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Parental Involvement in Literacy Development of Primary School Children in Tanzania

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Despite several initiatives to enhance primary education provision in Tanzania, and as a consequence high enrollment rates, there have been limited improvements in early literacy development of Tanzanian children. The current education system of Tanzania focuses mostly on schools and teachers as the key educators in children's learning with little attention to the role of parents and the home environment. This PhD project aimed at exploring and supporting parental involvement in primary school children's reading development, and at creating a framework to encourage teacher-parent partnership in Tanzania. The research in the dissertation (a) explored motivational factors that influence parents' decisions to be involved in educational activities at home and schools, (b) assessed the relationship between parental reading support activities with children's reading skills, and (c) evaluated the effectiveness of a one year intervention programme that intended to enhance children's reading development. We used Hoover-Dempsey and Sandler's model of parental involvement as our theoretical framework. The intervention was based on practices that were shown in the research literature to be effective for children's learning, and included a teacher and parent training, teacher-parent communication, reading at home, and parent involvement in their child's homework.

Participants in the study were 600 second grade primary school pupils and their parents (68.2% mothers) from 24 schools in Dar es Salaam. Questionnaires and tests (reading, intelligence) were used to measure the study variables. We used a school based cluster randomized controlled trial with baseline, post-intervention and follow-up measurement to evaluate the effectiveness of the intervention ($n = 336$ intervention group, $n = 224$ control group). Statistical analyses included regression analyses and multilevel modeling.

Findings showed that parents are willing to be involved in their children's education. Involvement at home was related to parents' expectations for children's school success, next to parents' perceived time and energy, child invitations and parents' self-efficacy. School involvement was predicted by perceived time and energy, and school and child invitations. There were weak associations between parental reading support activities (modeling, reinforcement, encouragement and instruction) with three aspects of children's reading (decoding, fluency, and comprehension). The evaluation of the intervention revealed that children in the intervention condition made more progress in reading (decoding and comprehension) compared to children in the control condition. Throughout the study we found a relationship between parents' education level and children's reading skills. This indicates that parents with a low level of education need more attention and support. We can conclude that the intervention through feasible activities, is able to foster parental involvement. Schools need to support teachers and create a warm environment to all parents, regardless of their social economic status. The government should make parental involvement a policy issue by setting regulations and guidelines for effective parental involvement in the literacy development of children.

Ouderlijke betrokkenheid bij de ontwikkeling van geletterdheid bij lagere schoolkinderen in Tanzania

Janeth Kigobe

Promotor: Prof. dr. K. Van Leeuwen; Co-promotor: Prof. dr. Pol Ghesquière

Ondanks verschillende initiatieven in Tanzania om deelname aan het onderwijs te verhogen, met als gevolg een effectieve grote toename van het aantal ingeschreven leerlingen, is er maar weinig vooruitgang geboekt in de ontwikkeling van geletterdheid bij kinderen in de lagere school. Het huidige onderwijssysteem in Tanzania focust vooral op scholen en leerkrachten als sleutelfiguren bij het leren van kinderen, maar heeft nauwelijks aandacht voor de rol van ouders en de thuisomgeving. Dit doctoraatsproject wil de betrokkenheid van ouders in het leren lezen van kinderen in het lager onderwijs verkennen en ondersteunen, en een raamwerk scheppen om partnerschap tussen ouders en leerkrachten in Tanzania te stimuleren. Het onderzoek in het proefschrift had volgende doelstellingen: (a) het verwerven van inzicht in de motieven die de beslissingen van ouders mee bepalen om al dan niet betrokken te zijn bij de leeractiviteiten van hun kinderen thuis en op school; (b) het verband onderzoeken tussen activiteiten van ouders om de leesvaardigheden van kinderen te ondersteunen en de leesvaardigheden van hun kinderen, en (c) het evalueren van de effectiviteit van een eenjarig interventieprogramma om de leesontwikkeling van kinderen te bevorderen. Het Hoover-Dempsey en Sandler's model voor ouderlijke betrokkenheid diende daarbij als theoretisch kader. De interventie is gebaseerd op praktijken die in de wetenschappelijke literatuur als effectief bevonden zijn voor de leerontwikkeling van kinderen, en omvatte een training voor leerkrachten en ouders, leerkracht-ouder communicatie, thuis lezen, en betrokkenheid van ouders bij het huiswerk van hun kinderen.

Deelnemers aan de studie waren 664 kinderen uit het tweede leerjaar lager onderwijs en hun ouders (68.2% moeders) uit 24 scholen in Dar es Salaam. Er werden vragenlijsten en testen (voor lezen en intelligentie) gebruikt om de variabelen in het onderzoek te meten. We gebruikten een Cluster Randomized Controlled Trial (met school als basis) om de effectiviteit van de interventie te evalueren (336 kinderen in de interventieconditie, 264 in de controleconditie). Regressie- en multi-niveau analyses werden gebruikt om de data te analyseren.

De resultaten toonden aan dat ouders in Tanzania willen betrokken zijn bij het onderwijs van hun kinderen. De mate waarin ze betrokken zijn bij het leren van hun kind in de thuissituatie, hangt af van de verwachtingen die ouders hebben over het schoolsucces van hun kind, de tijd en energie die ze denken ter beschikking te hebben, uitnodigingen van het kind zelf om met het leren van het kind bezig te zijn en de self-efficacy van ouders. Het betrokken zijn van ouders bij de school hangt af van hun gepercipieerde beschikbare tijd en energie en uitnodigingen van de school en het kind. Wat de relatie tussen activiteiten van ouders om het lezen bij hun kinderen te ondersteunen (model staan, bekrachtigen, aanmoedigen en instructie) en drie aspecten van het lezen bij kinderen (decoderen, vloeiendheid en begrijpen) betreft, waren de verbanden eerder klein. De evaluatie van de interventie toonde aan dat de kinderen in de interventieconditie meer vooruitgang toonden in het lezen (in decoderen en begrijpen) dan kinderen in de controleconditie. Doorheen de studies stelden we ook een verband vast tussen het opleidingsniveau van de ouders en de leesvaardigheden van hun kinderen. Dit impliceert dat ouders met een laag opleidingsniveau meer aandacht en ondersteuning nodig hebben.

We concluderen dat de interventie er via haalbare activiteiten voor ouders in kan slagen om ouderlijke betrokkenheid te bevorderen. Scholen kunnen leerkrachten ondersteunen om ouders een warme omgeving aan te bieden, los van hun socio-economische achtergrond. De overheid zou van ouderlijke betrokkenheid een beleidsaspect moeten maken, door maatregelen te treffen en richtlijnen te voorzien zodat alle ouders in Tanzania het leren lezen van hun kinderen kunnen ondersteunen.

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No matter where you come from...

Your dreams are valid

Lupita Nyong'o

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CHAPTER 1

GENERAL INTRODUCTION

This chapter provides a general overview of this dissertation, including a problem definition, the general aims of the dissertation, a theoretical framework that guides the empirical studies, the research methodology and the outline of the studies. We start this general introduction by addressing the education structure and policy in Tanzania and the challenges this specific context generates for literacy development of children. Next, we present the theoretical framework that was used to conceptualize the role of parental involvement in children's educational activities in general and in the literacy development of children in particular. We then discuss research findings on motivational factors that influence parents' decisions to be involved and possible activities that parents may use to support their children in their literacy development. We also introduce the intervention program that was developed and implemented to enhance parental involvement in children's literacy development through teacher-parent partnerships. Finally, we discuss the research methodology. We conclude the introduction with an overview of the chapters and studies in this dissertation.

1. Literacy in Tanzania

1.1. Organisation of the Education System in Tanzania

Education in Tanzania is provided by both the Government and the private sector (owned by individuals, missionary groups or private organizations). The general structure of the education system in Tanzania includes 2 years of pre-primary education for ages 5-6 (year 1 and 2), 7 years of primary education for ages 7-13 (Standard 1-7), 4 years of ordinary level secondary education for ages 14-17 (Form I-IV), 2 years of advanced level secondary education for ages 18-19 (Form V-VI) and 3 or more years of University education depending on the field of study (MOEVT, 2018). The education system in Tanzania is coordinated by the Ministry of Education, Science and Technology whereby primary (elementary) education is part of the Department of basic education development. The language instructions are Swahili for public (Governmental) primary schools and English for international and English medium private schools. English is the language of instruction for secondary education, universities and all higher education institutions in Tanzania. Primary education is provided free to all school-aged children in public schools.

1.2. Literacy Performance of Children in Primary Schools in Tanzania

The vital aim of any primary education system is to provide children with opportunities to acquire numeracy, literacy and other skills that they need for their further education career. Tremendous changes have taken place in the provision of primary education in Tanzania. In recent years there were huge transformations in the access and equity in primary education, whereby girls and boys are equally enrolled in primary schools in Tanzania. Tanzania was ahead of schedule in meeting the Millennium Development Goals (MDGs) related to education access and gender parity (Uwezo, 2011). Millions of children are enrolled in schools, tens of thousands of classrooms have been built and tens of thousands of teachers have been recruited (Uwezo, 2011). The country introduced a national campaign for providing desks in public schools so as to combat the scarcity of 1.4 million desks in primary schools in 2016. Despite these successes, many challenges persist related to retention, completion, the quality of education, actual teaching and learning processes, the transition to secondary education, as well as the relevance of skills graduates of primary education are bringing to the economy (USAID, 2016). It is apparent that the improvement has been in terms of quantity and not quality. As a result, Tanzania is still facing challenges in primary education, especially in early literacy development of the children. A problem is no longer about poor enrollment and gender inequality in school, it is about learning. The core problems, which are poor school performance and low literacy skills, have not been solved (Kumburu, 2011). Ligembe (2014)

examined factors that affect the acquiring of reading skills in Kiswahili and found that public primary schools were responsible for poor reading skills among the standard I to IV pupils in Musoma municipal and Misungwi district in Tanzania. The national curriculum stipulates that children are expected to master basic reading skills by grade 3. Nevertheless, it is apparent that some children do not master basic reading skills up to grade 7. A study of Uwezo, with a large-scale assessment involving over 20,000 households and over 40,000 children, has revealed that there is a crisis in primary education (Uwezo, 2012). Although by the time they enter standard 3, 100 per cent of children should have basic competencies in literacy and numeracy, it appears that by standard 3, 7 out of every 10 children cannot read basic Swahili, 9 out of every 10 children cannot read basic English and 8 out of every 10 children cannot do basic mathematics (Uwezo, 2012). A national early grade reading assessment which was conducted in 2013 showed that only 8 percent of grade 2 pupils were able to read with grade-level fluency and comprehension (USAID, 2016). This shows that despite the huge investment made in education each year, the majority of children in Tanzania do not acquire core skills expected at their age and grade level, a critical problem which will disadvantage them in the long term (Uwezo, 2012).

Chahe and Mwaikokesya (2018) asserted that in spite of various efforts which aimed at boosting literacy skills for children aged between five and 13 in Tanzania, little seems to have been done in harnessing the potential of parents and supporting families in literacy development of children. In Tanzania, parents value education highly, though their involvement is mostly confined to financial support (Tornblad & Widell, 2014). The identification of this actual problem regarding literacy in Tanzania motivates this dissertation. More specific, we were interested in whether and how parents can be more involved in education.

2. Literature Overview and Theoretical Framework

2.1. The Construct of Parental Involvement in Education

Parental involvement in education has long been a topic of interest among scholars concerned with optimal developmental and educational outcomes for preschool and elementary school children (Hoover-Dempsey & Sandler, 1997). In the literature, there are several descriptions of parental involvement in education. According to Jeynes (2016), parental involvement refers to parental participation in the educational processes and experiences of their children. Reynolds and Clements (2005) have defined parental involvement as parental behavior with, or on behalf of children, at home or at school, as well as the expectations that parents hold for children's future education. Sui-Chu and Willms (1996) explained parental involvement through four constructs: home discussion, home supervision, school communication and school participation. Parental involvement at school

may include attending parent-teacher conferences, attending programs featuring students, and engaging in volunteer activities. Parental educational involvement at home may include providing help with homework, discussing the child's schoolwork and experiences at school, and structuring home activities (Sui-Chu & Willms, 1996). Epstein (1992) developed the common known six types parental involvement including parenting, communicating, volunteering, learning at home, decision-making and collaborating with the community.

2.2. Parental Involvement in Literacy Development of Children

Engaging families in the education of their children at home and at school is increasingly viewed as an important means to support better learning outcomes for children (Berthelsen & Walker, 2008). There is emerging empirical support for the hypothesis that parents have a vital role in the literacy development of their children (Berthelsen & Walker, 2008; Bouakaz & Persson, 2007; Eke, 2011; Green, Walker, Hoover-Dempsey, & Sandler, 2007; Walker, Wilkins, Dallaire, Sandler, & Hoover-Dempsey, 2005; Wright, 2009). The home is where children first encounter oral and written language. Some scholars think that parents are their children's primary and life time teachers and are the most essential people in the education of their children (Gelfer, Higgins, & Perkins, 2001). Some studies done in America and Europe have found that parents, by introducing oral and written language at home, can create a strong foundation for children's future literacy development (Bouakaz & Persson, 2007; Foster, Lambert, Abbott-Shim, McCarty, & Franze, 2005; Green et al., 2007; Stainthorp & Hughes, 2000; Walker et al., 2005; Wright, 2009). Several studies have revealed that early parent intervention boosts children's reading development (Carroll, 2013; Fan & Chen, 2001; Gest, Freeman, Domitrovich, & Welsh, 2004; Sénéchal & LeFevre, 2002; Simonds, 2012). Sénéchal and Lefevre (2002) conducted a 5- year longitudinal study on the role of parental involvement in the development of children's reading skills in Canada and found that children's exposure to books at home was related to the development of vocabulary and listening comprehension skills. Moreover, parental involvement in teaching children about reading and writing words was related to the development of early literacy skills. Flouri and Buchanan (2004) affirmed that parental involvement in a child's literacy practices is a more powerful force than other family background variables, such as social class, family size and level of parental education. Though literature from Europe and America shows that parental involvement has many benefits for the development of children's reading skills, there is a gap in the literature on the association between parental involvement and literacy development of children in Tanzania.

2.3. Theoretical Framework for Parental Involvement

In our literature search concerning the question whether and how parents can be more involved in their children's literacy development, we encountered a theoretical model that

specifically addresses the questions we are interested in, namely Hoover-Dempsey and Sandler's model of the parental involvement process (Hoover-Dempsey & Sandler, 1995; 1997; Hoover-Dempsey, Walker, & Sandler, 2005). The model is related to three major questions: (a) why do (and don't) families become involved in educational activities; (b) what do families do when they are involved in educational activities, and (c) how does family involvement in children's education make a positive difference in student outcomes. The model focuses on understanding specific elements of the parental involvement process and relationships among them (Hoover-Dempsey, 2010). These elements include parents' choices of involvement forms, major mechanisms through which parental involvement influences educational and related developmental outcomes in children, the major mediating variables that enhance or diminish the influence of involvement, and major outcomes for child learning. Hoover-Dempsey and Sandler introduced the model in 1995 and the model was revised in 2005 (Walker et al., 2005). The model is structured in five levels (see figure 1) operating between parents' initial choice to become involved (Level 1) to (level 5) which explains beneficial influence of that involvement on student outcomes (Hoover-Dempsey & Sandler, 1997). Level 1 includes the constructs that focus primarily on personal motivators of the individual parent, explaining parents' fundamental decisions about involvement. Three major constructs are part of level 1: (a) personal motivators which include parental role construction and parental self-efficacy for helping their child succeeding in school, (b) parents' perceptions of invitations to be involved, which comprise general invitations from school (e.g. being welcomed by the school, and being encouraged to be involved in the child's education), teachers (e.g. a trusting relationship), and child (e.g. child requests for help or engagement in educational activities), and (c) life context variables, consisting of parental knowledge and skills as well as parental time and energy. Walker et al. (2005) hypothesized that parents' perceived life context moderates the influence of other level 1 constructs, which means that any distance between what parents think they can and should do and what they actually do is influenced by their perceptions of available resources. An intermediate level, that is level 1.5, comprises parents' choices of involvement forms which are involvement activities within the home context and/or involvement activities within the school context (Lavenda, 2011). Level 2 includes the mechanisms of involvement, namely the methods parents use for influencing the child's schooling, which we further call 'activities', through which parental involvement influences educational and related developmental outcomes in children. These are modeling (which is a parent's explicit attitude towards reading and actual parents' reading behavior), encouragement (which is a parent's support for a child in activities related to school tasks and learning), reinforcement (which is parent's application of positive consequences for learning behaviors and efforts of their child), and instruction (which is the engagement of a parent with their child by giving various forms of

instruction such as teaching and tutoring). Level 3 refers to major variables that may enhance or diminish the association between the parents' involvement activities and the child's academic achievement. These variables are the child or student perceptions of learning mechanisms/methods used by a parent. Level 4 refers to students' attributes conducive to achievement such as academic self-efficacy, the intrinsic motivation to learn, self-regulatory strategies and social self-efficacy for relating to teachers. Level 5 is a student's academic achievement, and according to the model, parental involvement at each level of the process predicts to some extent student outcome (Hoover-Dempsey & Sandler, 1995, 1997, 2005, 2010; Walker et al., 2005).

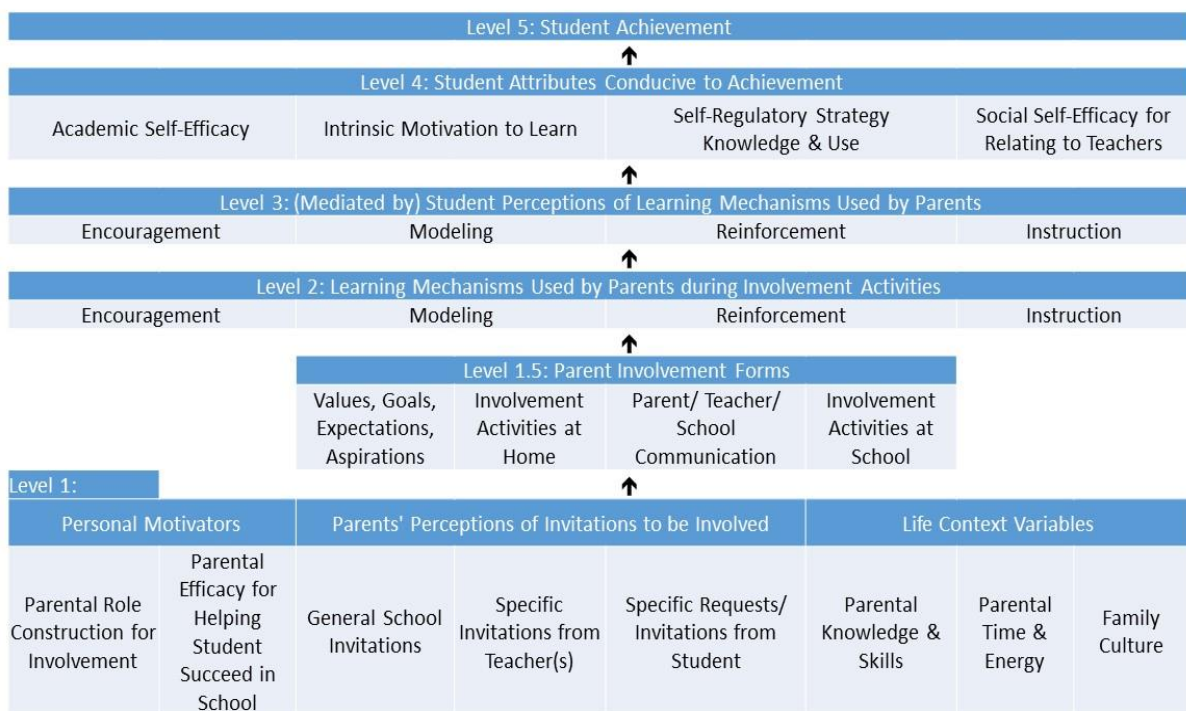


Figure 1. Hoover-Dempsey and Sandler Model of the Parental Involvement Process. Adapted from The Parent Institute, www.parent-institute.co (2012)

Our choice to employ this theoretical model in the PhD project was based on the following arguments. The model is related to the research questions we want to investigate in the context of Tanzania, in order to make well-informed decisions about how to approach parents regarding involvement in their children's learning process. The revised model by Walker and colleagues' has a more dynamic representation than the original model, with links expressing hypothesized relations within and between levels in the model (Walker et al., 2005). The model was designed to examine specific research questions and hypotheses, not per se to be tested as a whole and thus including all five levels (Green et al., 2007). This means that some levels (e.g. level 2, parents' activities at school or at home) can be considered as either outcome or independent variables, depending on the research question. This also implies that we can omit levels that are less useful or relevant. More specifically, we did not examine level 4 variables (student attributes) because in our studies the target group consisted of young children for whom it would be too difficult to rate their own attributes. Another advantage of the model is that for research purposes every concept within each level has been operationalized into questionnaires. These questionnaires have been successfully applied in previous studies (see for example Anderson & Minke, 2007; Greet et al., 2007; Lavenda, 2011; Walker et al., 2005) showing good psychometric properties.

