Shared storybook reading interactions between children with complex communication needs and their caregivers

Refilwe Elizabeth Morwane (iD), **Shakila Dada** (iD) **and Juan Bornman** (iD)
Centre for Augmentative and Alternative Communication, University of Pretoria, Pretoria, South Africa
refilwe.morwane@up.ac.za

Quality early home literacy experiences, specifically young children's shared storybook reading experiences, have been identified as critical for establishing the foundations of reading and writing skills. Despite this, literature reports that children with complex communication needs (CCN) have limited exposure to literacy material. There is, however, a paucity of research regarding the home literacy experiences of children with disabilities specifically those with CCN and in developing countries contexts. This study aims to analyse the behaviours of both primary caregivers and their children with CCN during shared storybook reading using a descriptive, observational design. Twelve primary caregivers and their children participated in the study. The 12 participating dyads were video recorded during shared storybook reading activity. Their interactions were analysed using a communicative behaviour checklist coding communicative behaviour of both dyad participants during the shared storybook reading. Results were similar to previous studies conducted on children with CCN from developed countries. The caregivers showed higher rates of interaction as compared to their children, whilst they focused on labelling the pictures rather than reading the story verbatim. Although patterns of interaction varied across the caregivers, they seldom asked complex questions or related the story to the child's utterances. The children, on the other hand, seldom asked questions or commented on the stories. Their interaction patterns could have been improved, should the children have had access to communication devices and caregivers guided on using strategies to facilitate learning during these shared literacy activities.

Keywords: augmentative and alternative communication; caregiver-child interaction; communicative behaviours patterns; complex communication needs; literacy development

Introduction

It is estimated that South Africa has approximately 2.1 million children with disabilities (Statistics South Africa, 2014). The Department of Education (DoE) reported that approximately 600,000 of these children with disabilities aged 5–18 years were not attending any educational institutions in 2012 (Department of Social Development [DSD], Department of Women, Children and People with Disabilities [DWCPD] & United Nations Children's Fund [UNICEF], 2012; Statistics South Africa, 2014). This means at least 30% of children with disabilities who are of school going age are not in school. On the other hand, those children who are in school are reported to start their formal schooling at a later age when compared to their typically developing peers (Pather, 2011; Saloojee, Phohole, Saloojee & Ijsselmuiden, 2007). One group of children who are particularly vulnerable to being excluded from school, are those with complex communication needs (CCN), in other words those children who cannot rely on spoken language to make their needs known (Dada, Kathard, Tönsing & Harty, 2017). Children with CCN typically fail to develop adequate literacy skills, and those who do lag behind their peers due to challenges and barriers other than their developmental disability (Machalicek, Sanford, Lang, Rispoli, Molfenter & Mbeseha, 2010). Delayed or poor development of literacy skills have been associated with limited exposure to positive and rich early literacy experiences at a young age (Light, Binger & Smith, 1994; Whitehurst & Lonigan, 1998). For this population, care activities often take precedence over literacy activities (Bornman, 2017). Other reasons for limited exposure to literacy skills have been found to be due to, caregiver expectations with regard to their child's development (Gannotti, Oshio & Handwerker, 2013), the severity of physical disability (Peeters, Verhoeven, De Moor, Van Balkom & Van Leeuwe, 2009; Sandberg, 1998) as well as the child's restricted cognitive and perceptual skills (Larson & Miller-Bishoff, 2014).

Augmentative and Alternative Communication (AAC) refers to alternative communication methods as a result of permanent or temporary loss of speech and is broadly divided into two categories namely, unaided and aided systems (American Speech-Language-Hearing Association [ASHA], 2015). Unaided communication systems require only the body (e.g. vocalisations, natural gestures, facial expressions), pointing (e.g. eye pointing or finger pointing, manual signs, and finger spelling) while aided systems require an external aid or device (e.g. real objects, photographs, line drawings, or written text), which can be displayed on low technology systems such as communication boards made out of paper, or on advanced high technology systems, such as laptops and tablets or speech generating devices (Bornman & Tönsing, 2015). However, to generate language and create novel messages by means of an AAC system, literacy skills are required (Hetzroni, 2004; Light & Drager, 2007).

In studies with typically developing children, exposure to literacy material had been identified as a critical building block to successful early and later literacy skill development (Sénéchal, Lefevre, Thomas & Daley, 1998). Notably, the absence of high quality early literacy experiences for children with CCN disadvantages them in the development of these crucial skills.

Literature Review

Traditionally, acquiring literacy has often been considered a teacher-driven, school-based activity (Mophosho & Dada, 2015), but recently, the acquisition of early literacy skills and the role of caregivers in the home context by acting as literacy models (e.g. parents and siblings reading books, magazines and newspapers) is receiving increasing attention (Baroody & Diamond, 2012; Carlson, Bitterman & Jenkins, 2012). One early literacy strategy that has shown promising results for literacy acquisition, is shared storybook reading (Bus, Van IJzendoorn & Pellegrini, 1995). During shared storybook reading, children acquire, amongst others, knowledge about the world around them (Justice & Kaderavek, 2003; Scarborough & Dobrich, 1994), develop new vocabulary, and are exposed to print which expands their word recognition skill (Justice & Ezell, 2002). While engaged in such a shared activity, the caregivers are thus able to model, repeat and expand on the child's utterances (Kaderavek & Sulzby, 1998). It is, however, important to note that it is the quality of the interactions, rather than the frequency of the storybook reading that is of most significance (DiCarlo, Onwujuba & Baumgartner, 2014; Peeters et al., 2009). The caregivers' communicative behaviours, i.e. how they interact with the child during the storybook reading activity, are of utmost importance. The use of scaffolding techniques, such as asking open-ended questions, talking about the story, expanding on the child's utterances, and focusing the child on the print during the shared storybook reading interaction, have been found to be effective in increasing the child's print knowledge and improving vocabulary (Mol & Bus, 2011). During this shared activity, research has found that caregivers are able to ask more cognitively demanding questions and are therefore able to promote more abstract thinking (Lynch, Anderson, Anderson & Shapiro, 2008).

Theoretical Framework and Background

Caregivers modelling in order to facilitate learning is aligned with Vygotsky's zone of proximal development (Vygotsky, 1978), or the social constructivist theory, which emphasises the importance of a knowledgeable adult impacting knowledge of the youth, by using scaffolding techniques to support development, and ultimately independence (Renner, 2003).

