which teachers enjoyed. Thus, there appeared to be a link between school values, curriculum and CCR in terms of values such as personal qualities. School values included respect, consideration and empathy, as illustrated in the classroom posters stipulating class rules, code of conduct and anti-bulling posters. The CCR was viewed as a support to these values and personal qualities as opposed to a rigid intervention consisting of a list of dos and don'ts.

"The story would be a good starting point to bring certain values home to the children. Not only one but more- respect, respect for self, for others, acknowledging that everybody's different, everybody's not the same perseverance. I think there was a bit of perseverance in there. You could use this for so many values. The story can be used to introduce a lot, of perseverance as I said also, honesty, integrity, how to overcome obstacles, overcome what you see, or the child sees [as] a disability so there's various things for which the story can be used for." - Teacher who administered the CCR at a higher quintile school.

However, one of the concerns that was raised, was the fact that the CCR was a once-off intervention that was not connected to any other learning or teaching. Teachers therefore questioned how the students would make sense of the CCR (i.e. context of CCR in their everyday learning, and if there was perhaps a need for a time lapse to internalise student learning.

"I would say I want to, by next week, you (learners) must all be prepared to do the role-play in an oral- a dialogue in groups." - Teacher who administered the CCR at a higher quintile school.

For example, teachers spoke about the need for time for students to prepare for the role-play and, getting into character as a method for prolonging and extending exposure to CCR. In doing so, the need for continuity was expressed - not necessarily as repeated learning in terms of using the same task numerous times but rather over a time frame.

"*Now you see there, because that's a long-ish term, type of activity, you have to gauge. Now for us, it will be like you came in, you did it and now it is just out of nowhere you come back with a questionnaire. So, there's no continuity and that is sort of what you are looking for. So, if I am doing this theme over a week, I think it would be a bit better for the learners."* - Teacher who administered the CCR at a higher quintile school.

"A repeated learning, or not even necessarily repeated but there is a block. [Do] you know what I'm saying? I'm focusing on that as a theme so that I can bring my children back to- "remember when we focussed on the theme of communication?" - Teacher who administered the CCR at a higher quintile school.

Furthermore, teachers were concerned that an overload of information because of the once-off nature of the CCR, could mean that some key messages could be lost.

Teasing and bullying

The value and need for CCR was highlighted as a way of relating the real-world problem of teasing and bullying, especially when teachers considered the long-term consequences such as suicide and prevalence of cyber bullying as supported by literature (Blood & Blood, 2007; Blood & Blood, 2016; Brunstein Klomek et al., 2016; Cook & Howell, 2014; Copeland, Wolke, Angold, & Costello, 2013; Hawker & Boulton, 2000; McAllister, 2015; McAllister, Kelman, & Millard, 2015; Messenger, Packman, Onslow, Menzies, & O'Brian, 2015; Vidal et al., 2007).

The value of the CCR as a means of addressing teasing and bullying was confirmed. For example, the CCR brought about discussion about how it felt to be teased in the discussion as well as ways of being empathetic, supportive and accepting of diversity and difference. The social story, role-play and discussion collectively encouraged viewing diversity and difference in a positive light and thus could be seen as a tool to mediate discussion.

"So, if we did stuttering, for example, one lesson we can use that same thing for bullying. You can use that same thing (CCR) for self-esteem. And also for helping one another, helping each other, that's what I say to my children also." - Teacher who administered the CCR at a higher quintile school.

Teachers felts that the CCR was one method that made the difficult discussions around teasing and bullying tangible for teachers and students. Teasing and bullying intervention using stuttering as an example of communication in the CCR was relatable for students even though not many CWS attend their school because of its audible nature.

"In school we are busy with on-going awareness program of bullying. I'm sure if you walk around you'll see the posters up about bullying and the all the hand signals and [which] things

learners should be aware of. Lots of, there's a lot of that type of awareness going on within the school." - Teacher who administered the CCR at a higher quintile school.

Teasing and bullying was additionally highlighted as a key concept in schools where there is a need for interventions. Schools were aware of the need for intervention and had all displayed anti-bullying posters, reported discussions. Discussions took place around the topic of teasing and bullying generally as well as when the need arose (incident related). One school saw the need for cultivating and encouraging awareness of social justice and responsiveness. At this school, Pro-Palestinian posters were displayed and marches were held at school in solidarity for Palestine.

"In school we are busy with on-going awareness program of bullying. I'm sure if you walk around you'll see the posters up about bullying" - Teacher who administered the CCR at a higher quintile school.