2.4. Motives for Parental Involvement

Why do (or don't) parents become involved in educational activities, in other words, what are the motives to be involved? Motives for parental involvement are internal and external factors that influence parent's decisions and choices to be involved in their child's learning (Hoover-Dempsey & Sandler, 1995, 1997, 2005; Hoover-Dempsey, 2010; Topor, Kaene, Shelton, & Calkins, 2010). How parents define their role and responsibility towards their children's schooling and education is very important in understanding the parental involvement process. Parents' decisions to be involved in the child's learning depend on many variables such as personal beliefs about their role and the impact they will have on their child, general life context variables as well as the involvement invitations from others (Hoover-Dempsey & Sandler, 1995, 1997, 2005). Parents' motivation is to a great extent socially constructed and differs from one society to another. Parents' motivation influences parental involvement at home and at school differently. When parents believe that their involvement will yield a positive impact on their children's education they will be more involved in their children's education. Parental involvement is influenced in part by the outcomes parents expect following their actions and the appraisal of their personal capabilities (Hoover-Dempsey et al., 1995).

Literature search shows that little is known about motivational factors in parents in Tanzania. In this dissertation we will explore three major constructs that are part of the Hoover-Dempsey and Sandler model (Walker et al., 2005): parental personal beliefs (parental role construction, self-

efficacy, parental expectancies on child's education achievement), contextual/invitation factors (such as general school invitations, specific invitations from teacher and from the child) and parents' life context (such as parental perceptions of personal knowledge and skills and parental perceptions of time and energy for involvement).

2.5. Learning Support Activities in Parental Involvement

How are parents involved in their children's learning? Learning support activities in parental involvement are the mechanisms which portray parent's actual involvement behavior in their children's education (Hoover-Dempsey, 2010). Parental involvement in a child's education is consistently found to be positively associated with a child's academic performance. However, there has been little investigation of the mechanisms that explain this association (Topor et al., 2010). According to Anderson and Minke (2007) parents and educators define involvement differently. While parents take a more community-centric view by monitoring their children's safety and taking their children to school, teachers define parental involvement as parents' physical presence at school. Parental involvement must be defined broadly, through understanding the involvement strategies and opportunities at home (e.g. reading together, supervising home-work, valuing education, talking about school activities) and at school (e.g. attending school activities, talking to teachers, volunteering) and by assessing the various psychological, socio-cultural and economic factors that influence strategies that parents employ in learning activities at home and at school (Anderson & Minke, 2007; Hoover-Dempsey & Sandler, 1995). Little is known about which learning strategies might be used by parents in Tanzania. In this dissertation we will explore four learning strategies that are part of the Hoover-Dempsey and Sandler model (Walker et al., 2005): parental encouragement, parental modeling, parental reinforcement and parental instruction.

3. General Research Aims

The main focus of this doctoral thesis is investigating parental involvement in literacy development of children in Tanzania. We concluded that the current education system of Tanzania focuses mostly on schools and teachers as the key educators with little attention for the role of parents and the home environment in children's learning. A literature search showed that the issue of parental involvement in children's education in Tanzania is understudied, although poor literacy stimulation and support in the home environment are among the factors which hinder an optimal development in general and in literacy skills in particular in Tanzania (Kumburu, 2011). Coleman et al. (1966) stated that equality of educational opportunities can only be achieved when all children have enough support from home. They affirmed that children who lack support or a value of education in their home are disadvantaged and cannot learn at the same rate as those students emerging from wealthier families valuing educational instruction. To optimize early literacy

development in Tanzania, there is a need of exploring possible problems which are associated with both the school and family learning environment. This doctoral project intends to explore parents' involvement in elementary school children's literacy development (i.e. the process of learning to read) in Tanzania and proposes a framework to encourage teacher-parent partnership in primary schools in Tanzania. Our research was guided by the following objectives:

- i. The first objective of this project relates to the question: why do (and don't) families become involved in educational activities. This question was examined by assessing parents' motives to be involved in their child's schooling and to relate this to actual involvement. This objective connects level 1 from Hoover-Dempsey and Sandler's model (parents' motivational beliefs, perceptions of invitations for involvement, and their perceived life context) with level 2 (forms of involvement, i.e. school and home involvement).
- ii. The second aim is to examine the relationship between parental reading support and children's reading, which is related to the question 'what do parents do when they are involved in educational activities and how is this related to children's reading'. This research aim links level 3 in the Hoover-Dempsey and Sandler's model (parental modeling, reinforcement, instruction and encouragement) to level 5 (student achievement, i.e. reading).
- iii. The third objective is related to the question 'how does family involvement in children's education make a (positive) difference in student outcomes'. To examine this question, an intervention study was set up, to evaluate the effectiveness of a one-year intervention program designed to encourage teacher-parent partnership and assess its impact on children reading skills. This objective examines Hoover-Dempsey and Sandler's model in a more general way.

4. Research Methodology

4.1. Research design

This PhD project was part of a larger project¹ that uses a partial mixed research approach, combining both a qualitative and a quantitative data collection. In the larger project interviews and focus group discussions were organized to get the view of parents, teachers and students on the topic of our research and the particular language they use to discuss it. However, to keep this PhD project manageable, we do not analyze these qualitative data here, but we focus on quantitative data only. In two studies in this dissertation, variables from the Hoover-Dempsey and Sandler's model are

¹ A VLIR-UOS TEAM project, entitled 'Enhancing equal opportunities through participation of families and schools in basic skill formation' (ZEIN2015PR410), in a cooperation between KU Leuven (promotor Karla Van Leeuwen, co-promotor Pol Ghesquière) and the Open University of Tanzania (promotor Michael Ng'umbi).

operationalized by questionnaires and reading tests for children and their parents. Hypotheses about relations between these variables are investigated by means of correlations and regression analysis, and attention is given to possible mediating and moderating variables.

A third study in this dissertation uses a quasi-randomized control trial to evaluate a one year intervention that aims at strengthening parental involvement in the literacy development of children through teacher-parent partnership. We randomly assigned schools to two groups: an intervention group with parents/teachers participating in the intervention program, and a control group (waiting list condition) with no special activities aimed at parents. In this quasi-randomized control trial 12 schools were randomly chosen to have an active intervention and 12 schools were on the waiting list with regular school activities. School randomization between the active intervention and control group was performed after the completion of the 3 days teachers training and 2 hours of parents training. Because of practical reasons, students within schools were not randomly assigned to one of the two conditions; therefore we consider our design 'quasi-randomized'. We investigate the hypothesis that the intervention condition results in better reading over time in children than the control condition. As outcome variables we tested children's reading accuracy, speed and comprehension before the start of the intervention (baseline measurement), after the intervention and at a follow-up moment, 8-9 months after the intervention (follow-up measurement).

4.2. Participants

Participants were primary school pupils, their parents and teachers from 24 schools in Dar es Salaam. Per school minimum 16 and maximum 27 parents were involved and per family only one parent participated in the study (68.2% mothers and 31.8% fathers). Our sample included 600 children attending 18 public and 6 private primary schools, one of their parents and teachers ($n = 48$). The first wave encompassed 600 children and 580 parents, second wave included 483 children and 399 parents and the third wave included 450 children and 350 parents.

4.3. Procedure

At the time of our baseline data collection, Dar es Salaam had a total number of 573 primary schools in three districts: Kinodoni (140 public and 111 private schools), Ilala (110 public and 63 private schools) and Temeke (112 public and 37 private schools). Twenty-four primary schools were randomly selected from a list of all schools. All invited schools, except two private schools, agreed to participate and accepted that parents should be invited at school. Data was collected into three waves: wave one was collected in May 2016 (base line data collection), wave two was collected in June 2017 (data collection after the intervention) and wave three was collected in February 2018 (follow-up data collection). At the start of teachers-parents meeting at the schools, parents were requested to complete the survey and to be involved in a group discussion ($n = 7$). At the end of

intervention parents were asked to participate in a 10 minute reading test in a private room at the school. There were seven research assistants who supported parents who could not read accurately by reading questions aloud.

4.4. Measures

A multi-method (questionnaires, tests, observation, and interview) and multi-informant (parent, teachers, and pupils) approach was used to assess the variables in the larger project. Only quantitative data collected through the questionnaires and tests was used in this doctoral dissertation. We used 11 constructs developed by Walker et al. (2005) which are related to the revised Hoover-Dempsey and Sandler's model of parental involvement. One variable which explains parental expectations was assessed using items developed by Geyer and Feng (1993). An overview of the variables is provided in Table 1. A pilot study was conducted to examine the validity of the measures' content in the Tanzanian context. We performed back and forth translation to create a Swahili-language survey as Swahili is the national language in Tanzania. To test children's reading skills (word decoding, fluency and comprehension) we adopted a part of "Uwezo's" reading assessment tool (see <http://www.uwezo.net/assessment/>). To control for IQ in the analyses, we used Raven's Colored Progressive Matrices test with 36 items (Martin & Wiechers, 1954; Raven, 1947). To measure parents' reading skills (reading fluency and comprehension) we adopted the 2015 national primary education leaving examination.

5. Outline of the Dissertation

We organized this doctoral thesis around six chapters. The first chapter is an introductory chapter which outlines the rationale for the doctoral project and general research goals, methodology and structure of the thesis. Three chapters are empirical studies that are organized in the form of journal manuscripts (Chapters 2, 3 and 5), one chapter (Chapter 4) describes the design of the intervention program that is evaluated, and the last chapter is a general discussion.

The following provides a more detailed description of the chapters, and Table 1 gives an overview of the three empirical studies.

Chapter 2. In chapter 2 (first study) we investigated the motivational factors that may influence decisions by parents to be involved in their child's learning activities at home and at school (i.e. the child's schooling or education). The study examined the relationship between factors which influence parental involvement, which are parents' personal motivators, parents' perceptions of invitations from others (teachers, children) and life context variables with parent's involvement forms (home and school based involvement behavior of the parents), thereby not focusing on reading acquisition in particular.

Chapter 3. In chapter 3 (second study) we investigated the relationship between parental reading support activities and children's reading achievement. We assessed how four involvement strategies (reinforcement, modeling, encouragement and instruction) are related to children's reading skills.

Chapter 4. In chapter 4 we explained in detail the intervention program that was designed to encourage parents to take an active role in the acquisition of their children's reading skills through teacher-parent partnerships. The ingredients of the intervention program are based on studies in the scientific literature showing effectiveness of programs designed to enhance *reading skills* in elementary school children (e.g. meta-analysis by Jeynes, 2012; 2005). This scientific literature guided our choices of components (content) in the intervention and ways of implementing it (process).

Chapter 5. Chapter 5 (third study) evaluates the effectiveness of the intervention program described in Chapter 4, which aims at promoting parental involvement in children's reading through teacher-parent partnerships with the hypothesis that children's reading will improve. A design with pre-, post- and follow-up measurements is used. We assigned schools to two groups: an intervention group with parents/teachers participating in the intervention program, and a control group (waiting list condition) with no special activities aimed at parents. We investigated the hypothesis that the intervention condition results in better reading over time than the control condition. As regards changes in outcome variables, we tested children's reading accuracy, speed and comprehension before the intervention start (baseline measurement), after the intervention (post-intervention measurement) and 8 to 9 months after the intervention (follow-up measurement).

Chapter 6. In the general discussion, the obtained results of the whole PhD project are further discussed. This chapter goes into theoretical and practical implications of the findings and outlines recommendations for policy makers and researchers.

Table 1

Organization of the Dissertation by Study, Sample, Waves and Variables

Chapters	Sample size	Waves used	Variables used
Chapter 2	580 parents	Baseline measurement	Parental personal motivators
Study 1			Parents' perceptions of invitations to be involved Life context variables Home involvement School involvement School category Parent educational level
Chapter 3	600 children	Baseline measurement	Parental encouragement
Study 2	580 parents		Parental modeling Parental reinforcement Parental instruction Parent educational level Parent reading variables Child IQ Child reading variables
Chapter 5	600 children	Baseline	Child reading variables
Study 3	580 parents	Post-intervention	Parent educational level
	Intervention group: <i>n</i> = 264	Follow-up measurement	Child IQ School category
	Control group: <i>n</i> = 336		Intervention versus control group

CHAPTER 2

PARENTAL INVOLVEMENT IN EDUCATIONAL ACTIVITIES IN TANZANIA: UNDERSTANDING MOTIVATIONAL FACTORS

Abstract

In Tanzania the education system focuses mostly on schools and teachers as key educators of children, while little attention is paid to the role of the home environment in children's learning. This study examines motivational factors that may influence parental involvement at home and at school, using Hoover-Dempsey and Sandler's model of parental involvement as a theoretical framework. Participants were 580 parents of grade 2 children attending primary schools in three districts of Dar Es Salaam, Tanzania. Parents were invited at school to complete a questionnaire. Regression analyses showed that parents' expectations for children's school success predicted home involvement, next to parents' perceived time and energy, child invitations and parents' self-efficacy. School involvement was predicted by perceived time and energy, and school and child invitations. In a mediation model role construction had an indirect effect on school involvement through child and school invitations and perceived time and energy. Implications for educational policy are discussed.

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1. Introduction

In Tanzania, primary education is free and accessible to every school-aged child. In this respect, Tanzania was ahead of schedule in meeting the millennium development goals (MDGs) related to education access and gender parity (Uwezo, 2011). However, despite the fact that great progress has taken place in the basic education sector in Tanzania, some children up to grade seven cannot master basic reading. Uwezo, a non-governmental organization that aims to improve competencies in literacy and numeracy among children aged 6-16 years old in East-Africa, conducted a large-scale assessment involving over 20,000 households and over 40,000 children in Tanzania. Results revealed that by 3 grade 7 out of 10 children cannot read basic Swahili, 9 out of 10 children cannot read basic English and 8 out of 10 children cannot do basic mathematics (Uwezo, 2012). The national early grade reading assessment in 2013 found that only 8 percent of grade 2 pupils were able to read with grade-level comprehension (USAID, 2016). This shows that despite of the improvements made in basic education the country still faces challenges in providing quality education to primary school children. The core problems, which are poor school performance and low literacy skills, have not been solved (Kumburu, 2011). The current education system of Tanzania focuses mostly on schools and teachers as the key educators with little attention for the role of parents and home environment in children's learning. However, the question is whether Tanzanian parents could also be partners in the education of their children, whether they are motivated to be involved in their children's learning, and what factors may influence their motivation.

In research over the last few decades, the contribution of parental involvement in children's educational success has been proven to be important. Several studies have shown that active parental involvement in children's schooling is associated with children's academic performance (Christian, Morrison, & Bryant, 1998; Epstein, 2016; Hoover-Dempsey, Bassler, & Burow, 1995; Singh et al., 1995; Sui-Chu & Willms, 1996). Parental involvement in children's education seems also to be related to positive outcomes in children's reading development. Several studies have revealed that early parent intervention boosts children's reading development (Carroll, 2013; Fan & Chen, 2001; Gest, Freeman, Domitrovich, & Welsh, 2004; Sénéchal & LeFevre, 2002; Simonds, 2012). Sénéchal and Lefevre (2002) conducted a 5-year longitudinal study on the role of parental involvement in the development of children's reading skills and found that children's exposure to books at home was related to the development of vocabulary and listening comprehension skills. Moreover, parental involvement in teaching children about reading and writing words was related to the development of early literacy

skills. Flouri and Buchanan (2004) concluded that parental involvement in a child's literacy practices is a more powerful force than other family background variables, such as social class, family size and level of parental education. However, before implementing any interventions to stimulate parental involvement in their children's education and literacy, it is necessary to know to what extent parents are motivated to do so, and what may hamper their involvement.

According to Anderson and Minke (2007) parents and educators define involvement differently. While parents take a more community-centered view by monitoring their children's safety and taking their children to school, teachers define parental involvement as parental physical presence at school. Parental involvement is a multidimensional construct, and scholars have stressed the necessity to differentiate between involvement opportunities at home (e.g. reading together, supervising home-work, valuing education, talking about school activities) and at school (e.g. attending school activities, talking to teachers, volunteering) (Anderson & Minke, 2007; Hoover-Dempsey & Sandler, 1995). Various psychological, socio-cultural and economic factors may influence these different forms of involvement (Anderson & Minke, 2007). Psychological factors that shape parents' involvement choices comprise the way how parents construct their role in their child's academic development and how they perceive their capacities to support their child in learning (skills, knowledge, and efficacy). Socio-cultural and economic factors include the attitude of teachers and schools towards parental involvement, and parents' resources (e.g. flexible work hours or transport availability to visit school).

Although studies suggest a positive association between parental involvement and children's academic development there still is no common mechanism identified that explains parental involvement across all cultures and populations. The major aim of this study was to explore motivational factors that influence parental involvement behaviors in educational activities in Tanzanian elementary schools. This is a first step in a larger project in which an intervention targeting parental involvement in children's education is developed and evaluated by focusing on reading skills. Many studies on parental involvement in children's education have been conducted in America and Europe (e.g. Anderson & Minke, 2007; Epstein & Dauber, 1991, 1995; Deslandes & Bertrand, 2005; Geyer & Feng, 1993; Hoover-Dempsey et al., 1995; Hoover-Dempsey & Sandler, 1995; Radu, 2011). However, only a few studies have assessed parental involvement in the African context (e.g. Chowa, Masa, & Tucker, 2013; Kabarere, Makewa, Muchee, & Role, 2013; Matshe, 2014; Mncube, 2010; Mutodi & Ngirande, 2014). In Tanzania specifically, as far as we know, only two studies have explored parental involvement in children's education in primary schools. While Kimaro and Machumu (2015) examined the impact of

parental involvement in school activities on academic achievement of primary school children ($N = 288$), Mpiluka (2014) assessed parental involvement at home and at school and its effect on pupils' ($N = 128$) academic performance in primary schools. They both collected information from students and found a positive significant relationship between parental involvement and children's academic performance. None of these studies explored mechanisms and motives which may influence parental involvement both at school and at home. The current study is the first to explore motivational factors that may be related to parental involvement at home and at school within a large, Tanzanian sample, using a quantitative research design and a well-established theoretical framework, which is the Hoover-Dempsey and Sandler's model of parental involvement.

1.1. Theoretical Framework

Hoover-Dempsey and Sandler's model of the parental involvement process (Hoover-Dempsey & Sandler, 1995, 1997, Hoover-Dempsey, Walker & Sandler, 2005) is related to three major questions: (a) why do (and don't) families become involved in educational activities; (b) what do families do when they are involved in educational activities, and (c) how does family involvement in children's education make a positive difference in student outcomes. The model is structured in five levels which explain a linear process of parental involvement, starting from the motivational factors which influence parents' decisions to become involved, the mechanisms of their involvement, and the outcomes of their involvement (Hoover-Dempsey & Sandler, 1995, 1997). Level 1 refers to parental involvement decisions, influenced by parents' role-construction, parental self-efficacy, and general invitations from school. Level 2 comprises parents' choices of involvement forms, influenced by their perceived time and energy and perceptions of specific invitations for involvement from the child and the child's teacher. Level 3 mentions mechanisms through which parental involvement influences educational and related developmental outcomes in children (modeling, reinforcement, and instruction), level 4 major mediating variables that enhance or diminish involvement (the fit between the parents' actions and the child's developmental needs), and level 5 outcomes for child learning (skills and knowledge, self-efficacy for school success) (Hoover-Dempsey & Sandler, 1995).

In the current study, we focus on constructs of the first two levels of this model that can be used to answer the question which motivational factors are related to parental involvement at home and at school in a Tanzanian context. Previous studies grounded in the Hoover-Dempsey and Sandler's model also did not include all five levels, but focused on the associations between some of the levels of the model. Green, Walker, Hoover-Dempsey and Sandler (2007) have stated that "the Hoover-Dempsey and

Sandler model of the parental involvement process was not set up to be investigated as a structural equation model [...], but rather, the model is set up to examine specific questions (e.g., Why do parents become involved?) in order to make sense of a wide area of research and provide guidance for future empirical investigation.” (p. 542). In a revised model Walker, Wilkins, Dallaire, Sandler, and Hoover-Dempsey (2005) stated that also more dynamic relations between constructs from different levels are possible and that parents’ home and school based behaviors can be considered as dependent variables.

The current study focuses on: (a) parents’ motivational beliefs, captured by parental role construction and self-efficacy, (b) parents’ perceptions of invitations for involvement, based on perceptions of general and specific invitations from the child (e.g. child requests for help in educational activities) and the child’s teacher (e.g. being welcomed by the school, and being encouraged to be involved in the child’s education), and (c) parents’ perceived life context, including perceptions of available time and energy and specific skills and knowledge for involvement. Role construction for involvement is a social construct, grounded in role theory, and refers to parent’s beliefs on what is expected from them in their child’s education, given their role as a parent, their experiences with individuals and groups related to schooling, and expectations from important others (e.g. family) (Hoover-Dempsey and Sandler, 1997; Walker, Ice, Hoover-Dempsey & Sandler, 2011). Self-efficacy in the context of parental involvement in child education relates to the belief that a person has the capacities to have an impact on desired outcomes (e.g. academic achievement), which is influenced by for example personal experiences of success in involvement (Bandura, 1997; Green et al., 2007).

Given that this study is the first to use constructs from the Hoover-Dempsey and Sandler’s model in an African context, it may contribute to the generalizability of the model across different cultures. Walker et al. (2011) have pointed out that research on the relevance of this model in families with children at risk for poor academic performance is essential, because the results might offer all parties concerned (parents, schools, policy units) useful information on how to engage parents in their children’s education.