For most children in South Africa, first time exposure to literacy material such as story books occurs in crèche or preschool (Ntuli & Pretorius, 2005; Pretorius & Naudé, 2002). In order to determine the value and benefits of shared storybook reading for typically developing children, three studies were conducted on caregivers from a disadvantaged community in South Africa. Findings indicated favourable outcomes of using a shared storybook reading strategy. In these studies, caregivers were trained in the importance of reading to their child without a disability, on adopting good reading practices, and on the use of reading strategies such as dialogic reading to enhance learning. At the end of the training, caregivers were found to be more responsive to their children (Cooper, Vally, Cooper, Radford, Sharples, Tomlinson & Murray, 2014), improvement in the use of book reading behaviours, as well as observation of the behaviours in other activities (Murray, De Pascalis, Tomlinson, Vally, Dadomo, MacLachlan, Woodward & Cooper, 2016). The children, on the other hand, showed an increased understanding of words, and the use of new words (Vally, Murray, Tomlinson & Cooper, 2015). These findings showed that shared storybook reading was an activity enjoyed by both caregivers and their children without disability, as they experienced it to be affordable, and not overwhelming. The activity is also contextually relevant as it occurs within a naturalistic environment.

Caregiver child interaction during shared storybook reading

The importance of emergent literacy skills has been highlighted in studies focused on typically developing children. However, there is a paucity of research on shared storybook reading between caregivers and children with a disability, particularly those with CCN from context such as South Africa. Evidence from the literature conducted in developed contexts indicates that caregivers behave differently while reading to a child with a disability, as compared to when they read to a child without a disability (Kim & Mahoney, 2011; Pennington & McConachie, 1999, 2001). Light et al. (1994) reported these differences in their study between children with CCN, who engaged in a shared storybook reading activity with their caregivers. They found that the caregivers dominated the interaction, and focused on reading the text verbatim, with limited use of scaffolding techniques such as relating the story to the child's experiences and asking complex questions other than simple yes or no questions, due to their child's limited spoken language ability. The children were found to be passive and less interactive. The reasons postulated for this difference include reasons such as the children having limited ways to comment on the story or pictures, the severity of disability, as well as caregivers' poor interpretation of their children's responses.

These studies were unfortunately all conducted in developed countries, with no research available to date on early literacy practices in less developed contexts for children with CCN. Hence, it is not known how different the interaction would potentially be between caregivers and their children with CCN from a South African context, as many

factors have the potential to impact the quality of the interaction. Given that engagement during shared storybook reading provides such positive outcomes of language development, and impacts on future literacy skills for typically developing children from low resource backgrounds (Cooper et al., 2014; Murray et al., 2016; Vally et al., 2015; Whitehurst & Lonigan, 1998), it is hypothesised that an intervention strategy such as shared storybook reading can also be advantageous for children with CCN from a similar background. The findings of the study could further increase the body of literature on the interactions during shared story book in children with CCN, specifically in South Africa. This information would be beneficial to inform training programmes for children with disabilities, aimed at enhancing language and communication development. The aim of this study was to analyse the behaviours of both primary caregivers and their children with CCN during a shared storybook reading. The research question was therefore, "what interaction patterns are observed between children with CCN and their caregivers during a shared storybook reading activity?"

Research Method and Design
Study Design
A quantitative descriptive, observational design was used in this study (McMillan & Schumacher, 2010).

Participants
Participant dyads were recruited from two neuro-developmental clinics located in the Gauteng and Free State Provinces of South Africa. The child participants had to meet the following selection criteria: (1) had to be between the ages of three and seven years; (2) had to have complex communication needs; (3) had to have no reported visual or hearing impairment; (4) had to have a Sotho language as their home language (i.e., either Sesotho, Setswana or Sepedi). Furthermore, the caregiver participants had to consent to be part of the study, and be the primary caregiver of a child who met the selection criteria and understood their child's primary mode of communication. No criterion was set regarding storybook reading interactions at home, as the researcher did not want to bias the results based on unfounded assumptions.

A total of 16 potential participants dyads were identified, but four were excluded from the study, as the children did not meet the selection criteria. All of the remaining 12 dyads (caregivers and their children) who met the selection criteria consented. All 12 of the children were diagnosed with cerebral palsy (CP), which is considered to be the most prevalent type of developmental childhood disability (Dambi, Jelsma & Mlambo, 2015), although exact and accurate statistics are not available for South Africa (Statistics South Africa, 2014). High incidences of CP are reported in rural, low-resourced areas, such as those in the Eastern Cape (Loeb, Eide, Jelsma, Toni & Maart, 2008), KwaZulu-Natal (Couper, 2002) and Mpumalanga (Kromberg, Christianson, Manga, Zwane, Rosen, Venter & Homer, 1997). Due to the nature of CP, these children often present with CCN (Pirila, Van der Meere, Pentikainen, Ruusu-Niemi, Korpela, Kilpinen & Nieminen, 2007).

Materials and Instruments
Home literacy practices questionnaire
A short questionnaire on the home literacy experiences of the children was developed for this study in the three aforementioned Sotho languages. The primary caregivers were asked whether they had literacy material in the home, and if so, what these materials comprised of as well as how frequently they read to their children.

Children's storybooks
Three short, age-appropriate storybooks with clear illustrations, simple text with repetitive lines and comprehensive story events were used in the study. Firstly, "*Sam's Smile*" (Lusted & Van Wyk, 2002), a story about a boy who is very sad, and his parents do not know why. The story unfolds as the parents try different things to cheer Sam up, and nothing works. In the end, his parents give him a big hug, and then he smiles. Secondly "*The very messy monkey*" (Tickle, 2010), a pop-up book about a messy monkey who lives in the jungle with other animals who love doing various activities. Thirdly, "*Goodnight tractor*" (Robinson & East, 2013), a bedtime story that shows a little boy saying goodnight to his favourite tractor and all the animals on a farm. The storybooks were not familiar to the caregivers or the children. The book "*I am Sam*" (Lusted & Van Wyk, 2002) was available in the three Sotho languages, and the other two storybooks were translated into the appropriate three languages using a blind back translation procedure (Bornman, Sevcik, Romski & Pae, 2010).