"Then to just raise awareness (of teasing and bullying) because sometimes they are involved in something, but they don't know about all the other (contextual) issues surrounding that, and all the spill-offs, from a particular thing and I think that is important, especially if you try and drill that (message at) home with them that in terms of communication. Be careful of what you say and how you say to someone because that then has consequences. Yes, it's very tricky now at their age. Even the way that they interact with each other, sometimes it's quite scary because you will find this slang and you'll find this street language and the gestures (gangster-related) that they would use, and it spills over into the classroom and you have to make them aware of that." - Teacher who administered the CCR at a higher quintile school.

Teacher spoke about contextual issues around teasing and bullying, the importance of increasing awareness about consequences of teasing and bullying and violence on peers and for themselves, gangsterism mentioned. They attempt to emphasise that the awareness of

bullying is not solely related to what affects the child personally. Developing empathy as a key personal quality within these marches. Awareness of context and the world around them.

"They learn from the community [and] they bring it inside. The fighting, being territorial, fighting over very insignificant things. To a point where for me to understand them, I have to put myself in their shoes and then I always move from that premise to understand those little things that are actually the cause of the bullying and fighting. And the fact that there are times where socially, the economic disparities, the socio-economic disparities in kids, those also bring this bullying attitude as well." - Teacher who administered the CCR at a lower quintile school.

Teachers also reported that knowing contextual issues influencing teasing and bullying was important to understand how best to address it. For example, teachers reported knowing reasons for teasing and bullying as insight into managing teasing and bullying.

"You know what, other kids have parents who are working, and they would have some money- probably for lunch to buy stuff- and all of that other kids would not have money, especially the younger ones [don't have]. It creates a problem and then you know that's where you find this bullying and fighting etc. because they are kids [and] they don't know how to handle this thing" - Teacher who administered the CCR at a lower quintile school.

Collaboration with teacher

Teacher agency was another central concept that was noted. Teachers spoke about the role of the teacher to make the CCR exciting and interesting for students when examining how it is administered. A key contribution of the CCR is that it provides a pedagogical resource for interaction and for critical thinking.

"And this is what I wanted to achieve in any lesson. Whatever the theme, whatever you are aiming for because getting them talking, thinking, about what it is that they are talking about

and really sort of engaging with the teacher and each other." - Teacher who administered the CCR at a higher quintile school.

Teacher agency and the role of the teacher in the CCR is important because the CCR is a teacher driven intervention. While SLT and teachers are intervention partners, the teacher administers the CCR and is thus an integral part to the intervention. It is also important to understand that the CCR may appeal to some teachers and this would influence how it is administered.

"I would've liked more preparation time. Even more [for] my learners to take them and prep(are) them for the entire process. Take them, [and] even explain a little about what it is we [would] like to achieve" - Teacher who administered the CCR at a higher quintile school.

The need for collaborative process between SLT and teachers was highlighted. The downside of expecting collaboration vs collaborative process of ways to implement intervention was highlighted. The imposition and burden of presenting (and expecting teacher administration especially within a short time-frame) was highlighted in terms of time given the curriculum that is already busy. The need for SLT (practitioner and researcher) understanding time constraints given the demands of the curriculum was noted. It was important that teachers felt the CCR should be part of the curriculum rather than an add-on for sustainability.

"Especially if you're thinking in terms of taking it out there as an intervention resource in schools, where you're really wanting teachers to just work with it and engage then you really need to look at those things and make it easy for the teacher so that they don't, you don't step in there and they just think this is just extra work besides my work." - Teacher who administered the CCR at a higher quintile school.

Behaviour/process of change

Teachers noted that the students laughed when viewing the video of the CWS at baseline. The students continued to laugh during the social story and beginning of the role-play whereby learners and teachers read the stutter. However, the laughter diminished and the students appeared to engage more in the role-play and discussion. Students engaged in the role-play by using accents.

"They became more interested. Initially it was a bit of giggling, but they settled down after that." - Teacher who administered the CCR at a higher quintile school.

Later, teachers noted that students who had the CCR administered in their class began questioning peers for laughing at others. Teachers also noted that some students were more open to interacting with peers who would be considered "different".

"You know they sat down and gave it some thought because they were actually like "really mam?" like "I didn't even think about it like that. I just found it funny all the time". Things like that where they actually now sat down and thought about [it]." - Teacher who administered the CCR at a higher quintile school.

"I will tell you [that] there is one learner, whom they know in grade 6, in one of the classes I teach, is also a learner who stutters. I could see the way [that] they were relating to him, it was different. They were people who were informed, unlike before" - Teacher who administered the CCR at a lower quintile school.