1.2. The Current Study

This study is part of a larger project which aims at promoting parental involvement in children’s reading through an intervention focusing on teacher-parent partnership. As an initial phase in the development of the intervention, we wanted to explore the motivational factors that may influence decisions by parents to be involved in their child’s learning activities at home and at school (i.e. the

child's schooling or education). Results can guide us in the development of the intervention, and answer for example the question whether parents should be first sensitized that involvement in their child's education is important, or whether practical or other reasons prevent parents to be involved in their children's learning process.

We assessed constructs from the Hoover-Dempsey and Sandler's model of parental involvement in a large sample of parents of grade two children from primary schools in Dar es Salaam, Tanzania. According to Walker et al. (2011) previous studies based on the model have found three robust findings. First, parents tend to be more involved in supporting their child's learning at home (e.g. helping with homework, reading with the child) than at school (e.g. attending parent-teacher meetings). Second, strong predictors of parents' involvement are contextual factors related to the perception of parents that their participation is appreciated and wanted, by both their child (e.g. requests for helping with an assignment) and the child's teacher (e.g. requests to visit the school). Third, parents' resources such as perceived time and energy, knowledge and skills for involvement are weaker predictors of parental involvement. Thus, we expect similar associations in the current study. Following the suggestion by Walker et al. (2005) and Anderson and Minke (2007) we also included a variable measuring parents' expectations for children's future school success, because parents who have higher educational aspirations for their children may be more involved. Adding this variable to the model, may contribute to new theoretical insights.

Because it has been recommended to examine the specific contribution of socio-economic variables to parental involvement decisions (see Green et al., 2007) we included parental educational level and working hours. Previous research has found that parental involvement is predominantly driven by parents' interpersonal relationships with children and teachers, rather than by SES (Green et al., 2007). In addition, the effect of school type was taken into account, because we assumed that parents from children in private schools, who have often higher educational levels and are more economically stable, might be more involved with their children's education, as opposed to children in public schools.

We further are interested in how role construction is related to home and school involvement, and which context variables may influence this association. Therefore we hypothesized a mediation model, which may add new evidence for the theoretical model. We expected that invitations from the child and teacher (which were strong predictors in previous research) are variables that could mediate the association between role construction and involvement. Parents may think their involvement in their child's education is important, which may be associated with more actual involvement, but receiving

invitations from their child or the child's teacher may explain this association. Also availability of time and energy may have a mediating effect, therefore we included this parents' perceived life context variable as a third possible mediator. Anderson and Minke (2007) tested a mediational model in which the association between role construction and sense of efficacy (independent variables) and school and home involvement (dependent variables) was hypothesized to be mediated by parents' perceptions of time and energy demands and specific teacher invitations. Results showed that although role construction was significantly correlated with all study variables, it was not directly related to involvement at home or at school when the mediators were taken into account. Teacher invitations showed the strongest association with involvement and mediated the association between involvement and role construction. Unexpectedly, parents' perceptions of time and energy, was not related to home and school involvement.

2. Method

2.1. Participants

Participants were 580 parents of grade 2 children attending 18 public and 6 private primary schools in three districts of Dar Es Salaam, Tanzania. Per school maximum 27 and minimum 16 parents were involved and per family only one parent participated in the study (68.2% mothers, 31.8% fathers). Of the parents 13.1% was unemployed, 11.5% labor workers, 45.7% retail sales, 5.1% drivers, 9.0% teachers and nurses, 5.6% skilled craftsmen, 7.1% farmers or herders, and 3.0% public servants and government officials. Parents' level of education was transformed into a variable with three categories indicating lower education (66.4%), middle education (20%) and higher education (13.6%). As regard income, 25.9% had a yearly income between \$50 to \$250, 23.4% had less than \$50 per year, 18.1% \$300 to \$500 and 12.3% had an income of over \$1200. As regard level of employment 14.8% of parents reported to work between 0-5 hours a week, 32.4% 6-20 hours a week, 27.2% 21-40 hours a week and 24.1% worked more than 41 hours a week. In 20.8% of the families there was only one child, in 35.8% two children, in 26.6% three children, in 11.8% four children, and in 3% more than four children.

2.2. Procedure

Because this study is part of a larger project including an intervention study, we narrowed down the region to try out the intervention. We choose Dar es Salaam as a 'test case' because of its heterogeneous nature as a big (business) city in Tanzania, with parents from different educational levels and occupations. This variety is not present in rural parts of Tanzania, which is not convenient as we wanted to explore whether the intervention works for parents with different educational backgrounds and

professions. Also for practical reasons this region was chosen: in this way the research team from the Open University at Tanzania could better organize research activities, including pre-, post- en follow-up intervention measurements. When the intervention is effective, it can be implemented in other regions in Tanzania.

Twenty-four primary schools were randomly selected from a list of all schools, taking into account the ratio of 216 private and 363 public schools. All invited schools, except two private schools, agreed to participate and invited parents at school to fill out the survey and to be involved in a focus group discussion. At the start of the teachers-parents meeting at the schools, parents were requested to complete the survey and to be involved in a group discussion ($n = 7$). In each school six research assistants supported parents with completing questionnaires, in particular parents who could not read accurately.

2.3. Measures

Among the eight constructs that we measured, seven were developed by Walker et al., (2005) and related to the revised Hoover-Dempsey and Sandler's model of parental involvement. Parental expectations were assessed using items developed by Geyer and Feng (1993). In a pilot study we examined the validity of the measures' content in the Tanzanian context. We performed back and forth translation to create a Swahili-language survey as Swahili is the national language in Tanzania. Cronbach's alpha's in this study ranged from .67 to .89, indicating moderate to good internal consistency for all scales (see Table 1).

2.3.1. Motivational factors.

Parents' role construction was assessed with 9 items describing beliefs that are parent, school and partnership focused (Walker et al., 2005). Parents rated their role beliefs on a 6-point Likert-type scale ranging from 1 (disagree very strongly) to 6 (agree very strongly). Item examples are: "I believe it is my responsibility to (a) volunteer at the school (b) communicate with my child's teacher regularly". Higher scores indicated that parent's belief more strongly that it is their responsibility to be involved.

Parental efficacy for helping children succeed at school was a construct which 6 items referring to parental beliefs on whether or not their involvement is likely to have a positive influence on their children's learning (Walker et al., 2005). Parents rated their self-efficacy beliefs on a 6-point Likert-type scale ranging from 1 (disagree very strongly) to 6 (agree very strongly). Item examples are: (a) "I make a significant difference in my child's school performance", and (b) "I feel successful about my efforts to help my child to learn". Higher scores indicated that parents have a higher sense of efficacy.

2.3.2. Parents' perceptions of invitation to be involved.

Parents' perceptions of specific invitations for involvement from the child included 7 items referring to parents' feelings on the specific invitations from their child (Walker et al. 2005). Parents rated their perceptions on a 6-point Likert-type scale ranging from 1 (never) to 6 (daily). Item examples are: (a) "My child asked me to supervise his or her homework", and (b) "My child asked me to talk with his or her teacher".

Parents' perceptions of specific invitations for involvement from teachers consisted out of 6 items examining how often the child's teachers contact or make any communication with a parent (Walker et al., 2005). Parents rated their perceptions on a 6-point Likert-type scale ranging from 1 (never) to 6 (daily). Item examples are: (a) "My child's teacher asked me or expected me to help my child with homework", and (b) "My child's teacher asked me to attend a special event at school".

Parents' perceptions of general invitations from school. We measured parents' perceptions on general invitations using 6 items developed by Walker et al. (2005). Parents rated their perceptions on a 6-point Likert-type scale ranging from 1 (disagree very strong) to 6 (agree very strong). Item examples are: (a) "I feel welcome at this school", and (b) "This school lets me know about meetings and special school events".

2.3.3. Parents' perceived life context.

Parents' perceptions of the time and energy was measured with 6 items referring to how parents perceived time and energy in their decision about involvement (Walker et al., 2005). Parents rated their perceptions on a 6-point Likert-type scale ranging from 1 (disagree very strong) to 6 (agree very strong). Item examples are: "I have enough time and energy to (a) communicate with my child about the school day (b) attend special events at school".

Parents' understanding of their own skills and knowledge included 6 items examining parents' understanding of their own skills and knowledge (Walker et al., 2005). Parents rated their perceptions on a 6-point Likert-type scale ranging from 1 (disagree very strong) to 6 (agree very strong). Item examples are: "(a) I know effective ways to contact my child's teacher (b) I know how to supervise my child's homework".

Parents' expectations on their children's future education success were assessed with 3 items (Geyer & Feng, 1993). Parents rated their perceptions on a 6-point Likert-type scale ranging from 1 (never) to 6 (daily). Item examples are: (a) "I have high educational expectations for my child", and (b) "I want to be informed if my child is having difficulties in reading".

2.3.4. Parents' involvement activities.

The *home-based involvement activities* consisted out of 9 items assessing parents' academically focused home involvement activities, such as reading together or helping with homework (Geyer & Feng, 1993; Walker et al., 2005). Parents rated their perceptions on a 6-point Likert-type scale ranging from 1 (never) to 6 (daily). Item examples are: (a) "Someone in this *family reads with this child*", (b) "We go to the library with our child".

School based activities included 5 items examining parents' school involvement activities (Walker et al., 2005). Parents rated their perceptions on a 6-point Likert-type scale ranging from 1 (never) to 6 (daily). Item examples are: "Someone in this family (a) attends PTA meetings (b) goes to the school's open days". [t]Table 1 near here [/t]

3. Results

3.1. Statistical Analysis

Statistical analyses were conducted in SPSS Statistics software 24.0 (IBM, 2016). Inspection of the continuous variables showed no skewness (all values smaller than 1.96), and only a kurtosis value larger than 1.96 for role construction (2.70, $SE = .20$) and parent expectations (2.45, $SE = .20$) indicating a pointy and heavy-tailed distribution for these variables. Pearson and Spearman correlations, means and standard deviations of the variables are presented in Table 1. A paired samples T-test showed that the mean score for school involvement ($M = 3.02$, $SD = 1.32$) was significantly lower ($t(589) = -11.69$, $p < .001$) than the mean score for home involvement ($M = 3.63$, $SD = 1.18$). Because school type (1 = public, 2 = private), parent education level and working hours per week showed some significant associations with the study variables, they were included as control variables in further analyses. The correlations between these control variables and school involvement were not significant, whereas the associations between home involvement and school type ($R^2 = 0.008$), educational level ($R^2 = 0.012$) and working hours ($R^2 = 0.012$) were significant but weak.

Next, we conducted two hierarchical multiple regression analyses to examine which variables predict home-based activities and school-based activities. In a first block, the control variables were entered. In a second block, we included the parent-related motivation variables role construction, self-efficacy, knowledge and expectations (personal psychological beliefs). In a third block variables were entered that refer to invitations to be involved in the child's education by the school, teacher and child (contextual motivators). In a final block the life context variable parents' perceptions of time and energy

was entered. Multicollinearity checks of the independent variables showed no indications of multicollinearity (all Tolerance values $> .10$ and Variance Inflation Factor values < 10).

Mediation models were tested with Hayes' Process macro for SPSS 2.16.1 (Hayes, 2017). The confidence interval (CI) for the indirect effect is a bootstrapped CI based on 1000 samples. We hypothesized that three mediators, i.e. parents' perception of time and energy, general school invitations and specific invitations from the child would mediate the relationship between role construction and parents' home and school involvement behavior.

3.2. Parents' involvement at home

The three control variables in the first block explained 5.0% of the variance in parental involvement at home with $F(3,540) = 9.42, p < .001$. The parent-related motivation variables role construction, self-efficacy, knowledge and expectations added a substantial portion (34.9%) to the explained variance in involvement at home ($F_{\text{change}}(4,536) = 77.83, p < .001$). The third block with invitations from others to be involved in the child's education at home explained another 6.9% ($F_{\text{change}}(3,533) = 23.13, p < .001$). The fourth block including the life context variable parents' perceptions of time and energy did not explain extra variance (0.1%) ($F_{\text{change}}(1,532) = 1.47, p > .05$), although the final model with eleven predictors was significant $F(11,532) = 42.82, p < .001$, explaining 46.9% of the variance in total.

Standardized regression coefficients (see Table 2) of the final model showed that the control variables school type were all significant predictors, indicating that parents from children in public schools, parents with a higher educational level, and parents with more working hours per week reported more home involvement.

Three out of four parent-related variables were significant predictors of involvement at home: self-efficacy, knowledge and expectations. Given the positive sign of the standardized regression coefficients this means that more reported self-efficacy, more knowledge and more expectations are related to more involvement at home. The role construction scale was not a significant predictor. From the invitations from others to be involved in the child's education at home, only invitations from child and teacher predicted significantly home involvement, with more invitations from child and teacher being associated with more involvement.

3.3. Parents' involvement at school

The three control variables in the first block explained 0.8% of the variance in parental involvement at school with $F(3,540) = 1.45 (p = .229)$. The parent-related motivation variables role

construction, self-efficacy, knowledge and expectations added a substantial portion (24.8%) to the explained variance in involvement at school ($F_{\text{change}}(4,536) = 44.75, p < .001$). The third block with invitations from others to be involved in the child's education at home explained another 10.9% ($F_{\text{change}}(3,533) = 30.60, p < .001$). The fourth block including the life context variable parents' perceptions of time and energy explained 0.9% extra variance ($F_{\text{change}}(1,532) = 7.80, p < .005$), and the final model with eleven predictors was significant ($F(11,532) = 28.99, p < .001$), explaining 37.5% of the variance.

Standardized regression coefficients (see Table 2) of the final model showed that the control variables school type, level of education and working hours/week did not significantly predict school involvement. School, teacher and child invitations were significant predictors of parents' involvement behavior at school, with more invitations being related to more school involvement. All four parent-related variables (role construction, self-efficacy, knowledge and expectations) did not significantly predict parents' school-based involvement. The life contextual variable of parents' time and energy was significant.

3.4. Mediation Models

The mediation model in which we hypothesized that association between role construction and home involvement is mediated by three mediators (perception of time and energy, general school invitations and specific invitations from the child), was significant ($F(4,580) = 71.04, p < .001$) and explained 34.0% of the variance. The direct effect of role construction to home involvement ($F(1,583) = 118.02, p < .001$) remained significant when adding the mediators, indicating that there is no mediation (see Figure 1).

A similar mediation model for school involvement was significant ($F(4,580) = 73.09, p < .001$) and explained 33.51% of the variance. The unique association between role construction to school involvement ($F(1,583) = 84.79, p < .001$) was no longer significant when taking the mediators into account, indicating full mediation. All indirect effects from role construction to school involvement were significant (see Figure 2).

4. Discussion

This study explored how parent-related variables, invitations from the child and school to be involved, and general life context are related to parents' involvement in their child's educational activities at home and at school. The variables explained somewhat more variance in home-based than in

school-based involvement. This is not in line with the results of Green and colleagues (2007) which reported more explained variance in school-based involvement as compared to home-based involvement in an ethnically diverse USA sample. However, our findings do align with findings of Walker et al. (2011) who showed that the same variables explained more of the variance in home-based involvement as compared to school-based involvement. The present study supports the view of Walker et al. (2011) that parents might be more interested or convinced to be involved at home because of the reality that opportunities for home-based involvement may appear any day in a week while opportunities for school-based involvement are generally limited to hours and events made available by the school. On average, parents in our study reported to be more home-involved than school-involved. Our findings should be interpreted in light of the context of Dar es Salaam, with parents who are often busy with work, have inflexible work hours, and therefore are not able to participate in school-based activities. Walker et al. (2011) asserted that schools should be wary of assuming that parents who are not often present at school are not involved in supporting children's learning. Parents may provide more support for their children's schooling than school personnel perceives based on visibility (Walker et al., 2011). This is something to take into account when developing an intervention aiming at providing tools for teachers and parents to enhance parents in their child's learning.

4.1. Factors Related to Home-based Involvement

The three control variables school type, level of education and working hours were all significant, but very weak predictors of home involvement indicating that parents from children in public schools, parents with a higher educational level and parents with more working hours reported more involvement at home. The finding that parents from children in public schools were more involved at learning activities at home than parents from private schools, was somewhat against our expectations, because we assumed that parents from children in private schools, who have often higher levels of education, and are more economically stable, would be more involved. Three explanations are possible. First, ratings by parents from children in public schools may reflect more a wish than actual behavior. Secondly, parents from children in public schools might feel more responsible at home from the belief or assumption that their children do not receive enough learning opportunities compared to other children in private schools. In the same regard, parents from children in private schools may assume that their children receive enough learning opportunities from the schools and hence consider home involvement as less important. The third explanation is related to personal efficacy. It could be that because parents from children in public schools are less educated and economically disadvantaged, they are more comfortable

with home-based involvement and they feel less competent with school-based involvement, which demands direct interaction with teachers. Our study further showed that more working hours were related to more academically focused behaviors at home, but again this association was weak. This might be explained by the fact that it is more easy for parents who are working for long hours to help a child at home, taking into account their own schedules and convenience, rather than attending a school event planned by the school. We further explored the data to check whether parents with many working hours represent a specific group. A cross-tabulation with categories for working hours and occupation showed that the groups of parents with more working hours were mostly government public officials, drivers and skilled craftsmen/women. However, occupational categories were not straightforwardly related to a specific amount of working hours. A cross table with occupation and educational level further showed that occupations were not related with a specific educational level: parents with different educational backgrounds were represented in heterogeneous professional groups. Thus, it is hard to make strong inferences from these findings, as parents with a lot of working hours do not constitute a homogeneous group.

The parent-related variables role-construction, self-efficacy, knowledge and expectations together explained almost 35% of the variance in involvement at home. Hoover-Dempsey and Sandler (1995) explained that when role construction and sense of self-efficacy are high, parents will be involved regardless of the level of competing demands. Though role construction was not strongly related to home involvement in the final regression model, results revealed that the three parent-related variables self-efficacy, knowledge and expectations significantly predicted home involvement. This is in line with Green et al. (2007) who found that self-efficacy beliefs strongly predicted home-based involvement and was weakly but negatively associated with school-based involvement. However, the mediation model indicated that role construction was significantly related to home-based involvement regardless of invitations from others and perceived time and energy, indicating that these contextual variables were no significant mediators.

Invitations from their own child and from the teacher also predicted parents' involvement behavior at home. Deslandes and Bertrand (2005) found that parents' perceptions of their child's invitations were the most powerful predictor of parental involvement at home across 3 grade levels. They concluded that when personally invited by their children, parents tended to perceive their involvement as expected and desired. In our study the specific invitations from child and teacher motivated significantly parents' involvement behaviors at home.

In all, parents seem to be involved in their child's education at home, which is mostly associated with psychological factors and invitations from teachers and their children to be involved. In line with previous findings, parents' resources such as working hours or educational level are weaker predictors. In designing an intervention we therefore will focus on parent-teacher communication and further strengthen parents' beliefs that their involvement in their child's schooling is beneficial.

4.2. School-based Involvement

Although private schools are more active in organizing parent events and encouraging parental involvement due to the availability of opportunities and resources compared to public schools which largely depend on the Government funds, our findings showed that school type, level of education and working hours were not significantly associated with school-based involvement behaviors. No parent-related variables, such as role construction, self-efficacy, knowledge and expectations were significantly related to school-based involvement behaviors. Major predictors were general school invitations, specific invitations from teachers and specific invitations from the child and the general life context variable time and energy. These findings support the findings of Anderson and Minke (2007) that parents' perceptions of specific invitations to participate had the strongest relationship with parents' involvement behavior. Chrispeels and Rivero (2001) found that parents perceived that they had little influence on what happened at school and left the decisions in the hands of the teacher or their child. This means that anything happens at school is so much influenced by teachers and the children. The importance of specific invitations from teachers and perceived time and energy is also supported by Walker et al. (2011) who revealed that the contextual motivator of specific invitations from the teacher and perceived time and energy for involvement were significant predictors of parents' school-based involvement. Green et al. (2007) showed that perceived availability of time and energy was a significant predictor of both home-based and school-based involvement across the elementary and middle school grades. In our study perceptions of available time and energy were the strongest predictor of school-based involvement, rather than the hours spent in working. According to Walker et al. (2011) the predictive power of parents' time and energy for involvement is consistent with evidence that participation in school-based events, especially in low-income families, is often dependent on their schedules and resources.

Role construction did not predict school-based involvement when other variables were added in the regression model. However, the mediation model showed that there is an indirect effect of role construction on school-based involvement through specific invitations from child, general school

invitations and perceived time and energy. Our findings support the assumption that role construction is socially based and influenced by several contextual factors. According to Whitaker (2013) parents' development of personal ideas about what their role in their children's learning should be is influenced by the expectations and attitudes of important others (e.g. teachers, family members, children, other parents) in the educational context.