Communicative behaviour checklist
The communicative behaviour of both the child and primary caregiver participants were scored based on the checklist developed by Light et al. (1994). The checklist for the children consisted of eight items, while the caregivers' checklist consisted of 10 items, which were scored according to their frequency of occurrence.

Gross motor function classification system (GMFCS)
The GMFCS (Palisano, Rosenbaum, Walter, Russell, Wood & Galuppi, 1997) is a valid and reliable tool for measuring the severity of motor function. The system classifies severity on a five-

level ordinal scale (Rosenbaum, Paneth, Leviton, Goldstein, Bax, Damiano, Dan & Jacobsson, 2007), with children in Level 1 being least affected (able to walk independently though with difficulty), and Level 5 being more severely affected (uses a wheelchair for mobility and functionally dependent).

Procedures

Ethics approval was obtained from an institution of Higher Learning, as well as from the Department of Health (DoH), and relevant hospital boards in the two provinces. Permission from heads of departments was obtained and informed consent from the primary caregivers, as well as assent from the children, was obtained. Caregivers who consented to participate in the study were taken to a room where a video recording of the interaction was conducted. The caregivers were requested to choose a book from the three Sotho storybooks provided by the first author, and instructed to read to their child, as they felt comfortable. The interactions were recorded for 15 minutes, which included a warm-up session of five minutes prior to the main recording, which was not coded. This allowed the participants to become familiar with the camera and the context. Thereafter, the primary caregivers completed the home literacy experience questionnaire with the assistance of the first author. Each participant was given donated adapted books as a token of appreciation for participating in the study.

Data Analysis

Each video was transcribed utilising the communicative behaviour checklist (Light et al., 1994) by counting the frequency of each communi-cative behaviour during the 10-minute interaction. The results were therefore extrapolated by counting how frequently behaviour occurred in the total 10 minutes and dividing that by the actual time taken by the dyads to complete the activity (Light et al., 1994). The data obtained was therefore used to determine specific communicative behaviours of both children and caregiver participants.

Reliability

Inter-rater reliability was calculated for 100% of the video recordings. The first author watched all the recordings, and coded the behaviours observed according to the communicative behaviour checklist. A second rater, who was trained to 90% agreement level, independently coded all the videos.

Results

Participants

Table 1 illustrates that, of the 12 child participants in the dyad, seven were boys and five were girls. Their ages ranged from three to seven years ($M = 4.10$), and all had one of the Sotho-languages as a home language. Their gross motor on the GMFCS (Palisano et al., 1997) ranged from level II, which meant they could walk independently with some difficulty, to level V, which meant they relied on a wheelchair for mobility. All children presented with limited speech and used various unaided modes of communication that included unintelligible speech, vocalisations, word approxi-mations, facial expressions, natural gestures, and finger pointing. Despite them being candidates for an aided AAC system, none of the children used AAC for communication in the session. Children either spent their days at home with the caregiver, or were placed in a day-care or in the pre-preparatory class at a school for children with disabilities.

Table 2 shows the general demographic characteristics of the corresponding 12 primary caregiver participants, as well as the home literacy practices. This implies that primary caregiver 1 (PC1) is the mother of child 1 (C1), and that this constitutes Dyad 1. The caregivers' ages ranged from 21 to 68 years of age ($M = 39.5$). They were mainly mothers, however one child was under care of her father, and two had grandmothers as their primary caregivers. Their highest levels of education varied from Grade Seven to post-matric, as did their employment status. Five of the primary caregivers stated that they did not own any literacy material at home, with four reporting books and magazines, two owning children's story books and one owning a Bible (with no pictures). The majority of the caregivers reported that they did not read to their children on a regular basis, although two stated that they read to their child on a daily basis.

Table 1 Biographical description of child participants (*N* = 12)

Child no	Gender	Age (yrs; mnths)	Home language	GMFCS	Mode of communication	Placement
C1	Male	4;3	Setswana	II	*Unaided*: unintelligible speech; finger pointing and natural gestures	At home
C2	Male	3;3	Sesotho	IV	*Unaided*: vocalisations, finger pointing and facial expressions	At home
C3	Male	3;4	Sesotho	II	*Unaided*: vocalisation and facial expressions	At home
C4	Female	5;2	Sepedi	III	*Unaided*: vocalisations; word approximations and finger pointing	Day care for children with disability
C5	Female	3;0	Sepedi	IV	*Unaided*: vocalisations and facial expressions	At home
C6	Male	4;6	Sepedi	III	*Unaided*: unintelligible speech; finger pointing and natural gestures	Inclusive day care
C7	Male	4;7	Sepedi	III	*Unaided*: unintelligible speech; finger pointing and natural gestures	At home
C8	Female	3;5	Sepedi	V	*Unaided*: vocalisations; word approximations and finger pointing	Pre-preparatory class at school
C9	Male	5;11	Sesotho	V	*Unaided*: vocalisations; words approximations and finger pointing	Pre-preparatory class at school
C10	Female	3;4	Sesotho	III	*Unaided*: vocalisations; word approximations and finger pointing	At home
C11	Male	5;10	Sepedi	V	*Unaided*: vocalisations and facial expressions	Pre-preparatory class at school
C12	Female	6;7	Sepedi	V	*Unaided*: vocalisations: word approximations and finger pointing	Inclusive day care

Table 2 Biographical description of primary caregiver participants and home literacy exposure (*N* = 12)

Primary caregiver no	Age (yrs; mnths)	Relationship to child	Highest education level	Employment status	Exposure to literacy material in the home and frequency of reading to child
PC1	28;11	Mother	Grade 12	Unemployed	Own catalogues and magazines. Once a week.
PC2	27;5	Mother	Grade 12	Unemployed	None at home. Not read to.
PC3	40;4	Mother	Grade 9	Self-employed	Own Bible without pictures. Once a day.
PC4	33;2	Mother	Grade 9	Employed full time	None at home. Rarely.
PC5	21;0	Mother	Grade 12	Unemployed	Owns magazines and catalogues. Not read to.
PC6	34;5	Mother	Grade 11	Unemployed	Own catalogues and magazines. Once a day.
PC7	62;5	Grandmother	Grade 7	Unemployed	None at home. Not read to.
PC8	50;4	Grandmother	Grade 12	Unemployed	None at home. Not read to.
PC9	37;8	Mother	Post Grade 12	Employed full time	Owns storybooks. Read to 2–3 times a week.
PC10	32;0	Mother	Post Grade 12	Employed full time	Owns storybooks. Read to 2–3 times a week
PC11	68;8	Father	Grade 7	Unemployed	Owns catalogues, magazines and newspapers. Read to 2–3 times a week.
PC12	37;2	Mother	Grade 11	Unemployed	None at home. Rarely.