"[They were] very impatient, and they would laugh at him. And even this boy himself, he developed a defence mechanism and he knew exactly how to deal with them and what he will do in response to them. But things have changed. They're very patient with him and they listen more when they speak to him. They understand that he has this challenge but it's something that can also be helped." - Teacher who administered the CCR at a lower quintile school.

"And you can see that there is a better effort of those kids towards supporting one another." - Teacher who administered the CCR at a lower quintile school.

Teachers also addressed the need for understanding that students at their age are going through many changes in general and the CCR should consider any potential changes in attitude and behaviour should be approached knowing this.

"it's very tricky now at their age." - Teacher who administered the CCR at a higher quintile school.

Students and teacher did not really continue discussion after CCR was administered. One or two made comments after to identify PWS that they knew.

"We did that as a once-off" - Teacher who administered the CCR at a higher quintile school.

"I think maybe one or two (of the learners) did came up to me after[wards] just to make a comment, maybe about someone that they know in the family, that type of thing and just speak around that and maybe just awareness around that" - Teacher who administered the CCR at a higher quintile school.

Components of CCR

The story plot was a strength of the CCR whereby it was reported as enjoyable and relatable because of its inclusion of topics such as music and friends, interests of many students.

"They could relate to the story because it was about young people and they would find themselves in a situation like this, it's real. It's a real situation. It's not something that is fabricated, it's something that is real. Possibly they could have been in a situation like that, not similar but where a child has been excluded from the group. It takes one [person] of that group just to say, "give that person a chance." - Teacher who administered the CCR at a higher quintile school.

While the social story itself was found to be relatable, it was long when considering it as only one of three parts of an intervention.

"The story's a good story as a whole. The fact that there is a diverse group of children as well, that's involved because that's what the classroom is made up of now, its age appropriate." - Teacher who administered the CCR at a lower quintile school.

"I think maybe the story was a bit too long because you know they, their attention span is only so long. You know maybe the story, you can just maybe shorten it a bit [and] make it more concise. I think that was about it because you know you start losing some people along the way." - Teacher who administered the CCR at a higher quintile school.

The story was found to be particularly long in the lower quintile where teachers considered that English was the second or third language being spoken, despite it being the language of learning and teaching at school. There was therefore a need to modify it through shortening it or presenting over a longer time.

"It was a very realistic activity for me except that it was a bit long and we had to push to have it completed because of time." - Teacher who administered the CCR at a lower quintile school.

While personal qualities were included in the CCR, teachers felt that these could be made more explicit.

Teachers also felt that the CCR story should be contextualised for students by providing background information about the authors of the story as well as what gave rise to its development. It was reported that the inclusion of background information would assist with grounding the story, an important part of how literature is studied within the curriculum. This is an important issue for highlighting SLT as profession and introducing them to children through the activity.

The role-play was found to be enjoyable for teachers and students.

"They were very eager. I had lots of hands when I was choosing – you were there – the characters. There weren't shy. There were many (learners) that wanted to participate in this. Once we chose the different characters, that was also when the class settled down to listen to the various interactions with the characters" - Teacher who administered the CCR at a higher quintile school.

"I like role- plays and things like that so that was fun for me." - Teacher who administered the CCR at a higher quintile school.

"As much as we were doing this with the kids, let me be honest with you, I learnt a lot as a teacher." - Teacher who administered the CCR at a lower quintile school.

The CCR provided opportunity for children to participate and to be engaged and they took up the opportunity.

"I think when we read the story, they enjoyed that. That became clear and, even more so when they did the role-play because then they could assume [and], they could get into character which was nice. And you could see they even came up with the accents when it was the Indian boy for instance" - Teacher who administered the CCR at a higher quintile school.

More information was requested by some teachers in terms of the discussion especially related to how to extend the activity to issues being experienced in the classroom. Teachers felt that they needed support with expanding discussion. Additionally, teachers noted that teaching experience and expertise would dictate the amount of support needed to expand on the discussion.

"It depends, you know, on the teacher's creativity. The teacher has to be quite creative in, [and] when you're in the classroom, you adapt your teaching according to your children in

your classroom. There [are] no hard and fast rules. You would learn (when becoming a teacher) methodology, you learn pedagogy, how to [teach]. [You would know] the stages of development of the children but when you're in the classroom, you adapt your teaching to your children and their needs. Often, when we present a lesson, we think, [and] we take those factors into consideration and then we just develop something, make up something, create something around that, like a little story around that" - Teacher who administered the CCR at a higher quintile school.