4.3. Contribution of the Study and Limitations

A strength of our study is the inclusion of a parental expectations variable in the Hoover-Dempsey and Sandler's model of parental involvement, as suggested by previous studies (e.g. Anderson & Minke, 2007; Walker et al., 2005), which is a novel theoretical contribution. Our results showed that having high educational expectations for a child, and wanting to be informed about a child's reading development or difficulties, is the variable that is most strongly associated with home involvement (but not with school involvement). We acknowledge the importance of examining parents' aspirations for their children's future educational success in future research and to consider it as a possible target in interventions aiming at enhancing parental involvement. Further, our results extended applicability of the Hoover-Dempsey and Sandler's model across cultures: we found evidence for internal consistency in the measures in a Tanzanian sample, and the predictive power of the constructs was present regardless of socioeconomic background and school type. Finally, the model was able to identify unique features of home-based and school-based involvement. In line with previous studies (e.g. Anderson & Minke 2007; Green et al., 2007; Walker et al., 2011) we stress that researchers should continue studying parents' involvement behaviors at home and at school as distinct aspects.

Our study also has limitations. To get parents' ideas and to make sure that they would fill out the survey well, we invited parents at the schools. Although we had research assistants to help parents with data collection, being in a school environment might have influenced parents' answers in a socially desirable manner. Secondly, although data collection included also interviews and group discussion, we only used parent self-reports in the present study. Thirdly, our data are cross-sectional in nature, implying that we are not allowed to make causal inferences.

4.4. Policy and Educational Implications

Though our study opens up for more discussion and further research on factors that motivate parental involvement in Tanzania, it has several educational implications. First, at the macro level, the Tanzanian government and educational policy could develop strategies to strengthen parent-school partnerships. As parents are key stakeholders in children's education, encouraging parental involvement

in educational activities is an important step towards enhancing equal learning opportunities for every child. The Government could emphasize this in teacher preparation programs and in-service training that equip teachers with knowledge and skills to enable them to work and interact with parents as co-educators and partners in children's learning. It is high time for the Government to introduce a family and school partnership policy which will give the opportunity to parents and caregivers to be actively engaged in their children's learning development. The policy should provide guidelines, recommendations, strategies, programs and proper frameworks to education authorities and schools on effective family engagement in children's educational activities. Second, at the meso level, school boards could look for ways to motivate parents to be involved in their children's education, for example by inviting sufficient parent representatives in school councils, by organizing meetings for parents at a convenient moment, by creating an easily accessible school climate, by using a variety of communication methods to reach all parents (e.g. use of a diary, telephone calls to parents), and by inviting parents on a regular basis to schools. Schools should create opportunities for parents and families to be involved in educational activities with consideration to the nature and characteristics of parents at a particular community. Third, our study showed that the role of teachers (micro level) in encouraging parental involvement cannot be underrated. The successful and productive participation of parents in educational activities depends largely on the ability of the teachers to work with parents as co-educators and partners in children's learning development. Teachers should be facilitated, encouraged, trained, and supported so that they are able to work together with parents to foster students' educational success.

5. Conclusion

Our study showed that home- and school-based academically focused behaviors by parents are motivated by different factors. If teachers and schools want to get parents involved in children's education then they should consider home as the crucial starting point. Schools and teachers should create mechanisms that can stimulate child-parent educational activities at home and arouse parents' desire to be part of their children's learning development through the partnership with teachers and schools. In this regards, schools and teachers are crucial in helping parents' realizing their potential in supporting their children acquire major literacy skills through teacher-parent partnership.

Table 1

Correlations, Means, Standard Deviations of all Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. School type													
2. Parent education	.31***												
3. Working hours/week	.08	.01											
4. Role construction	.05	.12***	.06										
5. Self-efficacy	.34***	.02	.02	.07									
6. Parents expectations	.09*	.05	.05	.28***	.07								
7. School invitation	.31***	.05	.05	.36***	.09*	.27***							
8. Child invitation	.06	.00	.00	.34***	-.06	.28***	.39***						
9. Teacher invitation	.09*	.35***	.01	.35***	-.11**	.22***	.41***	.40***					
10. Parents knowledge	.06	.01	.01	.62***	.03	.24***	.44***	.46***	.38***				
11. Parents time scale	.03	.04	.04	.63***	-.01	.26***	.47***	.47***	.40***	.87***			
12. School involvement	.07	.08	.08	.36***	-.05	.23***	.43***	.46***	.41***	.45***	.49***		
13. Home involvement	.09*	.11**	.11**	.41***	.15***	.46***	.38***	.47***	.38***	.46***	.47***	.49***	
<i>M</i>		4.74	2.61	5.16	3.50	5.18	4.03	3.97	2.89	4.78	4.69	3.02	3.63
<i>SD</i>		0.72	1.01	0.86	1.63	1.04	1.01	1.39	1.63	1.10	1.04	1.32	1.18
<i>Cronbach's alpha</i>				0.89	0.82	0.74	0.67	0.77	0.83	0.87	0.84	0.89	0.79

Note. * $p < .05$ ** $p < .01$ *** $p < .001$. Spearman non-parametric correlations were calculated between school type and other variables; Pearson correlations were calculated between all other variables

Table 2

Predictors of parents' Home-based and School-based Based Involvement

	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>
Model 1 (Constant)	3.09***	.19		2.60***	.22	
School type	.07	.12	.02	.18	.14	.06
Parent educ.	.32***	.07	.20***	.01	.08	.01
Working h/w	.10*	.05	.09*	.08	.06	.06
Model 2 (Constant)	-1.30***	.31		-.89*	.38	
School type	-.14	.10	-.05	.16	.12	.05
Parent educ.	.14*	.06	.08*	-.02	.08	-.01
Working h/w	.08*	.04	.07*	.07	.05	.05
Roleconstr.	.18**	.06	.12**	.21**	.08	.14**
Self-efficacy	.08**	.03	.11**	-.08*	.03	-.10**
P. knowledge	.35***	.05	.32***	.44***	.06	.36***
P. expectat.	.38***	.040	.33***	.13**	.05	.10**
Model 3 (Constant)	-1.24***	.30		-.93*	.36	
School type	-.23*	.10	-.08*	-.06	.12	-.02
Parent educ.	.12	.06	.07	-.07	.07	-.04
Working h/w	.09*	.04	.07*	.07	.05	.06
Roleconstr.	.11	.06	.08	.12	.07	.08
Self-efficacy	.12***	.03	.16***	-.03	.03	-.04
P. knowledge	.21***	.05	.19***	.22***	.06	.18***
P. expectat.	.31***	.04	.28***	.04	.05	.03
School invit.	.06	.05	.05	.25***	.06	.19***
Child invit.	.19***	.03	.22***	.19***	.04	.20***
Teacher invit.	.10***	.03	.13***	.13***	.03	.16***
Model 4 (Constant)	-1.25***	.30		-.95*	.36	
School type	-.23*	.10	-.08*	-.06	.12	-.02
Parent educ.	.12*	.06	.07*	-.07	.07	-.04
Working h/w	.08*	.04	.07*	.07	.05	.05

Roleconstr.	.10	.06	.07	.08	.07	.05
Self-efficacy	.12***	.03	.17***	-.02	.03	-.03
P. knowledge	.14*	.07	.13*	.04	.09	.04
P. expectat.	.31***	.04	.27***	.03	.05	.03
School invit.	.06	.05	.05	.23***	.06	.18***
Child invit.	.19***	.03	.22***	.18***	.04	.19***
Teacher invit.	.10***	.03	.13***	.12***	.03	.15***
P.time/energy	.10	.08	.08	.26**	.09	.20**

Note. * $p < .05$ ** $p < .01$ *** $p < .001$. B = Regression coefficient; Beta = Standardized regression coefficient. P. = Parent; educ. = education; h/w = hours per week; constr. = construct; expectat. = expectations; invit. = invitations

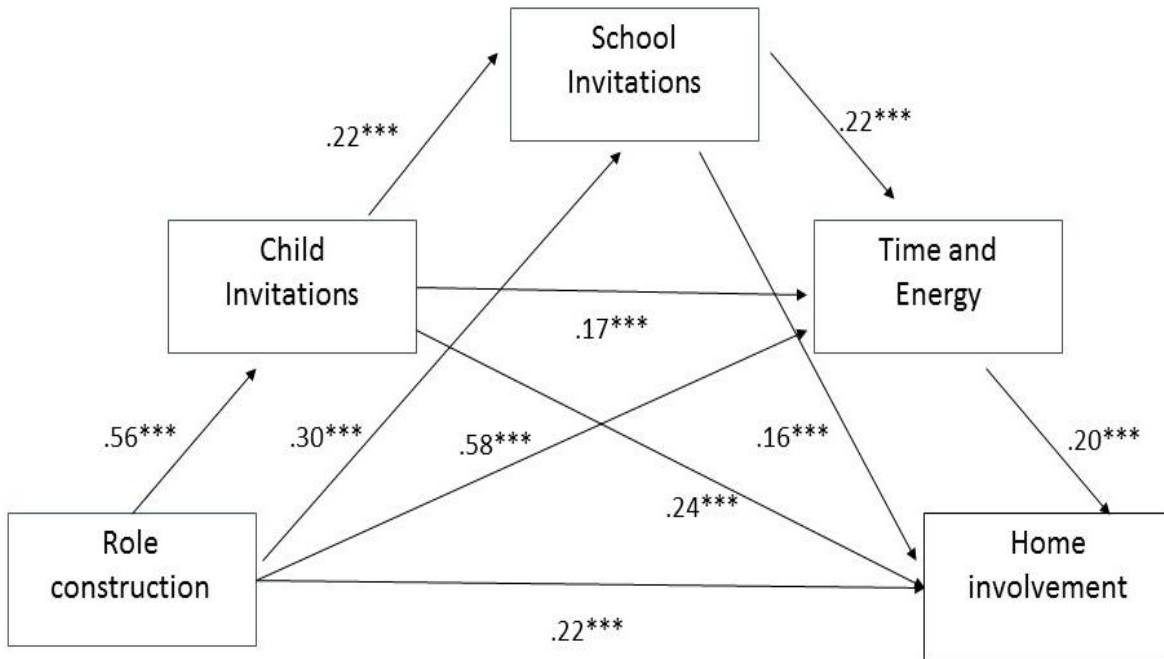


Figure 1. Model with role construction as a predictor of home involvement mediated by general school invitations and specific invitations from the child and perception of time and energy. The model shows coefficients of direct effects (***) $p < .001$). The indirect effect from Role construction to Home involvement via Child Invitations, School invitations and Time and Energy: $b = .005$; 95% CI = [.002, .011].

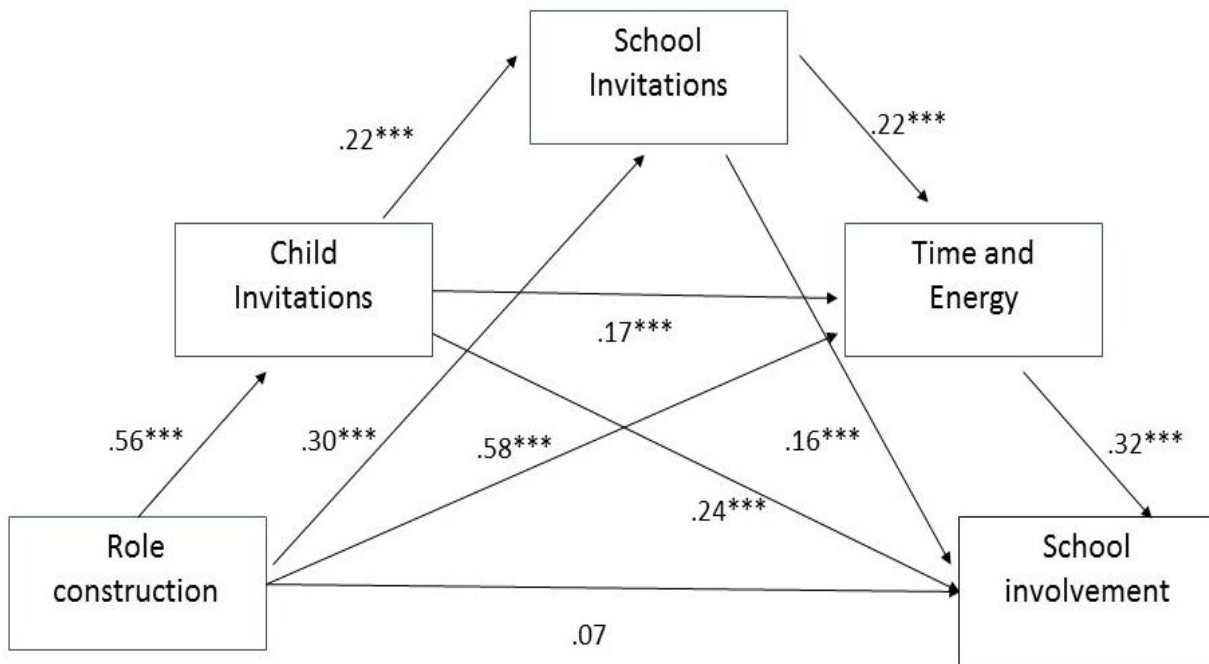


Figure 2. Model with role construction as a predictor of school involvement mediated by general school invitations and specific invitations from the child and perception of time and energy. The model shows coefficients of direct effects (***) $p < .001$). The indirect effect from Role construction to School involvement via Child Invitations, School invitations and Time and Energy: $b = .009$; 95% CI [.005, .017].

CHAPTER 3

THE RELATIONSHIP BETWEEN PARENTAL READING SUPPORT ACTIVITIES AND CHILDREN'S READING ACHIEVEMENT IN TANZANIA

Abstract

In this study, the relationship between parents' activities to support their children in reading and their children's reading skills was studied in a sample of 600 grade 2 children and their parents in Dar es Salaam, Tanzania. The study used the Hoover-Dempsey and Sandler's model of parental involvement, which identifies four specific kinds of activities used by parents to stimulate the learning of their children. Parents completed a questionnaire on parental involvement activities, i.e. encouragement, reinforcement, modeling and instruction. Children's reading abilities were tested with a reading test measuring word decoding, reading fluency and reading comprehension. Raven's Colored Progressive Matrices test was used to control for children's IQ. Results showed that IQ was not related to children's word decoding and reading fluency, but there was an association between IQ and some aspects of children's reading comprehension. Although parents' level of education correlated significantly with children's reading, parents' reading was not related to children's reading but rather associated with parents' involvement activities. Hierarchical regression analyses revealed a weak association between the parental activity instruction with all three aspects of children's reading and a weak relationship between parental encouragements and children's reading fluency and between parental reinforcement and children's reading comprehension. The usefulness of an intervention to stimulate early literacy is discussed.

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1. Introduction

Reading ability is an important indicator of school success and a predictor of children's future educational achievements. Tanzania, like other sub-Saharan countries, is facing several setbacks in early literacy development. A report of the UNESCO Institute of Statistics (2017) showed that Sub-Saharan Africa has the largest population of children and adolescents who have not achieved reasonable academic skills. The report stipulates that 202 millions or almost 9 out of 10 kids between the age of about 6 and 14 cannot read proficiently at the end of primary or lower secondary school. Although more than two-thirds of the children are actually attending school and can be reached by their governments and communities, they are not adequately achieving academic skills, which may be attributed to the issue of education quality (UNESCO, 2017).

In Tanzania, primary education is provided free to all school-aged children. Although the country is experiencing massive basic education expansion, many children are still facing problems with early reading development and the majority of children in Tanzania do not acquire literacy skills according to their age and grade level (Uwezo, 2012). Kumburu (2012) stated that reading and writing difficulties are common learning problems to many school children in Tanzania, but they are not well understood and not much researched. While all the blame is put on the Government, teachers and the formal schooling environment, only a few studies (e.g. Kimaro & Machumu, 2015; Kumburu, 2011; Mpiluka, 2014; Ngorosho, 2010; Uwezo, 2010; 2011; 2012) have explored the home environment as the first informal learning setting of a child. Kumburu (2011) implemented a short-term literacy skills intervention for children at risk for reading and writing difficulties in Tanzania. In a randomized experiment it was found that poor literacy motivation and support in the home environment are among the factors which hinder a smooth literacy development of children in Tanzania. Ngorosho (2011) studied the role of the home environment in literacy skills of Kiswahili speaking primary school children in a rural area in Tanzania. She interviewed parents about the home environment and found that parents' education, occupation, housing circumstances and literacy facilities had a significant relationship with reading ability. Coleman et al. (1966) explained that the home environment and cultural influences are the major sources of inequality in educational opportunities among children in society. Though parents in Tanzania value education highly, their involvement is mostly confined to financial support (Tornblad & Widell, 2014). If Tanzania wants to overcome problems related to early literacy development, there is a great need to involve parents in children's literacy development. This can be done in several ways, such as introducing a specific policy to stress parental involvement, by assessing parents' awareness and motives, as well as the practices parents use to directly stimulate

their children's reading skills. Topor, Keane, Shelton and Culkins (2010) underlined that it is very crucial to identify specific parenting practices, programs and mechanisms to stimulate parental involvement behaviors and increase children's academic performance.

The current study is conducted within a larger project aimed at enhancing parental involvement in children's reading development. A first study of this larger project concluded that parents have the desire to be involved in their children's education, and that this desire is stimulated by several factors. On the one hand, invitations from their child or their child's teacher to be involved, and psychological factors such as self-efficacy, knowledge and expectations are related to involvement at home, whereas on the other hand school/teacher/child invitations and perceived time and energy are related to involvement at school (Kigobe, Ghesquière, Ng'Umbi & Van Leeuwen, 2018). The goal of the present study is to go more deeply into the associations between activities used by parents to support their children in reading and their children's reading skills, to examine whether it would be useful to launch an intervention that focuses on parental commitment in child literacy.

1.1. Parental Involvement and Literacy Development

Research literature has shown that in encouraging early literacy development in elementary school the role of families, family-school relations, and parental involvement cannot be underrated. Parents can play an important role in fostering children's early literacy and language development because home is where children first experience oral and written language (Baker & Scher, 2002; Baker, Scher, & Mackler, 1997; van Bergen, van Zuijlen, Bishop, & de Jong, 2016; Burgess, Hecht, & Lonigan, 2002; Sénéchal & Young, 2008; Sénéchal & LeFevre, 2002; Sénéchal, LeFevre, Thomas, & Daley, 1998; Van Steensel, 2006). There is emerging empirical support for the hypothesis that parents, by introducing written language, teaching and showing positive beliefs about reading, have a vital role in the literacy development of their children (Baker & Scher, 2002; Berthelsen & Walker, 2008; Bouakaz & Persson, 2007; Green, Walker, Hoover-Dempsey, & Sandler, 2007; Vellymalay, 2010; Walker, Wilkins, Dallaire, Sandler, & Hoover-Dempsey, 2005; Wright, 2009; Zedan, 2012). Several studies have revealed that early parent interventions boost children's reading development. For example, young children develop stronger early literacy and language skills when parents expose them to books at home, value their role in their children's reading development, monitor children's TV time, regularly engage their children in literacy and language activities at home, and communicate and cooperate with their children's teachers (Carroll, 2013; Fan & Chen, 2001; Gest, Freeman, Domitrovich, & Welsh, 2004; Sénéchal & LeFevre, 2002; Sénéchal & LeFevre, 2014; Simonds,

2012). Sénéchal and Lefevre (2002) conducted a 5-year longitudinal study on the role of parental involvement in the development of children's reading skills and found that children's exposure to books at home was related to the development of vocabulary and listening comprehension skills. Moreover, parental involvement in teaching children about reading and writing words was related to the development of early literacy skills. Flouri and Buchanan (2004) affirmed that parental involvement in a child's literacy practices is a more powerful force than other family background variables, such as social class, family size and level of parental education.

1.2. Theoretical Framework

The current study is guided by the Hoover-Dempsey and Sandler model of the parental involvement process (Hoover-Dempsey & Sandler, 1995, 1997, Hoover-Dempsey, Walker, & Sandler, 2005), which tackles three major questions: (a) why do (and don't) families become involved in educational activities; (b) what do families do when they are involved in educational activities, and (c) how does family involvement in children's education make a positive difference in student outcomes. Our study relates to the last question. The Hoover-Dempsey and Sandler model includes 'learning mechanisms' (which they explained as specific kinds of activities) used by parents during involvement activities, namely parental encouragement, modeling, reinforcement and instruction. Because these mechanisms refer to parental activities, we prefer to use the term 'parental involvement activities'. Hoover-Dempsey (2010) defined these activities as follows: (a) parental encouragement is a parent's explicit support for students and active engagement in activities related to school tasks and learning, (b) parental modeling is parent behavior linked to successful learning such as explicit modeling in the course of instructions, attitude towards reading and actual parents' reading behavior (c) parental reinforcement includes a parent's application of positive, individually and developmentally appropriate consequences for learning behaviors and efforts of their child, and (d) parental instruction is the engagement of a parent with their child by giving various forms of instruction such as teaching, tutoring, practicing or correcting at home.

1.3. The Present Study

The present study examines the relationship between parental reading support activities and children's reading skills in second grade of elementary school in a Tanzanian context. We assessed the four parental involvement activities of the Hoover-Dempsey and Sandler model (reinforcement, modeling, encouragement and instruction), and three aspects of children's reading achievement (word decoding, reading fluency and reading comprehension). We expect that using more of a certain parental

reading support activity will contribute to better reading results (decoding, fluency, and/or comprehension). To control for possible confounding variables, we include an indicator of children's IQ, parents' educational level, and type of school (public versus private) in all regression models. Additionally, we investigated whether the effect of each of the four parental activities on reading was moderated by the level of education of the parents. Finally, we checked whether parents' own reading fluency and reading comprehension have a complementary role in children's reading outcome, by adding these variables to the regression models.