Table 3 Total communicative behaviours displayed by the child participants during a 10-minute shared storybook reading session ($N = 12$)

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	*M*	*SD*
Pretends to read story	33	0	0	0	0	0	5	0	22	0	0	4	5.3	10.8
Asks questions about the story	3	4	0	0	3	0	2	8	1	9	13	1	3.7	4.2
Labels and comments	20	0	13	2	0	8	3	19	19	22	24	29	13.3	10.3
Points to pictures or words	10	6	0	0	7	8	3	10	6	5	6	4	5.4	3.3
Responds to yes/no questions	1	0	0	0	2	12	0	5	3	8	23	41	7.9	12.4
Turns pages, lifts flaps, performs actions in the story actions	6	19	33	4	19	19	9	14	4	15	8	4	12.8	8.8
Produces off-topic comments	0	0	0	1	0		0	0	0	0	0	0	0.1	0.3
Unintelligible utterance	0	1	0	4	0	8	0	0	0	0	0	0	1.1	2.5
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
Total	73	30	46	11	31	55	22	56	55	59	74	83	49.6	22.2
M	8.1	3.3	5.1	1.2	3.4	6.9	2.4	6.2	6.1	6.6	8.2	9.2	5.5	5.8
Mdn	3	0	0	0	0	8	2	5	3	5	6	4		
SD	11.4	6.3	11.3	1.7	6.3	6.7	3.0	7.0	8.4	7.8	9.8	15.0	5.0	

Table 4 Total communicative behaviours displayed by the primary caregiver participants during a 10-minute shared storybook reading session ($N = 12$)

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11	PC12	*M*	*SD*
Reads story verbatim	26	22	0	18	0	35	0	0	32	0	18	0	12.6	14.0
Labels pictures, objects or events in the book	12	26	42	9	26	9	10	46	14	25	40	74	27.8	19.8
Asks yes/no questions	4	13	17	8	7	9	1	1	0	5	38	32	11.3	12.2
Asks open-ended and wh-questions	3	5	12	4	15	24	3	26	23	10	41	7	14.4	11.9
Relates story to the child's experience	0	0	0	5	0	2	0	2	0	4	5	1	1.6	2.0
Directs child to turn pages, lift flaps, perform actions, or point to pictures	0	0	0	0	11	0	0	2	0	16	10	15	3.6	6.5
Confirms child's communicative attempts or requests clarification	11	7	0	4	5	0	0	23	19	2	8	18	9.3	8.0
Uses conversational fillers	0	8	0	0	0	0	0	5	0	0	2	0	1.3	2.6
Uses off-topic comments	0	1	0	0	0	0	0	0	0	0	0	0	0.1	0.3
Unintelligible utterance	0	0	0	0	0	0	8	0	0	2	0	0	0.8	2.3
Other	0	5	0	0	3	0	0	0	0	0	0	0	0.4	1.6
Total	56	87	71	48	67	79	22	105	88	64	162	147	83	39.7
M	5.1	7.9	6.5	4.4	6.1	7.2	2.0	9.5	8.0	5.8	14.7	13.4	7.6	3.6
Mdn	0	5	0	4	3	0	0	2	0	2	8	1		
SD	8.3	9.0	13.2	5.6	8.3	11.8	3.6	15.3	11.9	8.1	16.9	22.7	8.6	5.3

Specific Communicative Behaviours

Table 3 shows the specific communicative behaviours of the 12 child participants, while Table 4 shows this data for the corresponding primary caregiver participants during the 10-minute interaction. The child participants showed various communicative behaviours during the interaction, though with limited frequency. They spent the majority of the communicative behaviours labelling and commenting on the story ($M = 13$; $SD = 10.3$), followed by turning and touching the flaps of the books ($M = 12.8$; $SD = 8.8$). However, asking of questions about the story was seldom displaced ($M = 3.7$; $SD = 4.4$). The primary caregivers spent the majority of their communicative behaviours on labelling pictures, objects or events in the book ($M = 27.8$; $SD = 19.8$), followed by asking open-ended questions ($M = 14.4$; $SD = 11.9$); reading the text verbatim ($M = 12.6$; $SD = 14$) and asking yes/no questions ($M = 11.3$; $SD = 12.2$). They seldom related the story to their child's personal experience ($M = 1.6$; $SD = 2.0$) and did not use conversational fillers frequently ($M = 1.3$; $SD = 2.6$).

Table 5 shows the rate of interaction during the 10-minute interaction between the child participants, primary caregiver participants and the dyads combined. Interaction rates varied across dyads with some similarities observed: the total mean rate was 13.3 acts per minute, ranging from a minimum rate of 4.4 acts per minute for Dyad 7 to maximum rate of 23.6 acts per minute for Dyad 11. The child participants also showed varied rates of interaction: the children in dyads 1, 11 and 12 showed higher communicative acts per minute (mean of greater than seven acts per minute) accounting for 39% of the total communicative acts. On the other hand, children in dyads 2, 4 and 7 interacted infrequently with communicative acts as low as a mean three acts per minute. Overall, the primary caregivers showed a much higher rate of interaction, with a $M = 8.3$ accounting for 62% of the interaction rate, compared to the children participants. The primary caregivers showed an interaction rate that ranged from low total mean of 4.8 to a high of 16.2. The total mean rate was therefore higher for caregivers with a mean of 8.3, with the children participants accounting for a mean total of 5.0. The dyads seemed to have jointly engaged in the activity, as a mean 0.1 acts for the children participants, and a mean 0.4 for the primary caregiver participants of off-topic comments was observed during the 10-minute shared interaction. The dyads therefore seldom made comments unrelated to the story. Each dyad will now be described in more detail.