Another teacher said:

"I remember that clearly and then there were obviously, as in any classroom situation, the one or two who would just go into their own dream world but that is our job as the teachers to bring them back to the moment and [to] the present and take note of what's going on and participate, cooperate, that is an on-going sort of struggle for us as teachers" - Teacher who administered the CCR at a higher quintile school.

Recommendations

One of the most prominent recommendations for the future use of the CCR was it could be used differently.

"I would actually break it up because I think in chunks it would actually make more sense than [completing] everything all in one go. You could actually discuss part of it as you go along. Maybe the first one (lesson) – "what it is", "why" and so on. You [can] get some questions and see what they have to say and maybe after that, [in] the next lesson, we do the role-play and then we can discuss the role-play. And what other people's opinions are and not just take the opinions of the story and "dump" it onto them [because] some of them have their own things to say." - Teacher who administered the CCR at a higher quintile school.

Teachers considered the use of the CCR within a curriculum-based approached. The CCR, a single-dose intervention, teacher felt that it would be more effective as a curriculum-imbedded approach. Teachers felt that it could be included in the curriculum assessment policy referred to as CAPS.

"I think that it would be great to have more themes like this in the particular in the CAPS, that we actually running with the learners at school, making them more aware of real issues, things that they can really relate to. It would be great to have that type of stories." - Teacher who administered the CCR at a higher quintile school.

Within school subjects, teachers felt that the CCR could fit within life orientation to discuss teasing and bullying.

The Life Orientation teacher can also use this because I can see that it has an inclination towards life orientation as well so it's quite a rich document. - Teacher who administered the CCR at a lower quintile school.

"The nice thing about this, this could work across curriculum because it would fit in beautifully with an English lesson and it would fit in beautifully with a Life Orientation lesson as well, and probably even lend itself to some other kind of subjects where that type of discussion comes up. So, I think for now strongly across English and Life Orientation and that there is a nice tie-in with that, with[in] those two subjects." - Teacher who administered the CCR at a higher quintile school.

It could also fit in the subject of English by targeting language aspects within a balanced language approach using teasing, bullying and communication as the theme.

"For instance, if I need to cover language aspects, I will then build it into the story that I'm using or [in] the comprehension [task] so I will then take that as my theme and then set a comprehension on it - whereas you just had a discussion. I will do a discussion [activity] that

will be part of my listening and speaking [tasks]. Then I have to have a comprehension component and a language component, so I'll base my language lesson on the sentences and things you use. For instance, I want to teach compound and complex sentences and your passage (in the story) lends itself to a lot of that examples then I will use of those sentences to build into mine." - Teacher who administered the CCR at a higher quintile school.

> *"There's a lot of stuff, and language that I can cover that I will definitely try and solicit out of this. Even during revision when I go to certain aspects of grammar, I can use this. One other thing that we can do is the direct and indirect speech on the role play."* - Teacher who administered the CCR at a lower quintile school.

In terms of curriculum, strategies to be imbedded in curriculum were described. Teachers felt that there would be value in integrating the CCR across lessons such as Life Orientation and English. Examples given of tasks: comprehension task, listening and speaking, creative writing, narratives, compound words, clauses, complex sentences, oral, active and passive voice – all while theme of teasing and bullying reinforced with a language focus.

Being able to link activities to a theme was described – teachers felt the CCR could solidify learning for the students. That is how they currently teach, familiar to teacher and students. She felt that there needs to be an on-going process of engaging in discussions with students in general which was a gap within CCR. Teachers were asked to note any questions or discussions that occurred after the CCR was administered but were not asked to specifically continue it.

Teachers felt that because teasing and bullying occurs across all grades, it could be applicable and adapted for younger grades.

"It can go across the board, it can go from grade 1 right to grade 7 and beyond even. It's a story which plays itself out all the time. It's a scenario which you find from grade 1" - Teacher who administered the CCR at a higher quintile school.

Findings means of sharing what students learned with the rest of the school was suggested. Examples included posters and an assembly presentation of the role-play. And so, the CCR could be used as a resource to trigger other activities and teachers could be creative in terms of how they should use and build on it.

"I actually wanted to do another activity after that. I actually wanted to let them make posters that we could maybe display around the school. Carry it over to when it was my assembly, but I never had assembly then. I have assembly next term which I can still do. We [can] get some of the grade 7s in and do the role-play or whatever. You know, just to make other children aware (of stuttering, teasing and bullying)." - Teacher who administered the CCR at a higher quintile school.