2. Method

2.1. Participants

All participants selected for this study were residents of Dar es Salaam, chosen for its heterogeneous nature concerning socio-economic characteristics. The study included 600 grade 2 children and (one of) their parents. The children were attending 18 public (73.1% of the pupils) and 6 private primary schools (26.9% of the pupils) in 3 districts of Dar Es Salaam, Tanzania. In terms of gender, 50.7% of children were male and 49.2% were female. Most of the children were 6 to 8 years old (73.6%), whereas 26.1% was 9 to 11 years old, and 0.3% was 11 to 13 years old. The older age of some pupils was the result of repeating one or more classes or late school admission. Demographic characteristics of the parents are described by the variables gender, level of education, income and employment status. Most participants (68.2%) were mothers, 31.8% were fathers. Of the parents 13.1% was unemployed, 11.5% was labor worker, 45.7% retail trader, 5.1% driver, 9.0% teacher or nurse, 5.6% skilled craftsman, 7.1% farmer or herder, and 3.0% was public servant or government official. Parents' level of education was measured with three categories indicating lower education (66.4%), middle education (20%) and higher education (13.6%). Regarding income, 25.9% had a yearly income between \$50 to \$250, 23.4% had less than \$50 per year, 18.1% \$300 to \$500 and 12.3% over \$1200 per year, and for the rest of the sample, the income was not reported.

2.2. Procedure

Data collection was conducted as part of a larger (intervention) study about parental involvement and its impact on children's literacy development in primary schools in Dar es Salaam, with three measurement points (pre- and post-intervention, and follow-up). The current study used baseline data (May 2016) from both the intervention and the control group, except for parents' reading data, which were collected during the follow-up measurement wave (February 2018). The moment for this parental

reading data-collection was chosen in order not to intimidate parents at their first meeting with the researchers.

At the time of our baseline data collection, Dar es Salaam had a total number of 573 primary schools in three districts: Kinodoni (140 public and 111 private schools), Ilala (110 public and 63 private schools) and Temeke (112 public and 37 private schools). Twenty-four primary schools were randomly selected from a list of all schools. Seven trained researchers who were professional tutors from a teacher training college were responsible for the test administration of the children. Children sat for the reading test in the normal classroom setting. The test was voice reordered for the evaluation of students' oral reading, accuracy rate and identification of error patterns. The researchers also provided instructions to the children before administering the Raven test. Involved schools in the study agreed to invite parents at schools for data collection purposes. Schools gave parents an official invitation through their children one month and one week before the meeting day. Parents were asked to sign a written informed consent and were tested individually in private rooms for less than 10 minutes. Parents completed a parent involvement (PI) questionnaire with the support of research assistants.

2.3. Measures

2.3.1. Parental involvement activities in children's reading.

We used four variables related to parental involvement activities used by Hoover-Dempsey, Sandler and Walker (2005) in the Parent Involvement Project (PIP). A pilot study was conducted to examine the validity of the measures' content in the Tanzanian context. We performed a back and forth translation to create a Swahili version of the survey, as Swahili is the official language in Tanzania. Parents rated all items on a 6-point Likert-type scale ranging from 1 (not at all true) to 6 (completely true).

Parental encouragement. Parental encouragement refers to parents' explicit behaviors that support students' active engagement in activities related to school tasks and learning (Hoover-Dempsey, 2010). This variable was assessed with 13 items describing parents' use of encouragement behavior (Hoover-Dempsey et al., 2005). Item examples are: (a) "We encourage this child when he or she doesn't feel like doing schoolwork", (b) "We encourage this child when he or she has trouble organizing schoolwork". Higher scores indicated that parents report using more encouragement behaviors. The Cronbach's alpha reliability coefficient for this scale was .90.

Parental modeling. Hoover-Dempsey and Sandler purport that when parents are involved they are modeling positive school-related behaviors and attitudes to children (Sheridan & Kim, 2015). Ten

items described parent's use of modeling behaviors (Hoover-Dempsey et al., 2005). Item examples are: (a) "We show this child that we like to learn new things", (b) "We show this child that we want to learn as much as possible". Higher scores indicated that parents report using more modeling behaviors. The Cronbach's alpha reliability coefficient for this scale was .92.

Parental reinforcement. Parental reinforcement influences a child's behaviors by creating occasions for parents to provide their child with attention or rewards for school-related behavior (Sheridan & Kim, 2015). Parent's use of reinforcement behaviors was described with 13 items (Hoover-Dempsey et al., 2005). Item examples are: (a) "We show this child we like it when she or he ask teacher for help", (b) "We show this child we like it when she or he works hard on homework". Higher scores indicated that parents report using more reinforcement behaviors. The Cronbach's alpha reliability coefficient for this scale was .95

Parental instruction. Through direct instructions parents get opportunities to influence their children's learning through the direct involvement behaviors such as teaching, tutoring, practicing or correcting (Hoover-Dempsey & Sandler, 1995). This variable was assessed with 15 items describing parent's use of instructional behaviors (Hoover-Dempsey et al., 2005). Item examples are: (a) "We teach this child to follow teachers' directions (b) "We teach this child to have good attitude about his or her homework". Higher scores indicated that parents report using more instructional behaviors. The Cronbach's alpha reliability coefficient for this scale was .95

2.3.2. Reading skills in children and parents.

Reading skills in children. To test reading skills, we adopted a part of Uwezo's reading assessment tool for children, see <http://www.uwezo.net/assessment/>. Uwezo is a non-profit organization ("Twaweza") that aims to improve competencies in literacy and numeracy among children aged 6-16 years old in three countries of East Africa (Kenya, Tanzania and Uganda). The adopted part of the assessment tool consisted of two sets of the reading test with four sections each. The sections consist of letters, words, paragraph and story reading. The sections with story reading contained two comprehension questions related to the story. The intention was to measure three major reading skills, which are word decoding, reading fluency and reading comprehension. Scores on the test are based on the amount of words a child could read in a given time, the number of errors children made, and the number of questions children were able to answer correctly after reading two stories. We checked correlations between the 10 components of the two sets of the reading test to see how the two sets are related. Findings showed that the two tests were highly correlated (see Table 1), as a result of which we

combined the two sets to get three reading skills scores which are word decoding, comprehension and fluency. A higher score indicates a better performance on the test.

Reading skills in parents. To measure parents' reading skills we adopted the '2015 national primary education leaving examination'. We used two sections which included two passages measuring reading fluency and comprehension. A first passage contained 175 words whereby parents had to read aloud for 3 minutes and answer 10 questions related to a passage. A second passage contained 79 words whereby parents had to read aloud for 1 minute and answer 6 questions related to the passage. Parents responded the questions by ticking (✓) the box for the most correct answer among the alternative answers provided below each question. A total score for both reading fluency and comprehension was calculated, with a higher score indicating a better performance on the test. This test was administered in February 2018 at follow-up measurement, and data was obtained from 66.23% of the parents.

2.3.3. Intelligence in children.

In psychological research and educational settings Raven's progressive matrices (Raven, Court, & Raven, 1996) are widely used as a measure of intelligence. Raven's progressive matrices is a non-verbal test, suitable for all children, adolescents and adults regardless of culture and educational level (Burke, 1958; Raven et al., 1996; Schweizer, Goldhammer, Rauch, & Moosbrugger, 2007; Pueyo, Junqué, Vendrell, Narberhaus, & Segarra, 2008). Raven's colored progressive matrices test is shorter (36 items) and simpler than other forms of Raven's progressive matrices and can also be used for children with physical and intellectual disabilities (Giovagnoli, 2001; Pueyo et al., 2008). Given the age of our participants and the cultural context, this study used Raven's colored progressive matrices to control for IQ in the analyses.

2.4. Statistical Analysis

We used SPSS Statistics software 24.0 to conduct statistical analyses. We calculated means and standard deviations of all variables (see Table 1). We checked the linear relationship between the variables and the control variables (child IQ, type of school (0 = public, 1 = private), parent's level of education, parent's reading fluency and reading comprehension). Because some of the variables seemed to be not normally distributed, both non-parametric Spearman and parametric Pearson correlations were computed and compared, but results were not different.

To test the contribution of parent activities to children's reading tests, we performed hierarchical multiple regression analyses (HMRA). We checked assumptions of normality, homoscedasticity, and multicollinearity. Because child word decoding, parental modeling and parental reading fluency were

negatively skewed, a Log transformation ($\log(X_i)$) was performed, and analyses were also run with these transformed variables. However, this did not show different results; therefore we report the results with non-transformed variables. The correlations among pairs of parent activities variables were large ($> .50$). To avoid multicollinearity, we decided to run hierarchical multiple regression analyses (HMRA) with each of the four parent activities (encouragement, reinforcement, instruction and modeling) separately as independent variables and the three reading test variables (word decoding, comprehension and fluency) as dependent variables (12 HMRA's in total). Control variables school type (0 = public, 1 = private) and parents' level of education were entered in the first block, the IQ score of the child was entered in the second block and one parental strategy was entered in the third block.

We also ran a principal component analysis (PCA) on the four parenting activities variables to see whether it would be useful to extract a common factor, representing parenting involvement in children's reading in general. The PCA showed that one component explained 71.67% of the variance. Therefore, we additionally conducted three HMRA for the three dependent variables with the common, extracted component score for the four activities.

To test whether parental education level was a moderator Andrew Hayes' Process macro version 3.0 (Hayes, 2017) was used. The interaction between parental education level and each of the four parental activities was entered in the HMRA to examine whether this interaction explained additional variance in the three child reading variables.

Finally, we checked whether parents' reading fluency and parents' reading comprehension predicted children's reading outcome, by adding these variables to the regression model in a final block (in the regression models without moderator). Because of the listwise deletion of missing values, the number of participants in these analyses is smaller.

3. Results

3.1. Prevalence of Parent Activities

Table 1 shows that parents reported to apply the four parenting activities frequently. They seemed to use slightly more encouragement and modeling activities than reinforcement and instruction activities.

3.2. Parental Activities Related to Word Decoding

Control variables. Of the two control measures type of school and parent's level of education entered in Step 1 ($F(2, 527) = 18.20, p < .001, 6.1\%$ explained variance), parental education was

significantly related to child word decoding ($\beta = .25, p < .001$). In Step 2, IQ did not explain an additional proportion of the variance in child word decoding with $F_{\text{change}}(1, 526) = 0.05, p > .05$.

HMRA with parent activities separately. Among the four HMRA only instruction explained an additional proportion (1%) of the variance in word decoding, $F_{\text{change}}(1, 525) = 5.20, p < .05$, showing that more parental instruction ($\beta = .10, p < .05$), was significantly related to better child's word decoding skills.

HMRA with a common factor for the four parent activities. The common factor for the four parenting activities did not significantly explain additional variance in child word decoding $F_{\text{change}}(1, 525) = 1.82, p > .05$.

HMRA with parental education as a moderator. The interaction effects of parental education and one of the four parent activities did not account for the variance in child word decoding. There was no extra explained variance ($R^2_{\text{change}} = 0\%$) by adding the interaction term with education: encouragement by education, $F_{\text{change}}(1, 525) = 0.02, p > .05$; modeling by education, $F_{\text{change}}(1, 525) = 0.08, p > .05$; reinforcement by education, $F_{\text{change}}(1, 524) = 0.95, p > .05$; instruction by education, $F_{\text{change}}(1, 524) = 0.22, p > .05$ and the common activities component by education, $F_{\text{change}}(1, 524) = 0.07, p > .05$.

HMRA with parental reading variables entered in the final block. There was no extra explained variance ($R^2_{\text{change}} = 0\%$) by adding the two parental reading variables: for the model with encouragement, $F_{\text{change}}(2, 355) = 0.07, p > .05$; with modeling, $F_{\text{change}}(2, 355) = 0.08, p > .05$; with reinforcement, $F_{\text{change}}(2, 355) = 0.05, p > .05$; with instruction, $F_{\text{change}}(2, 355) = 0.04, p > .05$ and with the common activities component, $F_{\text{change}}(2, 355) = 0.04, p > .05$.

3.3. Parent Activities related to Children's Reading Fluency

Control variables. The two control measures type of school and parents' level of education accounted for a significant proportion (15%) of the variance in reading fluency, $F(2, 517) = 46.63, p < .001$. Only parental education was significantly associated with reading fluency ($\beta = .40, p = .001$), indicating that a higher educational level of the parents is associated with more reading fluency. In Step 2, children's IQ did not add a significant proportion of variance in reading fluency, $F_{\text{change}}(1, 516) = 1.64, p > .05$. In the final models only one control variable, parental education level, remained significant after adding parental involvement activities (see Table 3).

HMRA with parent activities separately. Among the four HMRA only the two variables encouragement and instruction explained some proportion of the variance in reading fluency. In the model with parental encouragement an additional 1% of the variance was explained in the third step,

with $F_{\text{change}}(1, 516) = 4.37, p < .05$. In the model with parental instruction an additional 1% of the variance was explained in the third step, with $F_{\text{change}}(1, 515) = 3.72, p = .05$. Regression coefficients indicated that parental instruction ($\beta = .08, p = .05$) and encouragement ($\beta = .09, p < .05$) were positively associated with reading fluency.

HMRA with a common factor for the four parent activities. Adding the common component for the four parenting activities explained 1% extra variance, with $F_{\text{change}}(1, 515) = 3.92, p < .05$, and a positive regression coefficient ($\beta = .08, p < .05$).

HMRA with parental education as a moderator. Parental education did not significantly moderate the association between one of the four parent activities and child reading fluency. There was no extra explained variance ($R^2_{\text{change}} = 0\%$) by adding the interaction terms: encouragement by education, $F_{\text{change}}(1, 515) = 0.06, p > .05$; modeling by education, $F_{\text{change}}(1, 515) = 0.26, p > .05$; reinforcement by education $F_{\text{change}}(1, 514) = 1.30, p > .05$; instruction by education, $F_{\text{change}}(1, 514) = 0.76, p > .05$, and activities component by education, $F_{\text{change}}(1, 514) = 0.07, p > .05$.

HMRA with parental reading variables entered in the final block. There was no extra explained variance ($R^2_{\text{change}} = 0\%$) by adding the two parental reading variables in the final block: for the model with encouragement, $F_{\text{change}}(2, 344) = 0.70, p > .05$; with modeling, $F_{\text{change}}(2, 344) = 0.83, p > .05$; with reinforcement, $F_{\text{change}}(2, 344) = 0.93, p > .05$; with instruction, $F_{\text{change}}(2, 344) = 0.91, p > .05$ and with the common activities component, $F_{\text{change}}(2, 344) = 0.90, p > .05$.

3.4. Parental Activities Related to Reading Comprehension

Control variables. In the model with parental encouragement the two control variables type of school and parent's level of education entered in Step 1 accounted for 1.3% of the variance in reading comprehension, $F(2, 542) = 4.71, p < .01$. In Step 2, IQ did not significantly explain extra variance in reading comprehension, $F_{\text{change}}(1, 541) = 0.71, p > .05$.

HMRA with parent activities separately. Parental reinforcement explained an additional proportion of the variance in reading comprehension (1%), with $F(1, 540) = 4.12, p < .05$. Also instruction explained additional variance (1%), with $F(1, 540) = 4.12, p < .05$.

HMRA with a common factor for the four parent activities. The common component for the four parenting activities did not explain additional variance with $F_{\text{change}}(1, 540) = 4.26, p < .05$.

HMRA with parental education as a moderator. Parental education was not a significant moderator in the association between one of the four parent activities and child reading fluency. There was no extra explained variance ($R^2_{\text{change}} = 0\%$) by adding the interaction term: encouragement by

education, $F_{\text{change}}(1, 540) = 1.56, p > .05$; modeling by education, $F_{\text{change}}(1, 540) = 0.12, p > .05$; reinforcement by education, $F_{\text{change}}(1, 539) = 0.00, p > .05$; instruction by education, $F_{\text{change}}(1, 539) = 0.18, p > .05$ and the common activities component by education, $F_{\text{change}}(1, 539) = 0.06, p > .05$.

HMRA with parental reading variables entered in the final block. There was no extra explained variance ($R^2_{\text{change}} = 0\%$) by adding the two parental reading variables in the final block: for the model with encouragement, $F_{\text{change}}(2, 362) = 0.53, p > .05$; with modeling, $F_{\text{change}}(2, 362) = 0.54, p > .05$; with reinforcement, $F_{\text{change}}(2, 362) = 0.31, p > .05$; with instruction, $F_{\text{change}}(2, 362) = 0.40, p > .05$ and with the common activities component, $F_{\text{change}}(2, 362) = 0.43, p > .05$.

4. Discussion

The present study assessed the contribution of four parental involvement activities (encouragement, modeling, reinforcement, and instruction) to three child reading skills (decoding, fluency and comprehension). Of the possible confounding variables, only the educational level of the parents was associated with child reading, but only modestly (15% explained variance in reading fluency, 6% in word decoding and 1% in comprehension). Whether the child goes to a private or a public school, or the score on the IQ test was not significantly related to the reading subtests, neither did the parents' reading test scores.

Concerning the parental involvement activities, results of the study suggested that parental instruction was consistently associated with all reading outcomes of the children, parental encouragement was only associated with children's reading fluency, and reinforcement was only associated with reading comprehension. Adding these parental involvement activities explained only an additional 1% of the variance, indicating that associations were very weak. Moreover, if a Bonferroni correction is applied, none of the parenting strategies remains significantly associated with child reading outcomes. Parental modeling was not significantly related to the child reading outcomes.

The association between parental instructions and children's reading skills is in line with other studies (Sénéchal & LeFevre, 2014; Sénéchal et al., 1998; Sénéchal, 2006;). Home instruction about reading proves to be very effective as shown in the experimental study of Morrow and Young (1997). They found that children who received both home and school-based reading instruction outperformed children of the control group who received only school-based instructions. Sénéchal et al. (1998) found that direct instructions of written-language skills by parents contribute largely to child literacy development particularly to the acquisition of literacy skills of children who cannot yet read. Sénéchal and LeFevre (2014) affirmed that parents' direct teaching about reading had more effect on children's

reading than other informal involvement activities of parents such as shared book reading. Sénéchal (2006) found that parents' teaching contributed 6% unique variance to children's alphabetic knowledge and was related to phoneme awareness while other variables such as story book exposure did not account for any unique variance. She confirmed that parents' teaching of children about literacy in kindergarten directly predicted kindergarten alphabetic knowledge and Grade 4 reading fluency. This means that parents' direct teaching not only helped emergent readers to develop decoding skills but also led to successful development of reading fluency in later years. Sénéchal and LeFevre (2002) affirmed that frequency of parents' teaching is directly related to children's early literacy. We extended previous findings by showing that parents' direct teaching activities relate to children's decoding and reading fluency beyond parents' educational level and parents' reading skills.

In this study, parental encouragement was weakly associated with children's reading fluency. Sanders (1998) found a relationship between students' perceptions of parental encouragement of academic efforts and children's academic self-concept. Martinez-Pons (1996) affirmed that, when children face difficulties in self-regulation to engage in school activities, a child who is encouraged to persist to do so will be more likely to succeed in engaging in school work than a child who is not. This implies that parental engagement in explicit supportive behavior through the encouragement of the student's interest in reading activities increases children's reading motivation. It seems that the more a parent encourages a child to read and to engage in reading activities the higher the possibility for a child to become a fluent reader.

Parental reinforcement was related to children's reading comprehension. Parental reinforcement in reading activities through various home activities such as story books exposure and family reading time can directly or indirectly stimulate the child's reading comprehension. Sénéchal (2006) did a study on how parental involvement in kindergarten is related to grade 4 reading comprehension, fluency, spelling, and reading for pleasure and found that story book exposure predicted grade 4 reading comprehension indirectly. Children might require more exposure to literacy materials at home, as strong base for decoding, vocabulary and reading fluency (which all requires parental support) to boost their reading comprehension development. With regard to reading comprehension, we found a relationship between children's IQ and some aspects of reading comprehension but IQ did not explain variance in reading comprehension in a hierarchical regression model. Tiu, Thompson and Lewis (2003) found that IQ accounted for a significant amount of variance in children's processing speed, which is a very

important aspect in reading comprehension. On the other hand, Share, McGee and Silva (1989) stressed that IQ does not set limits to reading progress even in extreme low IQ children.

Parental educational level remained significant even after adding parental involvement activities and parent's reading skills in all hierarchical regression models. Parents' educational level seems to be the most important parental factor related to children's reading development in this study. However it did not moderate the association between parental involvement activities and child reading skills, meaning that depending on the educational level, we did not find different associations. Chiu and Ko (2008) pointed out that maternal education plays an essential role in children's reading. Though Van Bergen et al. (2016) stressed that home literacy is more proximal to children's reading than parental education; parents' own literacy skills were not associated with children's reading skills in this study. Shonkoff and Phillips (2000) found that the level of parental education is not only strongly associated with the home literacy environment but also with parents' teaching styles and use of resources, child care and educational materials such as a parental direct teaching of alphabets, book sharing and library visits.