Table 5 Mean interaction rates during the 10-minute interaction for the child, primary caregiver participants and dyads combined

Dyad no.	Child participant *M*	Primary caregiver participant *M*	Dyads *M*
1	7.3	5.6	12.9
2	3	8.7	11.7
3	4.6	7.1	11.7
4	1.1	4.8	5.9
5	3.1	6.7	9.8
6	5.5	7.9	13.4
7	2.2	2.2	4.4
8	5.6	10.5	16.1
9	5.5	8.8	14.3
10	5.9	6.4	12.3
11	7.4	16.2	23.6
12	8.3	14.7	23
Total *M*	5.0	8.3	13.3
SD	2.2	4.0	5.7

Dyads 1, 11 and 12

The children in dyads 1, 11 and 12 showed a high mean total of the communicative behaviours in the children participants. The total mean rate ranged from 8.1 to 9.2. Child Participant 1 mostly pretended to read the text (total of 33 acts). Child Participant 11 and 12 commented on the story and labelled pictures in the books with a total of 24 and 29, respectively. Child Participant 12 also spent a great deal of time in responding to 'yes' or 'no' questions asked. Although Primary Caregiver 1 read the story verbatim most of the time (total acts of 26), she also confirmed the child's utterances. Primary Caregiver 11 asked the child more complex questions such as "*Where is the Monkey?*" Primary Caregiver 12 mostly asked simple yes/no questions with a total of 72 acts, and also labelled pictures for the child (32 acts). The primary caregivers seldom related the story to the child's experience.

Dyads 6, 8, 9 and 10

The dyads in this group showed some variation of communicative behaviours with limited acts recorded for the 10-minute shared storybook reading activity. Their total mean was between 6 and 7 across all dyad participants. Child participants 8, 9 and 10 labelled and commented on the

stories with acts of between 19 and 22 recorded. While Child Participant 6 mainly turned pages and touched the flaps of the book for a total of 19 acts. The children in these groups seldom asked questions and manipulated the books (turned pages and touched the flaps). Primary Caregiver 6 and Primary Caregiver 9 focused on reading the story verbatim with acts of over 30. While Primary Caregiver 8 and 10 mostly labelled pictures and commented on the story. They seldom confirmed their children's utterances, however Primary Caregiver 10 directed the child often to turn the pages (total act of 10).

Dyads 2,3 and 5

Dyads in this group also showed limited variation and frequency of communicative behaviours. The child participants showed higher rates of activity in turning pages and touching flaps, with 19 total acts for Child Participant 2 and 5, and 33 acts for Child Participants 3. They seldom pretended to read, point to pictures and respond to questions. The primary caregivers, on the other hand, showed participated frequently. They labelled pictures or events in the book, with Primary Caregiver 3 showing a higher rate of 42 acts. There were some attempts to ask simple yes and no questions by participants 2 and 3 (13 and 17 acts, respectively), while Primary Participant 5 asked more complex questions (15 acts). These caregivers seldom related the story to the child's experience.

Dyads 4 and 7

These two dyads had the lowest total mean of communicative behaviours from the entire dyad participant groups. Child Participant 4 performed the least frequently with a mean 1.2 recorded, while the Primary Caregiver 7 had a mean 2. The child participants barely engaged in the story, there was some attempts to turn the pages of the book for Child Participant 4 for a total act of 4, and a total act of 9 for Child Participant 7. The children seldom pointed to the pictures, asked questions, and labelled the pictures. The Primary Caregiver 4, on the other hand, continued to read the story verbatim (18 acts), and tried to ask some questions while primary Caregiver 7 focused on labelling of the pictures (total of 10 acts). These caregivers seldom directed the children to turn the pages, related the story to their child's experience, and confirm their communicative attempts.

Discussion

Marked differences in interaction were observed between dyads. This could be due to the differences in the developmental skills of the children and variations in the primary caregivers' reading styles.

Communicative Behaviours Observed during Shared Storybook Reading Primary Caregiver Interaction

The primary caregivers in this study contributed more to the proportion of the communicative behaviours observed than the child participants. Although various communicative behaviours were displayed during the interaction, the primary caregivers mainly focused on labelling and talking about the pictures in the story than reading the story verbatim. This could be attributed to the fact that the caregivers were not confident in reading the text, even when it was in their primary language. It appeared the caregivers approached the reading activity as a teaching opportunity. The caregivers therefore tended to assume the instructors role or teacher's role (Higham, Tönsing & Alant, 2010), and tended to teach their children the story. This was observed by the primary caregivers' constantly asking the children to first label the picture "*What is this?*" The questions were also asked in an attempt to confirm if the children understood what was in the storybooks, for example, "*Do you see the monkeys?*" The primary caregivers seldom took the time to relate the story to the child's experience. Those who did, did not take the time to give examples and allow the child to acknowledge they understood what was in the story. The caregivers turned the pages with caution, preventing the children from touching the pages, for fear of them being damaged. Thus, they seldom asked their children to turn pages or open and close the flaps, although this can also be attributed to them being aware of their children's physical restrictions. There were limited attempts to take cognisance of the children's utterances or contributions. The caregivers therefore did not take the time to confirm the communicative attempts of their children. The caregivers are aware that their children could not respond to their questions, and thus continued reading without waiting, and looking at their children to see if they had responded, and continued to read with limited responses expected from the children. Light et al. (1994) found similar findings, where caregivers allowed limited opportunities for the children with CCN to respond to and comment during their shared storybook reading activity, resulting in the children participating less. Despite the activity being foreign and new to them, the dyads participants appeared engaged in the activity (as is evidenced by them seldom making off-topic comments as illustrated in Table 3 and 4).

Children Interaction Behaviour

The children spent more time labelling pictures and touching and turning pages of the book, when most

found it difficult to manipulate the books due to their physical restrictions. Responses to yes-no questions were mostly through head nods and head shakes. The children seldom pointed to pictures or asked questions. The children appear to have forfeited many opportunities to ask questions, due to their limited communication abilities. Although some level of interaction across the children participant was observed, they interacted less as compared to their caregivers. This may be attributable, amongst others, to their limited verbal abilities, as well as to the caregivers' poor interpretation of their children's responses, as evidenced by Light et al. (1994), and Pennington and McConachie (1999, 2001). For instance, Child Participant 7 was clearly excited to start reading sat quietly next to the primary caregiver, who controlled how long he could look at a page, and seldom allowed the child to touch the book, as he would have liked. This therefore translated into missed opportunities for interaction. When adults read to young children in a more directive way, these children tend to rarely, if at all, initiate communication, resulting in less interaction (Justice & Kaderavek, 2003).