4.1. Strengths and Limitations

It is strength of the study that we used a large sample of children and parents in Tanzania to explore the association between parents' involvement activities and their children's reading skills. Our sample includes pupils from private and public schools, and includes parents with a low, middle and higher socio-economic status. This variation in participants' SES enables to assess which strategy is feasible across all SES groups and to identify which group of parents needs more attention and support. Another strong point is that few studies have focused on word-level reading and parental involvement beyond first grade children. We included word-level reading in study grade 2 children not only because it is the basis of reading fluency and comprehension but also it is from a practical point of view important to study lower levels of reading when studying a population of children with common reading problems.

This study also has some limitations. First, we didn't control for teacher factors which are related to the children's reading abilities and parental involvement. It could be interesting to include teacher factors such as teacher's instructional practices, teacher's efficacy to teach reading skills, teacher's beliefs about parent's efficacy and the quality of the teacher-parent relationship (e.g. trust). The influence of a teacher's personal factors on a child's reading abilities is very important in understanding literacy development of children in primary schools. A second limitation of our study is the lack of

information on the possible impact of other family members, including (older) siblings, grandparents, or other individuals within the social environment of the child, such as neighbors. Thirdly, our data are cross-sectional in nature, implying that we are not able to make causal inferences. We cannot make any claims about the causal relations between parental involvement activities and children's literacy skills.

5. Conclusion and Implications

The current study opens a way for more investigation on the effective and feasible parental reading support activities which can be used to encourage parental involvement in the literacy development of children in Tanzania. Though parental educational level was associated with all three children's reading skills, parents' own reading ability didn't correlate with any children's reading skill. This suggests that although parental reading ability is important, it cannot be a deciding indicative measure of parental involvement at home and it would be wrong to assume that illiterate parents are not able to help their children at home and support their reading development. Leichter (1984) stipulated that children may learn and become readers on their own without formal instruction, but through experiences with literacy together with their parents. More specifically, the emotional reactions of the parents can affect the child's progress significantly. Researchers need to find feasible ways and practices that can be useful to all parents regardless of their reading status. Parents might not be able to read but if they are well supported, they can encourage and reinforce their children to see the importance of reading and education. Children with literate parents might have more advantages by receiving literacy support at home than children of illiterate parents. This does not mean that illiterate parents are not willing to help their children: a strong desire to help can exert a positive influence for their children to become literate. It should be noted that not all activities are feasible and effective to every parent and child. If we want children to have a smooth reading development, policy makers, schools and teachers need to motivate parents to take part in their children's reading progress by providing them with feasible tools and reliable practices such as teacher-parent meetings, home visits as well as a specific parent training which focuses on informing parents about the importance of reading. We need to think of specific practices that can easily facilitate students' intrinsic and extrinsic motivation for reading and bring better reading successes to children. For example, schools can buy reading materials for children for use at home, teachers can use simple and motivating practices such as resource sharing by lending story books to children for home use and the use of wordless picture books at home. Parents can be instructed to ask their children about their daily routines at school and new words they learnt at school, tell stories to their children, and children can read aloud for parents.

Table 1

Means and Standard Deviations of the Parent and Child Variables

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
Child variables					
Reading decoding	574	25.48	31.29	0	36.00
Reading fluency	563	71.77	7.66	0	133.67
Reading comprehension	594	1.30	1.01	0	3.00
IQ	603	11.95	5.86	0	36.00
Parent variables					
Encouragement	587	4.80	0.92	1.00	6.00
Modeling	587	5.04	0.98	1.00	6.00
Reinforcement	586	4.76	1.06	1.17	6.00
Instructions	586	4.98	0.96	1.13	6.00
Reading fluency	400	172.49	61.18	0	215.50
Reading comprehension	398	7.13	3.04	0	11.68

Note. *N* = number of valid cases, *M* = Mean, *SD* = standard deviation, Minimum and Maximum values. Parental reading support activities ranged from 1 'not true at all' to 6 'completely true'.

Table 2
Correlations among all Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Letter1																					
2. Words1	.70***																				
3. Paragraph1	.65***	.75***																			
4. Story1	.57***	.67***	.81***																		
5. Letter2	.63***	.65***	.57***	.52***																	
6. Words2	.62***	.67***	.66***	.63***	.70***																
7. Paragraph2	.55***	.65***	.79***	.85***	.54***	.63***															
8. Story2	.55***	.64***	.76***	.87***	.53***	.61***	.85***														
9. Comprehension1	.21***	.23***	.25***	.25***	.09*	.20***	.21***	.24***													
10. Comprehension2	.21***	.28***	.32***	.38***	.16***	.24***	.34***	.39***	.28***												
11. Decoding	.88***	.89***	.76***	.67***	.87***	.79***	.67***	.66***	.20***	.24***											
12. Fluency	.60***	.70***	.89***	.97***	.55***	.67***	.92***	.91***	.25***	.38***	.72***										
13. Comprehension	.25***	.30***	.33***	.36***	.14***	.26***	.30***	.35***	.93***	.61***	.26***	.35***									
14. Encouragement	.04	.11*	.13**	.14***	.04	.09*	.13***	.09*	.04	.05	.08	.14**	.05								
15. Modeling	.03	.08*	.06	.08*	.01	.05	.05	.02	.06	.02	.05	.07	.06	.63***							
16. Reinforcement	.08	.10*	.10	.12**	.04	.08	.08	.08	.09*	.05	.08	.12**	.09*	.58***	.63***						
17. Instruction	.13**	.16***	.12	.16***	.08	.15***	.11**	.11*	.07	.09*	.13***	.12**	.10*	.61***	.66***	.63***					
18. Child IQ	.04	-.01	.11	.11**	.06	.03	.12***	.07	-.06	.08*	.03	.11**	-.02	.05	.01	.02	.02				
19. P Education	.21***	.29***	.34***	.40***	.17***	.19***	.35***	.34***	.09*	.10*	.25***	.39***	.11**	.15***	.12**	.14***	.16***	.18***			
20. Schooltype	.09*	.07	.11**	.12**	.05	.07	.14***	.08	-.04	.03	.09*	.12**	-.02	.06	.05	.07	.13***	.22***	.36***		
21. P fluency	.06	-.03	.02	.00	.04	.01	-.01	-.02	.03	.00	.03	-.01	.03	.07	.10	.13*	.16***	.05	.11*	.30***	
22. P comprehension	.08	-.02	.04	.03	.07	.05	.02	.00	.03	.03	.05	.03	.04	.10*	.10*	.20***	.19***	.06	.16***	.34***	.66***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; Spearman correlations between school type and other variables; Pearson correlations between all other variables. Variables 1 to 10: child reading subtest variables, Variables 11 to 13: total scores child reading variables; Variables 21-22: total scores parent reading variables; P = Parent

Table 3

Results Hierarchical Multiple Regression Analyses with Children's Reading Skills as Dependent Variables

	Word decoding			Reading fluency			Comprehension		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
School type	0.45	0.87	0.02	-2.35	3.34	-0.03	-0.19	0.11	-0.08
Parent education	2.55	0.49	0.24***	16.20	1.87	0.38***	0.19	0.06	0.14**
Child IQ	-0.01	0.06	-0.01	0.28	0.22	0.05	-0.01	0.01	-0.04
Encouragement	0.32	0.36	0.04	2.92	1.40	0.09*	0.04	0.05	0.04
School type	0.44	0.87	0.02	-2.33	3.36	-0.03	-0.20	0.11	-0.08
Parent education	2.59	0.49	0.24***	16.55	1.87	0.39***	0.19	0.06	0.14**
Child IQ	-0.01	0.06	-0.01	0.29	0.22	0.06	-0.01	0.01	-0.04
Modeling	0.16	0.34	0.02	1.13	1.30	0.04	0.06	0.04	0.06
School type	0.42	0.87	0.02	-2.61	3.35	-0.03	-0.22	0.11	-0.09
Parent education	2.57	0.49	0.24***	16.32	1.87	0.38***	0.18	0.06	0.13**
Child IQ	-0.01	.06	-0.01	0.30	0.22	0.06	-0.01	0.01	-0.03
Reinforcement	0.28	0.31	0.04	2.27	1.21	0.08	0.09	0.05	0.09*
School type	0.25	0.87	0.01	-2.89	3.36	-0.04	-0.22	0.11	-0.09
Parent education	2.48	0.49	0.23***	16.25	1.87	0.38***	0.18	0.06	0.13**
Child IQ	-0.01	0.06	-0.00	0.31	0.22	0.06	-0.01	0.01	-0.03
Instruction	0.79	0.35	0.10*	2.60	1.35	0.08*	0.09	0.05	0.09*
School type	0.38	0.87	0.02	-2.72	3.35	-0.04	-0.21	0.11	-0.09
Parent education	2.53	0.49	0.24***	16.20	1.87	0.38***	0.18	0.06	0.13**
Child IQ	-0.01	0.06	-0.01	0.30	0.22	0.06	-0.01	0.01	-0.03
Strategy component	0.45	0.33	0.06	2.54	1.28	0.08*	0.08	0.04	0.08

Note. Unstandardized (*B*) and standardized regression coefficients (β) from the final regression models (block 3) are reported. * $p < .05$, ** $p < .01$, *** $p < .001$ (based on nominal p -values). If a Bonferroni type adjustment is applied to correct for multiple testing, none of the parenting strategies remains significantly associated with child reading outcomes (with 12 tests and $\alpha_{\text{original}} = 0.05$, the p -value is adjusted to .004).

CHAPTER 4

AN INTERVENTION TO PROMOTE PARENTAL INVOLVEMENT IN CHILDREN'S READING

Abstract

This chapter describes an intervention to enhance reading development in Tanzanian primary school children by promoting parental involvement in their children's education, through a teacher-parent partnership. We (a) provide an intervention theory, i.e. why could the intervention work, and (b) describe the ingredients of the intervention. The core elements of the intervention are based on a review of the scientific literature showing effectiveness of programmes designed to enhance *reading skills* through parental involvement in primary school children. This review resulted in the decision to focus on three components in the intervention: (a) reading at home, (b) partnership between parents and teachers (communication), and (c) parental involvement in homework. The whole intervention package incorporated teacher and parent training sessions, modules for teachers on how to involve parents, the use of student diaries, teacher home visits, reading books at home, parental involvement in homework, a reading day competition, a parents' school week, a teachers-parents conference, guidelines for teachers involving parents and guidelines for parents' home involvement.

1. Introduction

There is scientific evidence that in Tanzania a lot of children are not learning the basic literacy skills in accordance with their age and grade level, while other children leave primary school without acquiring basic skills intended for primary education (Uwezo, 2010, 2011, 2012; USAID, 2016). As part of a larger project situated in Dar es Salaam, Tanzania, an intervention was designed aimed at promoting parental involvement in children's education, to boost their reading development.

Development of such an intervention within the Tanzanian context can be motivated by the results of two studies, which explored on the one hand motivational factors which influence parents' decisions to be involved in educational activities, and on the other hand learning strategies which parents might be using to support children's reading. From the first study (Kigobe, Ghesquière, Ng'Umbi, & Van Leeuwen, 2018), we have learned that parents are willing to be involved in their children's education, but being invited for this by schools and teachers and their sense of efficacy contribute to their involvement. The second study (Kigobe, Ogoniek, Ghesquière, & Van Leeuwen, submitted) revealed a statistically significant, but weak association between parental reading support activities (modeling, encouragement, reinforcement and instruction) and all three aspects of children's reading development, i.e. decoding, reading fluency and reading comprehension. From the two studies we have learned that although parents have the desire to be involved in their children's education and reading in particular, their involvement could be more activated. Hence, an intervention focusing on the communication between teachers and parents with this aim would be useful.

Another argument to develop such an intervention comes from the study by Chahe and Mwaikokesya (2017), who asserted that in spite of various efforts in Tanzania to boost literacy skills in children aged between 5 and 13, little seems to have been done in supporting parents and families to facilitate their children's literacy development. To present, there is no specific intervention that has included parents as direct actors in children's reading development.

The major objective of this intervention was to improve children's reading skills through a teacher-parent partnership. Specifically with this intervention we intended:

- (a) to establish or strengthen teacher-parent partnership and give room for teachers and parents to share important child information about reading within both the school and home context;
- (b) to encourage parents to take an active role in the acquisition of their children's reading skills as co-educators and support children's reading development at home;

(c) to strengthen children's reading decoding, reading fluency and reading comprehension through teacher-parent partnership.

2. Why Could an Intervention to Stimulate Parental Involvement in Literacy Development of Children Work?

Veerman and van Yperen (2007) have stressed that an intervention can be considered effective when four stages are completed: (a) specification of the core elements of the intervention, such as the goals, target group, activities (which provides descriptive evidence and thus a potentially effective intervention), (b) explication of an underlying intervention theory, specifying a rationale on how the activities in the intervention can lead to expected outcomes (theoretical evidence or plausible interventions), (c) preliminary evidence that the intervention works, including findings on whether goals are achieved, problems are reduced and clients are satisfied (indicative evidence or functional intervention), and (d) evidence that the intervention is responsible for observed effects, by using a randomised controlled trial or repeated single case studies (causal evidence, efficacious interventions). In this chapter we focus on the first two levels: describing the intervention and providing a programme theory for the intervention that was developed to enhance parent involvement in literacy development in Tanzanian primary school children.

2.1. The Importance of Parental Involvement in Children's Reading

Parental involvement is an important aspect of children's language development and early literacy development before and after formal schooling. Research has shown that to make parents active participants in their children's education, policy makers, schools and teachers need to find ways to build connections between the school and the family (Darling & Westberg, 2004; Hilferty et al., 2010; Khan, 2003; Overstreet, Devine, Bevans, & Efreom, 2005). This can be done through a range of programmes, strategies and approaches such as seminars, meetings, workshops and training sessions that intend to inform parents how to assist in helping improve their child's reading skills (Darling & Westberg, 2004; Ediger, 2001; Fuller 1994; Hilferty et al., 2010; Jeynes, 2005; Jeynes, 2012; Khan, 2003; Sénéchal & Young, 2008). Darling and Westberg (2004) developed a parent intervention to foster children's acquisition of reading and defined it as intentional teacher-parent interactions intended to influence the way parents support their children's reading.

The more knowledgeable a parent becomes about their child's reading instruction, the greater the chance for children to be successful in reading (Ediger, 2001). Hilferty et al. (2010) emphasised that parental involvement interventions are most helpful at the beginning of the primary school years and if

they are well designed, they can strongly improve children's reading skills. Parents and teachers are a crucial asset in improving children's reading ability, there is a need for training parents to provide efficient strategies and methods in helping their child to increase reading skills (Khan, 2003). This can be done through a positive partnership between the school and home and direct involvement of parents in literacy development of the children. The more informed a parent becomes about their child's reading instruction, the greater the chance for children to achieve more optimally in reading (Ediger, 2001).

2.2. Towards an Intervention Theory

The ingredients of the intervention are based on scientific studies showing effectiveness of programmes designed to enhance reading skills in primary school children (e.g. meta-analyses by Jeynes, 2005, 2012; Sénéchal & Young, 2008), and more specifically intervention programmes aimed at boosting children's reading skills through parental involvement (e.g. Bartel, 2010; Crosby, Rasinski, Padak, & Yildirim, 2015; Gelfer, Higgins, & Perkins, 2001; Hindin & Paratore, 2007; Khan, 2003).

The meta-analysis by Sénéchal and Young (2008) involved 16 intervention studies representing 1,340 families. It revealed that general parent involvement has a positive effect on children's reading acquisition. The authors identified three types of involvement that are used in most of the studies, which are (a) parents reading to their children, (b) parents listening to their children read aloud, and (c) parents tutoring their children in reading. Training parents to tutor their children using specific reading activities produced the greatest results. The six studies in which parents were trained to listen to their children reading books, produced a significant effect size of 0.52, and indicated that after the intervention, the children in the intervention group made gains of 8 points on a standardised measure when compared to the control children (Sénéchal & Young, 2008). Moreover, they found out that those interventions, in which parents tutored their children using specific literacy activities, produced larger effects than those in which parents listened to their children read.

Jeynes (2005) did a meta-analysis of 41 studies on the relationship between parental involvement and the academic achievement of urban elementary school children. The study included more than 20,000 children, from kindergarten through sixth grade. He found a significant relationship between parental involvement and overall children's achievement. His findings showed that parental expectations (i.e. the degree to which parents hold high expectations about student achieving) yielded the largest effect sizes compared to other aspects of parental involvement such as parent reading with a child, communication about school activities, homework checking, attending and participating in school functions, and a supportive, helping parental style. In the level of effectiveness, parental expectations

were followed by mother or father reading regularly in the past or the present with a child and the communication about school activities (Jeynes, 2005).

Another meta-analysis by Jeynes (2012) included 51 studies and examined the association between various kinds of parental involvement programmes and academic achievement of pre-kindergarten to 12th-grade school children. The study also examined which programmes are more effective and have the most impact. A systematic review resulted in the following classification of parental involvement programmes: general parental involvement programs (an overall measure as defined by the researchers of a particular study), shared reading programmes (encouraging parents and their children to read together, either items required or recommended by the school such as books or personal items such as newspapers, words from clothes, magazine), emphasised partnership programmes (efforts to help parents and teachers collaborate with one another as equal partners to improve children's academic and behavior functioning), checking homework programmes (school-based initiatives that encourage parents to check homework completion and thus becoming engaged more actively in their children's schooling), a communication between parents and teacher programme, Head Start programmes, and English as a second language (ESL) teaching programmes (enabling parents to learn English). The findings indicated a significant association between parental involvement programmes overall and educational outcomes. The meta-analysis revealed that shared reading, programmes that emphasised a partnership between parents and teachers, communication between parents and teachers programmes, and checking homework programmes have significant associations with academic outcomes. Head Start and ESL training for parents did not show significant effects.

Khan (2003) carried out an eight weeks intervention which intended to improve children's reading comprehension skills through parental involvement. The children's age ranged from 9 to 10 years. Khan investigated whether children with learning difficulties would improve in reading comprehension when parents became actively involved in their child's reading activities. The intervention included training for parents on the importance of their involvement in their child's reading activities and parent-child book reading. In this intervention parents learned how to effectively provide reading support for their children in questioning techniques, how to sit holding the book with their child and how to have an interactive discussion with their child. Moreover, the participating children read and discussed books once a week with their parents at home and answered six written comprehension questions about the story (Khan, 2003). The results of the study evaluating the intervention showed that children's reading comprehension scores increased as a result of parental involvement in their child's

reading activities. Khan also found that the participating children experienced a heightened enjoyment of reading and that the parents became more confident in providing reading support to their children due to the parent training and engagement in their child's reading activities at home (Khan, 2003).

An intervention regarding home and school factors impacting involvement in a primary school in the United States was evaluated by Bartel (2010) with a pre-post intervention design. In this intervention, schools/teachers helped families to establish home environments conducive to support children's learning through a homework programme, spelling practicing, and reading with children, and in school based activities such as attending Parent-Teacher Association (PTA) meetings, volunteering, regular communication, more involvement in decision making and more involvement in the community. The intervention had two programmes prepared for parents. In the first programme, parents attended three hours of classes a week with the options of taking parenting classes, computer classes, exercise classes (yoga or belly dancing), and cooking classes. The classes were based on the family literacy model with an added community education component. The second programme implemented was about interactive homework, whereby the teacher required preparing the homework which is fun and engaging for children to work with their parents at home. Bartel (2010) found that children whose teachers reach out to parents reap more benefits. The study affirmed that increasing teachers and parents' awareness about the importance of their involvement positively affected children's learning.

The study of Hindin and Paratore (2007) on the effectiveness of a home repeated-reading intervention found that all participants made considerable gains in reading fluency at the end of the programme. The aim of the intervention was to examine the effectiveness of a parent's participation in home repeated-reading on improving reading accuracy, reading fluency and reading comprehension in an independent reading task of eight low-performing second grade children. They used a single-subject, multiple-baseline across-subject methodology to assess the effectiveness of the intervention whereby participants served as their own controls through multiple assessments to analyze individual participants' progress. The findings showed that all participants made fewer reading errors during intervention compared with their performance on baseline reading. There were mean differences between baseline fluency and intervention fluency.

Crosby et al. (2015) examined the effectiveness and durability of a three years school-based parent involvement programme that was implemented by school staff without external supervision. This means that the intervention was directed, modified, and implemented by teachers without external help and control over the fidelity of implementation. The programme was based on classroom-based daily

parent involvement literacy programme of literacy lessons for parents of kindergarten to grade one children called *Far Start* (FS). The programme was developed by Rasinski (1995, in Crosby et al., 2015) and Padak and Rasinski (2005 in Crosby et al., 2015). In the programme parents had to spend 10-15 minutes on reading a poem rhyme next to their child for several times in a fluent way. After that the child and the parent read a poem rhyme together two or three times, and lastly a child reads the poem rhyme two or three times again. Throughout the reading parent and a child need to point to the words as they read. Also, teachers and parents shared an activities log, which described the activities that are implemented by teachers and parents in the intervention. In a first year (2008-2009), the programme began with an in-service training, in which each first-grade classroom teacher participated. This professional development training *Far Start* was organised outside their school and teachers were given a copy of the implementation book of the programme. Parents were invited to come to one of two parent meetings in which teachers presented the programme content. The programme was implemented over 29 weeks. Parents were asked to be engaged with their children in 58 lessons. Parent and teacher surveys were given at the end of the school year to help improve the following year's implementation. In the second year (2009-2010) the programme was improved by providing reading tasks and activities pages for teachers' and parents' parents' log. A survey was sent home to the parents for the second year progress evaluation of the programme. In the third year (2010-2011) they continued to do much of what they did during the 2009-2010 school year. The assessment of the intervention showed that over three years, parent participation in the programme was associated with better child reading achievement as measured by children's fluency (reading rate) scores in a reading achievement test. The evaluation of the intervention showed that the more parents were engaged in the reading programme with their children, the more the children gained in reading. Crosby et al. (2015) affirmed that the simplicity and feasibility of the programme led to its successes.