The dyads showed different patterns of interaction as illustrated in Table 4 and 5, with the caregivers showing a higher rate of interaction behaviours than their children do. It therefore appeared the caregivers dominated the interaction, with the children being less active. Light et al. (1994) and Pennington and McConachie (1999) found caregivers to be more dominant, with the children being passive during the shared interaction.

Conclusion
Shared storybook reading has been recommended as a valuable tool for enhancing cognitive skills (Vally, 2012) increasing vocabulary (Cooper at al., 2014), stimulating preliteracy skills (Justice & Ezell, 2002), and improving caregiver-child inter-action behaviours (Murray et al., 2016). Its importance for children, particularly those from disadvantaged backgrounds, has also been emphasised (Vally et al., 2015). For children with CCN, shared storybook reading could be crucial for facilitation of language development as well as facilitate learning from an early age (Bedrosian, 1999). Early intervention in the implementation of AAC for children with CCN is also important as AAC allows for the development of language skills and thus facilitates improved communication and literacy skills (Light & McNaughton, 2012; Tönsing, 2016). In this study, none of the children used alternative forms of communication, which decreased opportunities of participating. Use of shared storybook reading could be used as an intervention strategy by interventionists to support use of AAC technology for making requests,

commenting, and ultimately for communicating all needs and wants (Liboiron & Soto, 2006).

Based on findings from this study, caregivers with children with CCN do recognise the importance of reading to their child, however they require support and training as a child with disability does not display similar patterns of interaction, as compared to a child without a disability. Interventionists should pay special attention in determining what sort of material is available in the household, and how these materials can be used for learning, as shared storybook reading is not a commonly practiced in all homes (Kvalsvig, Liddell, Reddy, Qotyana & Shabalala, 1991). Use of unfamiliar material could influence the patterns of interaction between the caregiver and child. AAC interventionists such as Speech-language therapists therefore play a vital role in the provision and implementation of AAC systems, as well as in guiding caregivers in using strategies to enhance interaction (Dada, Murphy & Tönsing, 2017).

There is paucity of age-appropriate story-books in South Africa in the different indigenous languages (Pretorius & Machet, 2008). Those that are available are published for educational purposes (Ntuli, 2011). Reading of culturally appropriate books allows the caregivers to easily relate the story to the child's experiences, which easily facilitates understanding and learning. The children in the study also required books that are adapted to suit their physical impairments. Adaptation of books increases participation by the children with physical restrictions, as they are able to participate by turning pages and opening and closing flaps (Koppenhaver, Erickson, Harris, McLellan, Skotko & Newton, 2001; Trudeau, Cleave & Woelk, 2003).

Limitations of the Current Study and Recommendations for Future Research
Seeing that most primary caregivers who participated in the study reported that they do not own literacy material in the home, this could mean they seldom also read to their typically developing children. It is thus difficult to determine whether there would be differences in interaction style had they had more experience with the activity. Given the type of literacy material available in the homes of most of the dyad participants, further research is recommended that allows the caregivers to interact with their children using materials they use at home.

The dyads in the study are limited, their interaction style during shared interactions can thus not be widely generalised to the wider population. A study with a larger sample size can provide results, which could be generalised. Although the caregivers were observed in a familiar setting, it is however recommended that observations in future

research be conducted in their natural context. Another limitation was that the dyads were observed on one occasion. A future study should thus aim for multiple observations with familiar storybooks. This approach might provide a better reflection of the interaction patterns. Randomised control studies on this population on shared storybook reading could provide valuable information on the effectiveness of the strategy on children with CCN.

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Authors' Contributions

REM (University of Pretoria) was responsible for the conceptualisation of the project, data collection and the first draft manuscript; SD and JB contributed to the conceptualisation of the study, the analysis and writing of the manuscript. All authors reviewed the final manuscript.

Notes

References

American Speech-Language-Hearing Association 2015. *Augmentative and alternative communication*. Available at https://www.asha.org/NJC/AAC/. Accessed 17 March 2019.

Baroody AE & Diamond KE 2012. Links among home literacy environment, literacy interest, and emergent literacy skills in preschoolers at risk for reading difficulties. *Topics in Early Childhood Special Education*, 32(2):78–87. https://doi.org/10.1177/0271121410392803

Bedrosian J 1999. Efficacy research issues in AAC: Interactive storybook reading. *Augmentative and Alternative Communication*, 15(1):45–55. https://doi.org/10.1080/07434619912331278565

Bornman J 2017. Developing inclusive literacy practices in South African schools. In M Milton (ed). *Inclusive principles and practices in literacy education* (International Perspectives on Inclusive Education, Vol. 11). Bingley, England: Emerald Publishing Limited.

Bornman J, Sevcik RA, Romski MA & Pae HK 2010. Successfully translating language and culture when adapting assessment measures. *Journal of Policy and Practice in Intellectual Disabilities*, 7(2):111–118. https://doi.org/10.1111/j.1741-1130.2010.00254.x

Bornman J & Tönsing K 2015. Augmentative and alternative communication. In E Landsberg, D Kruger & E Swart (eds). A*ddressing barriers to learning: A South African perspective* (3rd ed). Pretoria, South Africa: Van Schaik.

Bus AG, Van IJzendoorn MH & Pellegrini AD 1995. Joint book reading makes for success in learning to read : A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research*, 65(1):1–21. https://doi.org/10.3102%2F00346543065001001

Carlson E, Bitterman A & Jenkins F 2012. Home literacy environment and its role in the achievement of preschoolers with disabilities. *The Journal of Special Education*, 46(2):67–77. https://doi.org/10.1177/0022466910371229

Cooper PJ, Vally Z, Cooper H, Radford T, Sharples A, Tomlinson M & Murray L 2014. Promoting mother–infant book sharing and infant attention and language development in an impoverished South African population: A pilot study. *Early Childhood Education Journal*, 42(2):143–152. https://doi.org/10.1007/s10643-013-0591-8

Couper J 2002. Prevalence of childhood disability in rural KwaZulu-Natal. *South African Medical Journal*, 92(7):549–552. Available at https://www.ajol.info/index.php/samj/article/view/132073/121672. Accessed 12 March 2019.