Rasinski, Padak and Fawcett (2009) explained in their book on teaching children who find reading difficult, that effective working with parents requires the following principles:

- The use of methods of instruction that are proven by teachers.
- The development of a consistent programme routine that does not vary widely over time. The consistency allows parents to develop a sense of competence in their literacy work with children.
- To propose parent involvement activities which are easy and not time-consuming (not taking more than 10-15 minutes per day).

- To provide training and support to parents because most of parents lack instructional expertise. What is asked from parents to do with their children should be something enjoyable.

Generally, these interventions were useful and successful in encouraging parental involvement and support children's reading development. However, there are various aspects that need to be taken into account to reach the compliance in teachers and parents and to make intervention feasible in a Tanzanian context. The interventions that we discussed were implemented in a western culture which is quite different from the African and Tanzania culture. In developed countries, teachers and parents are connected by different means of communication such as email, which is not common in Tanzania. Some of the programmes were implemented by schools without external help, which is not feasible in Tanzania since parental involvement is not a common practice. Also, teachers still need external help, for example from the universities, to carry out such activities. Some interventions used repeated trainings that required parents to attend many sessions in schools for a long time, which is also not feasible in the Tanzanian context and for the parents who participated in our study. To make use of the good practices from these interventions, a good adaptation is needed. Several adaptations were made such as; including possible means of communication (e.g. the use of student's diaries, teacher-parent conference and letter), and a short training that does not require parents to attend many sessions at school. Moreover, the intervention included the external support from the university lecturers who provided ongoing professional support to teachers so that they were able to work with and help parents in the intervention.

3. Description of the Intervention

We first discuss the target group of the intervention. The intervention was intended for grade two children in primary schools in Tanzania. Children start school by age seven in Tanzania and at grade two most of the children are eight years old, a few are nine years old. The primary school curriculum requires children to master basic reading by grade three before they sit for a national examination in grade four. Our choice to select grade two children for the intervention was motivated by two major reasons. First, because the children are in the second year of primary school, we assumed that they already have some skills acquired in reading (from grade one), so we can assess a baseline level of reading that can be used to evaluate growth in reading over time and examine effects of the intervention. Second, grade two is an important class where children still have to acquire more reading skills before going to grade three where they all need to master the basic reading, thus involvement of parents can be very useful. The intervention was intended for all children, with or without reading problems. The

intervention was prepared for all parents, with diverse socioeconomic backgrounds, and even for parents who are not reading well themselves.

Second, we describe the choice of components in the intervention. Through the scientific studies, we have learned that there is a significant relationship between general parental involvement and children's learning achievement and reading literacy in particular (Bartel, 2010; Crosby et al., 2015; Hindin & Paratore, 2007; Jeynes, 2005, 2012; Khan, 2003; Sénéchal & Young, 2008). We identified four important components that are used in most interventions which are: (a) training for parents and teachers, (b) shared reading between parents and their children, (c) homework checking by parents, and (d) partnership through communication. Literature has shown that most of the interventions involved training sessions for parents either on how to teach specific reading skills to their child, how to listen their child read, how to read to their child, or a general training on the importance of their involvement in child reading acquisition (Bartel, 2010, Crosby et al., 2015; Khan, 2003; Sénéchal & Young, 2008). Training and professional development programmes for teachers before the intervention have also been employed in previous interventions, such as in the assessment of *Far Start* by Crosby et al. (2015).

Shared reading programmes either by parents reading aloud for a child or parents listening to a child reading, was another successful programme ingredient used in most of the studies (Bartel, 2010; Crosby, et al., 2015; Hindin & Paratore, 2007; Jeynes, 2005, 2012; Khan, 2003; Sénéchal & Young, 2008). Homework checking and take home tasks are also efficacious programme elements employed in various parental involvement interventions. Bartel (2010) has suggested interactive and fun homework can advance parental engagement in children's reading. We also see the use of partnership programmes, which include communication between teacher and parents, child-parent communication about school day activities, parent-teacher associations (PTA), and regular communication between teachers and parents.

Through the critical review of the meta-analyses and other intervention studies we developed this intervention with four components that seem to be effective in most studies: (a) reading at home, (b) partnership between parents and teachers (communication), (c) parental involvement in homework, and (d) training for teachers and parents. The intervention includes training for teachers and parents before (April, 2016) and during the intervention (November, 2016). Before the intervention, teachers participated in a three-day (24 hours) training on parental involvement in literacy development of the children and they were involved in an open discussion about effective involvement of parents in child reading development. Another two-day (16 hours) training took place six months after the introduction

of the intervention. This training aimed at capacity building for teachers, focused on assessing teacher's satisfaction on the implementation of the intervention and involved teachers into discussion about feasibility, challenges and ways to improve the implementation of the intervention. Teachers were trained at the Open University of Tanzania by a team of five researchers of the Faculty of Education, including one Professor of Education, three lecturers with a PhD in Education, and one assistant lecturer (with a master of Education).

The parent training included a three-hour session before the intervention and a three-hour session during the intervention at schools. Parents were trained by teachers and researchers and participated in the group discussions. In the group discussions seven parents sat together for 30 minutes to discuss effective parental involvement in their child's reading acquisition and one parent in each group gave a general presentation about their discussion. Apart from the two three-hour training sessions, parents received instructional advice in two teacher-parent conferences which were prepared by the schools in one school year. Additionally, the intervention included three modules for teacher training about parental involvement in reading development of the children, book reading at home, weekend reading tasks, daily homework, student diaries, one reading day at school, teacher home visits, two teacher-parent conferences, parents' school week and parental involvement guidelines. In the next section we will explain each component of the intervention in more detail.

3.1. Modules within the Teacher Training

To make sure teachers are actively participating in the intervention, we prepared three modules to orient teachers on the role of parental involvement in children's reading literacy development. These modules were prepared based on three aspects of the intervention which are teacher-parent communication, reading at home, and parent involvement in homework. The major aim of the first module was to orient teachers towards the importance of teacher-parent communication about children's reading progress. This module also suggested some effective ways of communication for teachers and parents. The second module intended to direct teachers towards the importance of reading at home during the pupil's reading progress through books reading and learning activities at home. The third module aimed at orienting teachers towards the role of homework in connecting home and school learning. The module analyzed important features from interactive homework which can stimulate reading activities at home. Teachers were involved in a five-day (40 hours) 'teacher involving parent training' which took place at the Open University of Tanzania before and during the intervention. These three modules were the major tools used to train teachers in the teachers training at the Open University

of Tanzania. The modules included a teacher involving parent guideline to help teachers understand their specific responsibility in the intervention (see Table 1).

3.2. Student Diaries

We introduced student diaries to schools as one way to strengthen teacher-parent communication by enabling teachers and parents to share important information about a child's reading skills and reading development in general. Teachers have to write short instructions regarding the homework provided to a child and how they want parents to get involved in a given task. Parents can also write comments with regard to a given homework or other related issues. In a child's school diary teachers and parents had to write their mobile numbers so that they can easily communicate.

3.3. Reading at Home

The intervention included short story books for home reading. Each school was supplied with 50 different titles of story books and a child was required to read all the titles within one school year. The books were provided through the Children's Book Project (CBP) in Tanzania. CBP is an innovative, non-governmental organization that aims at improving literacy skills amongst school children and fosters a reading culture in Tanzania in child-centered ways. Each week (suggested being every Friday), teachers were expected to lend one book to a child, and a child was expected to return the book after a week and take another book home. Parents were provided with book reading guidelines to help them engage actively with their children in book reading (See Table 2).

3.4. Teacher's Home Visit

Teachers had to visit a child's home once in a year. The major aim was to assess the home reading environment and to give instructional advice to parents on how to make home reading enjoyable and feasible to both parents and their children.

3.5. Teacher-parent Conference, a School Week and Reading Day

The intervention suggested to teachers and parents to have one meeting per semester, where they only discuss about general literacy development of the children and parents receive instructional advice from teachers. The intervention included a school week, whereby a parent can choose any day in a year to visit his/her child's teacher to discuss the child's reading progress. 'Reading day' was implemented, which is supposed to be a special day in a school year, with children having a reading competition in front of their parents and other guests. All the children receive gifts for their contribution on reading day.

3.6. Parental Involvement Guideline

This was a special guideline that intended to orient parents towards the importance and proper ways of engaging in their children reading development. The guideline included a consent section, whereby parents required giving consent of their participation in the outlined activities and the general intervention. The guideline included a summary of the training given to parents and explicitly communicated to parents the exact role they need to play in the intervention. The guidelines detailed the aims of the intervention and major tasks that parents are expected to do in the intervention. These aspects are:

- communication between parents and teachers
Parents are invited to participate in teacher-parents conferences, to read and sign their child's school diary, to make phone calls to their child's teacher, to participate in a reading day competition (once in a school year), to arrange meetings with their child's teacher (at least once per term) to be aware of their child's reading progress.
- parent involvement in their children's homework
Parents need to participate in their child's homework by following teacher instructions through their children's school diaries and be aware of the major reading skills that a child needs to develop. The suggested time for child-parent homework activities was 10 minutes per day.
- reading at home activities that involve parents and children
Parents need to initiate, participate and guide the reading activities at home that will enhance their child's reading progress. Parents are requested to establish a reading corner at home (general advice is provided for parents who have a big house, two rooms or one room accordingly), to establish constant reading time, to identify reading materials that can be used at home such as story books, alphabet charts. We suggested 20 minutes per weekend reading time, either on Saturday or Sunday.

4. The Implementation of the intervention

The intervention started with three days of the Teacher Involving Parent training (TIP) module (24 hours of training) at the Open University of Tanzania. All the trainers were employees of the Open University of Tanzania, Faculty of Education. The training for teachers was interactive in nature, apart from using prepared models. Teachers had a chance to share their personal experience with regard to parental involvement in their schools. We used open-ended guiding questions to enhance their willingness to cooperate in the training; below are the discussion questions:

- What is a two-way communication? Why is it important?

- Although parents are busy with the daily life routine they do care about the wellbeing of their children. What ways will we use to achieve parent involvement regardless of their busy schedules?
- Now that we know the role of communication between school and home, how can teachers develop a system of regular communication with parents?
- How welcoming are schools for parents to visit? Can we formulate suggestions for a school system that is friendlier for parents who want to visit schools?
- Some parents still believe that it is not their role to assist in teaching their children. Identify five major reasons that you will use to convince such parents so that they change their perspective.
- If a parent says, ‘We never had our parents involved in our reading, so why should we get involved now?’ What will be your response?
- What is, according to you, the best way that parents can participate in their children’s reading formation at home?
- In what ways do you think teachers can monitor and evaluate the reading formation at the home level?
- How will a parent assess the progress of reading for his/her child during the home reading exercise?
- How can a teacher evaluate the effectiveness of parental support on reading through homework?
- What kind of homework do you think is appropriate for your students?
- Evaluate how parental support in homework can improve students’ reading skills.
- Discuss the parental involvement tips that promote child reading through homework.
- Discuss the characteristics of an effective parental involvement intervention.
- Do you think parents who cannot read can support their children in reading development? If yes, indicate how illiterate parents can be involved in their children’s reading.

After the training, teachers were provided the three modules of parental involvement intervention and one parental involvement guideline. After three days of ‘teacher involving parents training’, teachers were given a month to prepare themselves and parents before inviting parents to their schools.

Parents were invited to schools for the training and meeting concerning the intervention. Before the meeting and training, parents were asked to fill in the questionnaires about their beliefs on the importance of parental involvement and possible strategies in reading together with their child that they might be using at home. Parents also were invited to participate in a 30 minutes focus group discussion,

which included seven parents in one group. The parent training and parent focus group discussion was interactive and was guided by the following questions:

- What is teacher-parent partnership?
- Do you think you have responsibility for your child's reading development?
- Is it important to visit your child's class or your child's teacher at school?
- Which skills do you think your child needs for future education success?
- Is reading an important skill? If yes why do you think it is important?
- Do you think it's important to have reading time at home with your child?
- Do you think it's important to participate in your child's homework?
- Can you suggest ways that can be used to help you actively participate in the reading development of your child?
- Do you think you need special help to engage in the reading development of your child?
- Do you think parents who cannot read can support their children in reading development? If yes, indicate how illiterate parents can be involved in their child's reading?
- Are you happy to be in this training and to be involved in the intervention? If yes why? If no why?

At the end of the training, parents were invited to sign and give consent for their involvement and their children's involvement and they were provided with one page parental involvement guideline.

5. Intervention Fidelity

Intervention fidelity refers to the extent to which an intervention is delivered as intended in a research plan. Santacrose, Maccarelli and Grey (2004, p. 1) defined intervention fidelity as "adherent and competent delivery of intervention by the interventionist as set forth in the research objectives". They associated 'adherence' with whether the participants carried out the prescribed activities and 'competence' as the extent to which the interventionist has displayed behaviors that typically engaged participants in the intervention and affect outcomes in the desired directions. Horner, Rew and Torres (2006) have emphasized that researchers need to pay attention to intervention fidelity in order to verify that their interventions were delivered as designed so that disparities from the design can be noticed. An interventionist's ability to engage participants can affect whether offered interventions are used and have adequate opportunities to promote change. Both adherence and competence assessment are necessary for an assumption of validity, which refers to estimated soundness of the findings in the intervention research (Santacrose et al., 2004). This is a crucial aspect of the intervention that helps a researcher to

strengthen a study on the impact of an intervention by assuring that the intervention is implemented as planned.

To assess the fidelity of this intervention we employed the technology model of intervention fidelity (Carroll et al., 2000; Santacroce et al., 2004). This model of intervention fidelity is widely used in psychotherapy researches. The technology model of intervention fidelity includes four major components which are: (a) manual development, (b) training and supervision of the interventionists, (c) regular monitoring of intervention delivery using a measure of intervention fidelity, and (d) the inclusion of intervention fidelity as independent variable in the analysis (Santacroce et al., 2004). The technology model of intervention fidelity stresses on explication and standardization of interventions elements in the intervention manual. We developed three manuals focusing on components and ingredients of the intervention. The first manual focused on the teacher-parent communication, the second manual focused on children reading at home and module three focused on parental involvement in the homework. The manuals were developed using previous scientific studies relating to parental involvement and reading development of children. In each manual we made a clear connection between parental involvement activities and children's reading development. The manual included clear goals, teacher activities, parents' responsibilities and some strategies of achieving intervention goals such as supervision strategies, monitoring and evaluation strategies. Veerman and van Yperen (2007) consider this as potential parameters in the levels of evidence describing the essential elements of the intervention such as goals, methods, activities and requirements of an intervention.

We also conducted a training for the teachers before the intervention and during the intervention to assure that they are equipped with important skills needed to foster parental involvement. We used the manual to train teachers and we also used the manual as the tool for evaluating intervention progress. Santacroce et al. (2004) insisted that the purpose of training and supervision is to mold, refine, and expand the skills of professionals who are involved in the intervention.

Monitoring of intervention fidelity was implemented through various methods with the intention to assure that teachers and parents are actively engaging in the intervention activities. This was done through the active participation of teachers and parents in the earliest stage of the intervention, the use of feasible activities, the constant supervision and follow-up of the interventionists by the researchers and a mid-evaluation which took place six months after the intervention.

6. Conclusion

Although this intervention was designed based on studies conducted in America and Europe, the intervention considers the social economic disparities among parents and daily life activities of the parents in Tanzania. There are aspects in the intervention which are commonly used in developed countries such as the use of email, parent's classroom volunteering and library visitation which was not feasible in a Tanzanian context. We want to stress that researchers, educators, teachers and policy makers should consider the nature, context and the socio-economic characteristics of the parents in designing parental involvement interventions. It is very important to design an intervention which is feasible to parents across various socioeconomic groups. Furthermore, it is very important to engage parents and teachers in the earliest stage of the intervention and to get their views and suggestions, to get a successful intervention.

Table 1

Guideline for Teachers on the Activities that can Enhance Teacher-parent Partnership based on the Literature Review

Partnership aspect	Teacher activities	Outcomes
Teacher-parent communication	<ul style="list-style-type: none"> • To design daily reading assignments and communicate to parents through a school diary • To arrange days/dates for parents to visit the schools flexibly per term • To arrange dates to visit homes in collaboration with parents once per term • To prepare and share with parents the reading actual progress report quarterly • To organize reading competition at school level once a term. Invite parents to participate in the event 	Formation of strong teacher-parent partnership that will enhance child reading development
Reading at home	<ul style="list-style-type: none"> • To lend books to pupils according to their reading level and provide guidance to parents on what to read • Teachers at schools should establish children's book corners , children's book clubs, so that pupils read the books at school and lend books to pupils for reading at home • To design daily reading assignments and communicate to parents through a diary • Advising parents on affordable and proper authentic materials that can be used at home such as magazine and newspapers • To prepare the guided closed and open questions related to alphabet works, vocabulary and storytelling. • To improvise and guide parents on how they can read with children at home 	Enhance shared responsibility in the teaching of reading skills

Involvement in Homework

To prepare homework that

- intends to emphasize core reading skills such as letter identification, fluency, vocabulary and reading comprehension
- includes guiding reading that helps a pupil to read while finding answers of the questions
- will force a pupil to use the home environment to find answers e.g. Name 4 types of trees around your house
- will make a child to invite or ask help from his/her parent e.g. Asking a student to bring 4 new vocabulary which you never use in the class
- will require a child to make a presentation in the class
- is associated with oral language and vocabulary. e.g. They learn speech, they produce sound, they pronounce words, storytelling, new words identification, parables
- needs a child to develop inventory of the new word at home environment through trees, birds, action verbs, pictures that make a child to combine sound and letters to form words

By creating interacting homework the teacher will:

- enhance child development in oral language
 - strengthen phonological awareness to children
 - strengthen child reading fluency and comprehension
-

Table 2

Parent Guideline for Book Reading with the Child at Home

Reading Time	Activities	Outcomes
Before reading	<ul style="list-style-type: none"> • Discuss the structure of a book such as the front and back cover of the book which includes author name, drawings and pictures, the book title • Show a child how to hold a book correctly • Show a child how to open the book • Ask a child about the pictures • Ask a child what she thinks about title or author • Ask a child to predict a story 	<p>These activities will:</p> <ul style="list-style-type: none"> • enhance critical thinking
During reading	<ul style="list-style-type: none"> • Pose and discuss pictures and illustrations • Read with expression and joy • You can role play with a child • Use the questions and answer techniques to make sure that a child is following • Ask a child to summarize the main ideas after every paragraph • Model reading and teach a child on common mistakes to avoid such as finger pointing, moving head along the lines 	<p>These activities will:</p> <ul style="list-style-type: none"> • enhance the child's comprehension skills • enhance fluency skills • help the child to develop permanent reading habits
After reading	<ul style="list-style-type: none"> • Ask a child to retell a story • Ask a child to make a summary of the story • Ask a child about new or common vocabulary on the story • To make drawings out of story • To reflect on what they have read 	<p>These activities will:</p> <ul style="list-style-type: none"> • enhance the child's reflection skills and creative thinking skills • boost comprehension skills

CHAPTER 5

EFFECTS OF A PARENTAL INVOLVEMENT INTERVENTION TO PROMOTE CHILD LITERACY IN TANZANIA: A CLUSTER RANDOMIZED CONTROLLED TRIAL

Abstract

This study reports on the effects of a one year parental involvement intervention programme on reading development of primary schools children in Tanzania. The intervention includes four aspects: (a) teacher and parent training (b) reading at home (c) teacher-parent communication and (d) parent involvement in the homework. The participants were 600 children ($n = 264$ in the intervention group, $n = 336$ in the control group), with their parents and teachers from 24 schools in 3 districts of Dar Es Salaam, Tanzania. We used a cluster randomized controlled trial design with pre-, post- and follow-up measurements to evaluate the intervention. A three-level hierarchical linear multilevel model demonstrated that children in the intervention condition made more progress in decoding skills and reading comprehension than children in the control condition. Reading fluency increased, but did not significantly differ between intervention and control groups. The rate of reading growth was not significantly different between children in public and private schools. Children with high initial reading scores in decoding had a slower linear increase, whereas children with low initial reading scores in decoding had a faster linear growth over time. The analyses also demonstrated that parent educational level and parent income were significant predictors of children's reading fluency. In the conclusion, the usefulness of this early parental intervention programme in helping children who are at risk for reading problems in early primary school years is discussed.

1. Introduction

Like other countries experiencing a rapid expansion of their education system, Tanzania is faced with challenges of capacity, education quality and early literacy development in particular (USAID, 2016). A low level of literacy development in primary schools can pose a great challenge to children's future educational success and threat national development goals. Being literate is one of the foundations of children's future education achievement, and of a fruitful adult life (Kumburu, 2011). Despite big enrollment rates and several initiatives taken to enhance primary education provision in Tanzania, there have been limited improvements in early literacy development. It is noticed that many children fail to attain proficiency in early grade reading, writing and math (Kumburu, 2011; Uwezo, 2010, 2011, 2012; USAID, 2016). There appear to be problems with reading and writing skills in nearly all primary schools in Tanzania (Kumburu, 2011).