Dada S, Kathard H, Tönsing K & Harty M 2017. Severe communication disabilities in South Africa: Challenges and enablers. In S Halder & LC Assaf (eds). *Inclusion, disability and culture: An ethnographic perspective traversing abilities and challenges*. Cham, Switzerland: Springer. https://doi.org/10.1007/978-3-319-55224-8

Dada S, Murphy Y & Tönsing K 2017. Augmentative and alternative communication practices: A descriptive study of the perceptions of South African speech-language therapists. *Augmentative and Alternative Communication*, 33(4):189–200. https://doi.org/10.1080/07434618.2017.1375979

Dambi JM, Jelsma J & Mlambo T 2015. Caring for a child with Cerebral Palsy: The experience of Zimbabwean mothers. *African Journal of Disability*, 4(1):Art. #168, 10 pages. https://doi.org/10.4102/ajod.v4i1.168

DiCarlo CF, Onwujuba C & Baumgartner JI 2014. Infant communicative behaviors and maternal responsiveness. *Child & Youth Care Forum*, 43(2):195–209. https://doi.org/10.1007/s10566-013-9233-y

DSD, DWCPD & UNICEF 2012. *Children with disabilities in South Africa: A situation Analysis: 2001-2011* (Executive summary). Pretoria, South Africa: Department of Social Development/Department of Women, Children and People with Disabilities/UNICEF. Available at https://www.unicef.org/southafrica/SAF_resources_sitandisabilityes.pdf. Accessed 28 March 2019.

Gannotti M, Oshio T & Handwerker WP 2013. Caregiver practices of families of children with and without physical disability. *Journal of Developmental and Physical Disabilities*, 25(4):419–435. https://doi.org/10.1007/s10882-012-9318-9

Hetzroni OE 2004. AAC and literacy. *Disability and Rehabilitation*, 26(21-22):1305–1312. https://doi.org/10.1080/09638280412331280334

Higham S, Tönsing KM & Alant E 2010. Teachers' interactions during storybook reading: A rural

African perspective. *Early Education and Development*, 21(3):392–411. https://doi.org/10.1080/10409281003668052

Justice LM & Ezell HK 2002. Use of storybook reading to increase print awareness in at-risk children. *American Journal of Speech-Language Pathology*, 11(1):17–29. https://doi.org/10.1044/1058-0360(2002/003)

Justice LM & Kaderavek JN 2003. Topic control during shared storybook reading: Mothers and their children with language impairments. *Topics in Early Childhood Special Education*, 23(3):137–150. https://doi.org/10.1177%2F02711214030230030401

Kaderavek JN & Sulzby E 1998. Parent-child joint book reading: An observational protocol for young children. *American Journal of Speech-Language Pathology*, 7(1): 33–47. https://doi.org/10.1044/1058-0360.0701.33

Kim JM & Mahoney G 2011. The effects of mother's style of interaction on children's engagement: Implications for using responsive interventions with parents. *Topics in Early Childhood Special Education*, 24(1):31–38. https://doi.org/10.1177%2F02711214040240010301

Koppenhaver DA, Erickson KA, Harris B, McLellan J, Skotko BG & Newton RA 2001. Storybook-based communication intervention for girls with Rett syndrome and their mothers. *Disability and Rehabilitation*, 23(3-4):149–159. https://doi.org/10.1080/09638280150504225

Kromberg JG, Christianson AL, Manga P, Zwane ME, Rosen E, Venter A & Homer S 1997. Intellectual disability in rural black children in the Bushbuckridge district of South Africa. *Southern African Journal of Child and Adolescent Mental Health*, 9(1):2–11. https://doi.org/10.1080/16826108.1997.9632485

Kvalsvig JD, Liddell C, Reddy A, Qotyana P & Shabalala A 1991. Communication and teaching in the home: A study of Zulu and Sotho preschoolers. *Early Child Development and Care*, 74(1):61–81. https://doi.org/10.1080/0300443910740105

Larson E & Miller-Bishoff T 2014. Family routines within the ecological niche: An analysis of the psychological well-being of U.S. caregivers of children with disabilities. *Frontiers in Psychology*, 5:1–14. https://doi.org/10.3389/fpsyg.2014.00495

Liboiron N & Soto G 2006. Shared storybook reading with a student who uses alternative and augmentative communication: A description of scaffolding practices. *Child Language Teaching and Therapy*, 22(1):69–95. https://doi.org/10.1191%2F0265659006ct298oa

Light J, Binger C & Smith AK 1994. Story reading interactions between preschoolers who use AAC and their mothers. *Augmentative and Alternative Communication*, 10(4):255–268. https://doi.org/10.1080/07434619412331276960

Light J & Drager K 2007. AAC technologies for young children with complex communication needs: State of the science and future research directions. *Augmentative and Alternative Communication*, 23(3):204–216. https://doi.org/10.1080/07434610701553635

Light J & McNaughton D 2012. Supporting the communication, language, and literacy development of children with complex communication needs: State of the science and future research priorities. *Assistive Technology*, 24(1):34–44. https://doi.org/10.1080/10400435.2011.648717

Loeb M, Eide AH, Jelsma J, Toni MK & Maart S 2008. Poverty and disability in Eastern and Western Cape Provinces, South Africa. *Disability & Society*, 23(4):311–321. https://doi.org/10.1080/09687590802038803

Lusted I & Van Wyk C 2002. *Sam's smile*. Durbanville, South Africa: Garamond.

Lynch J, Anderson J, Anderson A & Shapiro J 2008. Parents and preschool children interacting with storybooks: Children's early literacy achievement. *Reading Horizons*, 48(4): 227–242. Available at https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=1091&context=reading_horizons. Accessed 31 May 2019.

Machalicek W, Sanford A, Lang R, Rispoli M, Molfenter N & Mbeseha MK 2010. Literacy interventions for students with physical and developmental disabilities who use aided AAC devices: A systematic review. *Journal of Developmental and Physical Disabilities*, 22(3):219–240. https://doi.org/10.1007/s10882-009-9175-3

McMillan JH & Schumacher S 2010. *Research in education: Evidence-based inquiry* (7th ed). Upper Saddle River, NJ: Pearson.

Mol SE & Bus AG 2011. To read or not to read: A meta-analysis of print exposure from infancy to early adulthood. *Psychological Bulletin*, 137(2):267–296. https://doi.org/10.1037/a0021890

Mophosho M & Dada S 2015. The role of the speech-language therapist in implementing AAC in schools. In S Moonsamy & H Kathard (eds). *Speech-language therapy in a school context: Principles and practices*. Pretoria, South Africa: Van Schaik.

Murray L, De Pascalis L, Tomlinson M, Vally Z, Dadomo H, MacLachlan B, Woodward C & Cooper PJ 2016. Randomized controlled trial of a book-sharing intervention in a deprived South African community: Effects on carer–infant interactions, and their relation to infant cognitive and socioemotional outcome. *The Journal of Child Psychology and Psychiatry*, 57(12):1370–1379. https://doi.org/10.1111/jcpp.12605

Ntuli CD 2011. From oral performance to picture books: A perspective on Zulu children's literature. PhD dissertation. Pretoria, South Africa: University of South Africa. Available at https://docplayer.net/68633807-From-oral-performance-to-picture-books-a-perspective-on-zulu-children-s-literature.html. Accessed 29 March 2019.

Ntuli D & Pretorius EJ 2005. Laying foundations for academic language competence: The effects of storybook reading on Zulu language, literacy and discourse development. *Southern African Linguistics and Applied Language Studies*, 23(1):91–109. https://doi.org/10.2989/16073610509486376

Palisano R, Rosenbaum P, Walter S, Russell D, Wood E & Galuppi B 1997. Development and reliability of

a system to classify gross motor function in children with cerebral palsy. *Developmental Medicine & Child Neurology*, 39(4):214–223. https://doi.org/10.1111/j.1469-8749.1997.tb07414.x

Pather S 2011. Evidence on inclusion and support for learners with disabilities in mainstream schools in South Africa: Off the policy radar? *International Journal of Inclusive Education*, 15(10):1103–1117. https://doi.org/10.1080/13603116.2011.555075

Peeters M, Verhoeven L, De Moor J, Van Balkom H & Van Leeuwe J 2009. Home literacy predictors of early reading development in children with cerebral palsy. *Research in Developmental Disabilities*, 30(3):445–461. https://doi.org/10.1016/j.ridd.2008.04.005

Pennington L & McConachie H 1999. Mother-child interaction revisited: Communication with non-speaking physically disabled children. *International Journal of Language & Communication Disorders*, 34(4):391–416. https://doi.org/10.1080/136828299247351

Pennington L & McConachie H 2001. Predicting patterns of interaction between children with cerebral palsy and their mothers. *Developmental Medicine and Child Neurology*, 43(2):83–90. https://doi.org/10.1017/S0012162201000147

Pirila S, Van der Meere J, Pentikainen T, Ruusu-Niemi P, Korpela R, Kilpinen J & Nieminen P 2007. Language and motor speech skills in children with cerebral palsy. *Journal of Communication Disorders*, 40(2):116–128. https://doi.org/10.1016/j.jcomdis.2006.06.002

Pretorius E & Naudé H 2002. A culture in transition: Poor reading and writing ability among children in South African townships. *Early Child Development and Care*, 172(5):439–449. https://doi.org/10.1080/03004430214552

Pretorius EJ & Machet MP 2008. The impact of storybook reading on emergent literacy: Evidence from poor rural areas in KwaZulu-Natal. *Mousaion*, 26(2):261–289.

Renner G 2003. The development of communication with alternative means from Vygotsky's cultural-historical perspective. In S von Tetzchner & N Grove (eds). *Augmentative and alternative communication: Developmental issues*. Philadelphia, PA: Whurr.

Robinson M & East N 2013. *Goodnight tractor*. London, England: Puffin Books.

Rosenbaum P, Paneth N, Leviton A, Goldstein M, Bax M, Damiano D, Dan B & Jacobsson B 2007. A report : The definition and classification of cerebral palsy April 2006. *Developmental Medicine & Child Neurology*, 49(s109):8–14. https://doi.org/10.1111/j.1469-8749.2007.tb12610.x

Saloojee G, Phohole M, Saloojee H & Ijsselmuiden C 2007. Unmet health, welfare and educational needs of disabled children in an impoverished South African peri-urban township. *Child: Care, Health and Development*, 33(3):230–235. https://doi.org/10.1111/j.1365-2214.2006.00645.x

Sandberg AD 1998. Reading and spelling among nonvocal children with cerebral palsy : Influence of home and school literacy environment. *Reading and Writing*, 10(1):23–50. https://doi.org/10.1023/A:1007958630788

Scarborough HS & Dobrich W 1994. On the efficacy of reading to preschoolers. *Developmental Review*, 14(3):245–302. https://doi.org/10.1006/drev.1994.1010

Sénéchal M, Lefevre JA, Thomas EM & Daley KE 1998. Differential effects of home literacy experiences on the development of oral and written language. *Reading Research Quarterly*, 33(1):96–116. https://doi.org/10.1598/RRQ.33.1.5

Statistics South Africa 2014. *Census 2011: Profile of persons with disabilities in South Africa*. Pretoria: Author. Available at https://www.statssa.gov.za/publications/Report-03-01-59/Report-03-01-592011.pdf. Accessed 23 March 2019.

Tickle J 2010. *The very messy monkey*. London, England: Little Tiger Press.

Tönsing KM 2016. Supporting the production of graphic symbol combinations by children with limited speech: A comparison of two AAC systems. *Journal of Developmental and Physical Disabilities*, 28(1):5–29. https://doi.org/10.1007/s10882-015-9425-5

Trudeau N, Cleave PL & Woelk EJ 2003. Using augmentative and alternative communication approaches to promote participation of preschoolers during book reading: A pilot study. *Child Language Teaching and Therapy*, 19(2):181–210. https://doi.org/10.1191/0265659003ct250oa

Vally Z 2012. Dialogic reading and child language growth— combating developmental risk in South Africa. *South African Journal of Psychology*, 42(4):617–627. https://doi.org/10.1177%2F008124631204200415

Vally Z, Murray L, Tomlinson M & Cooper PJ 2015. The impact of dialogic book-sharing training on infant language and attention: A randomized controlled trial in a deprived South African community. *The Journal of Child Psychology and Psychiatry*, 56(8):865–873. https://doi.org/10.1111/jcpp.12352

Vygotsky L 1978. Interaction between learning and development. In M Gauvain & M Cole (eds). *Readings on the development of children*. New York, NY: Scientific American Books. Available at https://www.faculty.mun.ca/cmattatall/Vygotsky_1978.pdf. Accessed 28 March 2019.

Whitehurst GJ & Lonigan CJ 1998. Child development and emergent literacy. *Child Development*, 69(3):848–872. https://doi.org/10.2307/1132208