In 2010 a large survey including 40,000 children between 5 and 16 years in 38 districts of Tanzania was conducted by Uwezo, a non-governmental organization. Uwezo revealed disturbing figures about the literacy situation of children in Tanzania. It was reported that at grade three, 7 out of 10 children are poor in basic Kiswahili language skills; only 42% of the children participating in the study could read a simple story at the level of grade 2. They also found that at grade seven, one out of five children completing primary education could not read a story at grade 2 level. Various measures and initiatives have been taken by the government, researchers and funders to improve the quality of education and strengthen the 3Rs (reading, writing, and arithmetic) acquisition in primary schools. These measures included specific programmes that focus on capacity building through coaching, training and mentoring to primary school teachers on how to teach numeracy and literacy. Moreover, programmes that focuses on children such as the establishment of school libraries, age appropriate local language material creation. General education quality improvement programmes which focused on enhancing school leadership and management, strengthening district management and strengthening community participation in education. Within all these measures and interventions related to basic skills formation of primary school children, there is no specific intervention that focuses on parents as direct actors in the reading development of the child. Ngorosho (2010) did a study on reading and writing ability in relation to home environment in primary education in rural Tanzania and found a moderate to high relationship between reading and writing measures and home environment variables. This means that there are factors that are related to home and family characteristics that affect children's early literacy development.

Chahe and Mwaikokesya (2017) attested that even with various measures meant at boosting literacy skills for children aged between 5 and 13 years, such as strengthening teacher training and disbursing capitation grants to schools, little seems to have been done to use the potential of parental and familial support in improving literacy development of children in Tanzania. Tornblad and Widell (2014) stated that in Tanzania, parent's value education highly, though their involvement is mostly confined to financial support. However, this might be not the case as the government finances all the education costs in primary schools through a free education policy in public schools which is very imperative for a least developed country like Tanzania. Teachers think that after the introduction of free education, the majority of parents are in relaxed moods and never bother to supervise their children's homework or even visit the schools of their children to monitor their academic progress, and hence efforts are needed to promote parental involvement in their children's schooling (Gregory, 2016). This study reports on the effects of a one year parental involvement intervention programme on reading development of children in Tanzania.

1.1. Rationale of Promoting Parental Involvement and Early Parental Interventions in Literacy Development

Learning to read is an essential stage in literacy development that shapes and determines future education successes of the children. Parents have a huge impact on how quickly their children can learn to read and acquire basic literacy skills (Vasylenko, 2017). Research (e.g. Hanson & Farrell, 1995; Miedel & Reynolds, 1999) indicated that regardless of the family background or whether children were economically and socially disadvantaged or advantaged, those with a good reading ability in early school years tended to stand out in reading in later school years. Home is the first context in which a child experiences language and literacy. Parents are the first teachers of their children and they are crucial actors in early literacy development of the children. Learning to read is a critical achievement and should be a responsibility shared by teachers and parents alike (Khan, 2003).

When parents are actively engaged in the reading development of their children, there are huge benefits of parental involvement in children's reading acquisition (Bartel, 2010; Hoover-Dempsey et al., 2005; Khan, 2003; Vasylenko, 2017). Hoover-Dempsey et al. (2005) stressed that through home-based behavior (e.g. helping with homework), school-based engagement (e.g. attending school meetings), or teacher-parent communication (e.g. talking with the teacher about homework) parental involvement has been positively linked to indicators of student achievement and test scores. Vasylenko (2017) emphasized that by the end of the first grade most of the children face substantial decreases in their self-

esteem, self-concept, and motivation to learn to read, if they have not been able to master reading skills and keep up with their age-mates. He insisted that in such a context parents need to play a significant role in helping their children to develop reading skills.

According to Khan (2003), parents can be of great influence for their child, but unluckily, not all parents realize the value or the significance of their involvement in their child's reading development. Early parental involvement interventions not only influence a smooth reading acquisition by the children but also encourage parents to be part of their child's education successes. Vasylenko (2017) asserted that when children receive the right kind of parental help in their early years, reading difficulties that can arise later in their lives can be prevented. Several studies have shown that parental involvement interventions resulted in better reading development in children (Bartel, 2010; Crosby, Rasinski, Padak, & Yildirim, 2015; Gelfer, Higgins, & Perkins, 2001; Hindin & Paratore, 2007; Khan, 2003; Sénéchal & Young, 2008). Hilferty et al. (2010) emphasized that parental involvement interventions are most helpful at the beginning of the primary school and if they are well designed, they can strongly improve children's reading skills.

1.2. A Project to Enhance Parental Involvement in Child Literacy in Tanzania

The present study is part of a larger project aimed at enhancing parental involvement in reading development of primary school children in Tanzania. Prior to the evaluation of this intervention, two studies were conducted (a) to assess parents' awareness and motivation factors that influence their decisions to be involved in children's education (b) to examine reading support activities that might be used by parents to support their children's reading. The Hoover-Dempsey and Sandler model of the parental involvement process was used as theoretical framework of this project (Hoover-Dempsey & Sandler, 1995, 1997; Hoover-Dempsey, Walker, & Sandler, 2005). The first study tackled the question why families do (and don't) become involved in educational activities and concluded that Tanzanian parents are willing to be involved in their children's education, but they expect invitations from schools and teachers before doing it (Kigobe, Ghesquière, Ng'Umbi, & Van Leeuwen, 2018). This study also revealed that parents with a higher educational level and parents with more working hours reported more involvement at home.

The second study, investigating what parents do when they are involved in educational activities, revealed a statistically significant, but weak association between parental reading support activities (modeling, reinforcement, encouragement and instruction) with three aspects of children's reading (decoding, fluency, comprehension) (Kigobe, Ogondiek, Ghesquière, & Van Leeuwen, submitted). In

this study it was found that parents' level of education correlated significantly with children's reading although parents' own reading was not related to children's reading. The fact that parents are willing to be involved in their children's education and the weak association between parental reading support activities with children's reading, supported the usefulness of a specific intervention to encourage parents' involvement in the reading development of children in Tanzania. As a result, a parental involvement intervention with four main aspects (teacher and parent training, reading at home, teacher-parent communication, and parent involvement in the homework) was designed and implemented in one school year. The major aim of this study is to evaluate the effectiveness of this intervention by assessing changes in children's reading skills over time, and by comparing an intervention and control group. This aim is related to a third question in Hoover-Dempsey and Sandler's model, namely how does family involvement in children's education make a (positive) difference in student outcomes.

1.3. The Present Study

This study evaluates the effectiveness of a one-year intervention designed to strengthen teacher-parent partnership to support children's reading development by assessing its impact on primary school pupils' reading acquisition. We focused on grade 2 children because the curriculum instructs that children are supposed to master fundamental reading skills by grade 3 in Tanzania. Therefore, grade two is a critical class whereby children's reading needs to be more emphasized so that they can master basic skills by grade 3, when they also sit for a reading examination. We used a cluster randomized controlled trial to assess how the intervention affected three aspects of children's reading achievement (word decoding, reading fluency and reading comprehension). Clusters consisted of children attending the same school. To control for possible confounding variables, we assessed parents' educational level, parents' reading skills (reading fluency and comprehension), the child's IQ, type of school (public versus private) and the child's age, because previous studies on children's early reading development showed that these individual, family and school factors influence children's reading skills (Denton, West, & Walston, 2003; Rathbun & Hausken, 2003). Specifically this study is guided by the following research questions: (a) How does children's reading ability grow over time, (b) How are child-level variables and school-level variables associated with initial status and rates of change in reading ability, and (c) What is the influence of a parental involvement intervention on children's reading skills over time? More specifically we test the hypothesis that the intervention condition is resulting in better reading over time than the control condition.

2. Method

2.1. Participants

This study involved 600 children from 24 schools in three districts in Dar es Salaam: Kinondoni (140 public and 111 private schools), Ilala (110 public and 63 private schools) and Temeke (112 public and 37 private schools). We randomly assigned 24 schools to two groups: 12 schools in the intervention condition with parents/teachers participating in the intervention, and 12 schools in the control condition (waiting list condition) with no special activities aimed at teachers, children and parents. Taken into account critical reflections by Ong-Dean, Hofstetter, and Strick (2011) on random assignment in RCT, we did not opt for student-level random assignment, because (a) this is difficult to arrange with everyday educational practice (children organized in classes), (b) this compromises external validity of the experimental design, and (c) it raises an ethical issue (children in a class receiving a different treatment which could lead to peer rivalry or negative classroom dynamics, and also to lower treatment compliance). A recommended approach is to assign subjects to treatment or control condition by school, i.e. a cluster assignment (Ong-Dean et al., 2011). By using a multi-level analysis the effect of school level can be taken into account.

In these 24 schools 600 children of grade 2 were involved in the study: 264 children were part of the intervention group, and 336 children belonged to the control group with no special activities. Characteristics of the sample are reported in Table 1. At baseline, there were no significant differences between the intervention and control group regarding child gender ($\chi^2(1) = 0.47, p = .493$), parent gender ($\chi^2(1) = 0.23, p = .629$), parent education ($\chi^2(2) = 4.11, p = .128$), and parent income ($\chi^2(2) = 4.41, p = .110$). Regarding parent occupation, somewhat more parents in the intervention group were unemployed or working in formal sectors than in the control group, whereas somewhat less parents worked in informal sectors in the intervention group than in the control group ($\chi^2(2) = 13.99, p = .001$).

2.2. Intervention

The intervention programme was based on primary and meta-analytical studies showing effectiveness of programmes designed to enhance reading skills in elementary school children (e.g. meta-analyses by Jeynes, 2005, 2012; Sénéchal & Young, 2008). We were also inspired by intervention programmes to boost children's reading skills through parental involvement (e.g. Bartel, 2010; Crosby et al., 2005; Gelfer et al., 2001; Hindin & Paratore, 2007; Khan, 2003). The critical analysis of the scientific literature helped us to develop an intervention with four components that seem to be effective in most studies: (a) a training for teachers and parents (b) parent's and children's shared reading at home, (c) partnership between parents and teachers (communication), and (d) parental involvement in

homework of their children. Although these programme components may be common practices in educational systems in developed countries, they are novel for schools in Tanzania. In designing the intervention we took into account the specific cultural context of Tanzania, to make the intervention as feasible as possible.

The whole intervention package incorporated a teacher and parent training (a 5 days training for teachers and a 6 hours training for parents), and three modules to orient teachers on the role of parental involvement in children's reading. Additionally, the intervention also included teacher-parent communication through children's diaries, teacher home visits (1 visit in a school year to assess the home reading environment and to give advice to parents on how to make home reading enjoyable and feasible), reading books at home (50 different titles of story books in one school year, one book per week), parental involvement in homework, a reading day competition (children having a one day reading competition in a school year in front of their parents at school), a parents' school week (a parent can choose any day in a school week to visit his/her child's teacher to discuss a child's reading progress), teachers-parents conference (one conference per school year to share personal experiences and challenges), guidelines for teachers to involve parents, and guidelines for parents to be involved in their child's education at home.

2.3. Procedure

The baseline (pre-intervention) data collection was conducted in May, 2016, the post-intervention data collection was conducted in June, 2017 and the follow-up data collection was conducted in February, 2018.

Reading variables in children were assessed at baseline, post-intervention and follow-up, whereas children's IQ was tested at baseline. Parents completed a parent involvement (PI) survey at all three measurement points. They received a reading test, which took about 10 minutes, but only at follow-up measurement (February 2018) in order not to intimidate parents at their first meeting with the researchers. Seven trained researchers were responsible for data collection and administration of the reading test for children at all three data collections, and for the parents' reading test. These research assistants were also responsible for supporting parents in completing survey questionnaires. The entire reading test (for both children and parents) were voice recorded for the evaluation of oral reading, accuracy rate and identification of error patterns.

2.4. Measures

2.4.1. Reading skills in children.

To test children's reading skills, we used a part of Uwezo's reading assessment tool for children, see <http://www.uwezo.net/assessment/>. Uwezo is a non-profit organization ("Twaweza") that aims to improve competencies in literacy and numeracy among children aged 6-16 years old in three countries of East Africa (Kenya, Tanzania and Uganda). We used two sets of the reading test with four sections each, to measure three reading skills (i.e. word decoding, reading fluency and reading comprehension). The sections consist of letters, words, paragraph and story reading. The sections with story reading contained two comprehension questions related to the story. Scores on the test are based on the amount of words a child could read in a given time, the number of errors children made, and the number of questions children were able to answer correctly after reading two stories.

2.4.2. Reading skills in parents.

We used the 2015 Tanzania national primary education leaving examination to measure parents' reading skills. We used two sections which included two passages measuring reading fluency and comprehension. Parents read aloud for 3 minutes a first passage containing 175 words and had to answer 10 questions related to it. The second passage contained 79 words read aloud for 1 minute and parents had to answer 6 questions about the content. Responding the questions consisted of ticking (✓) the box for the most correct answer among the alternative answers provided below each question. A total score for both reading fluency and comprehension was calculated, with a higher score indicating a better parent reading performance on the test.

2.4.3. Intelligence in children.

Raven's progressive matrices test is known as an effective measure of child intelligence in psychological and educational research (Raven, Court, & Raven, 1996). Raven's colored progressive matrices test is shorter (36 items) and simpler than other forms of Raven's progressive matrices and can also be used for children with physical and intellectual disabilities (Giovagnoli, 2001; Pueyo et al., 2008). Given the age of our participants and the cultural context, this study used Raven's colored progressive matrices to control for IQ in the analyses.

2.5. Statistical Analysis

We used SPSS Statistics software 25.0 to conduct statistical analyses. First, we conducted a drop-out analysis in which we assessed reading differences at baseline (T1) between the children who took part at different measurement moments and those who did not take part at the post-intervention (T2) or follow-up measurement (T3). Second, we made use of multilevel modeling because data are hierarchically structured at three levels: measurement occasions (level 1) within students (level 2),

which in turn are nested within schools (level 3). In contrast to (single-level) regression, multilevel has the following advantages: (a) it overcomes the problem of (dis)aggregation of data to analyze data at multiple levels by analyzing data in multiple levels, (b) it can easily deal with unbalanced data (the number of units can vary over higher level units), and (c) it allows researchers to distinguish fixed from random effects (Caldas & Bankston III, 1999). Multilevel modeling is a very effective approach for longitudinal data as it can model within-individual change over time, inter-individual differences in change, and differences in change among higher level groups (Liu & O'Connell, 2008). Multilevel analysis in SPSS takes into account missing data because it has the ability to deal with unbalanced data.

In this study a sequence of four multilevel models were fitted using restricted maximum likelihood estimation, in order to understand the variation in children's reading scores over time and the effects of covariates on students' three reading skills: (a) an intercept-only model which intended to examine the amount of variation that exists within students and between students across schools without regard to time, (b) a model with two time dummy-variables which intended to examine between-individual variations over time. A first dummy, further named T1-2, refers to the change from T1 (= baseline measurement) to T2 (= post-intervention measurement). A second dummy, named T1-3 refers to the change from T1 to T3 (= follow-up measurement), (c) a model with the effect of the condition (intervention versus control group), the interaction of intervention with T1-2 and T1-3 as well as one covariate (type of school), and (d) a model with intervention, the interaction of intervention with T1-2 and T1-3, parent education level and parent income covariates only. The last model was run separately because we didn't have information about parents' education level for all parents. The fit of each model could be identified through the random effect results of each model (see Table 4, 5 and 6). In total we have 4 by 3 analyses which include four hierarchical multilevel models for each of the three reading skills measured (decoding, fluency and comprehension).

3. Results

The retention rate of the children in the study was 80.5% ($n = 483$) in the post-intervention data collection (T2) and 75.0% ($n = 450$) in the follow-up data collection (T3). The number of children who participated at all three measurement moments was 411 (68.5%), 104 children participated only at T1 (13.0%), 72 children participated at T1 and T2 but not at T3 (12.0%) and 39 children participated at T1 and T3 but not at T2 (6.5%). Significantly more children dropped out from private schools (29.4%) than from public schools (17.0%), $\chi^2(1) = 9.29$, $p < .01$ at T2, and at T3 with 33.6% drop-out from private

schools versus 22.9% from public schools, with $\chi^2(1) = 5.87, p < .05$. One private school did not further participate because the management didn't approve the continuation of the programme.

There were no significant differences for reading skills at T1 between the group of children who participated both at T1 and T2 and the group of children who participated only at T1: for Decoding $F(1, 566) = 0.12, p = .732$, for Fluency $F(1, 555) = 0.83, p = .362$, and for Comprehension $F(1, 588) = 0.27, p = .603$. There were no significant differences for reading skills at T1 between the group of children who participated both at T1 and T3 and the group of children who participated only at T1: for Decoding $F(1, 566) = 1.72, p = .190$, for Fluency $F(1, 555) = 0.41, p = .521$, and for Comprehension $F(1, 588) = 1.13, p = .287$. The means and standard deviation of children's reading variables are shown in Table 2.

Table 3 shows the correlations between children's reading variables (decoding, fluency, and comprehension) and other child variables (age, gender, IQ), parent characteristics (level of education, parent reading variables: fluency and comprehension) and school category (public or private). Variables that showed significant correlations with the child reading variables (type of school, parent income and parents' education level) were added as control variables in the models.

An unconditional mean model (Model 1) for the three reading variables separately was fitted to examine individual variation in the reading variables without regard to time. Results showed a grand-mean reading achievement score for decoding ($\gamma_{00} = 28.17, p < .001$) for reading fluency ($\gamma_{00} = 94.14, p < .001$), and for reading comprehension ($\gamma_{00} = 1.62, p < .001$). The output for this model without predictors suggests that 8% of the variability in decoding is between schools ($2.74 / (24.89 + 5.65 + 2.74)$), about 17% ($5.56 / 33.28$) of the variability is between students across schools and about 75% ($24.89 / 33.28$) of the variability is within students (interindividual variation). For reading fluency, the initial model estimates suggest that about 4% of the variability in reading fluency is between schools, about 19% of the variability is between students across schools, and about 77% within students. For reading comprehension, the estimates of the initial model suggest that 13% of the variability in students' reading comprehension is between schools, about 5% of the variability is between students across schools, and about 82% of variability is within students.

An unconditional linear growth curve model (Model 2) showed that there was on average a significant linear increase in decoding as shown by ($\beta = 3.93, t(24.27) = 6.71, p < .001$) at T2 and ($\beta = 4.68, t(23.50) = 8.67, p < .001$) at T3. The mean estimated initial status and linear growth rate for the population were 25.53 and 3.93 at post-intervention time and 4.68 at follow-up time respectively. The variances of the random effects associated with intercept and slope were significant ($p < .001$) showing

that there was variability between individuals in these parameters (that may be explained by between-individual predictors). The within-individual variation declined in the residual variance of decoding (24.89 to 15.97) between models 1 and 2. This means that 9% of the within-individual variation in decoding was associated with a linear rate of change.

The linear increase was also shown in reading fluency ($\beta = 31.64$, $t(24.60) = 13.22$, $p < .001$) at T2 and ($\beta = 43.06$, $t(24.05) = 19.33$, $p < .001$) at T3. The mean for initial status for reading fluency was 71.02 and it increased over time with 31.64 at the post-intervention time and 43.06 during the follow-up time point. The variances of the random effects associated with intercept and slope were significant ($p < .001$) showing that there was variability between individuals in these parameters. The within-individual variation declined in the residual variance of fluency (772.92 to 213.00) between models 1 and 2. This means that 559.92 of the within-individual variation in fluency is associated with a linear rate of change.

The linear increase was also shown in reading comprehension ($\beta = 0.33$, $t(23.95) = 2.53$, $p = .05$) at T2 and ($\beta = 0.82$, $t(23.66) = 8.40$, $p < .001$) at T3. The mean for initial status for reading comprehension was 1.28 and it increased over time with 0.33 at the post-intervention time and 0.82 during the follow-up time point. The variances of the random effects associated with intercept and slope were significant ($p < .001$) showing that there was variability between individuals in these parameters. The within-individual variation declined in the residual variance of comprehension (0.85 to 0.54) between models 1 and 2. This means that 0.31% of the within-individual variation in comprehension is associated with a linear rate of change

In Model 3 (expansion of the linear growth curve model) we added the covariate intervention (control versus intervention condition), the interaction of two-time measurements with intervention and type of school (either public or private) to assess the effect of the intervention on the individual linear reading trajectories. In the linear model with decoding skills, the interaction effect of intervention with measurement time was significant with T1-2 $p < .01$ and T1-3 $p = .05$. In the beginning, the expected score in the control group was 24.61; the treatment group scored -1.78 points lower. From T1 to T2, the expected score in the control condition increased with 2.53, whereas for the treatment condition, the increase was 3.19 higher (the increase was therefore 5.72). This means that the difference between both groups was higher at T2 than at the start of the intervention. From T1 to T3, the control condition increased with 3.62, but for the treatment condition, the increase was 2.57 higher (the increase was therefore 6.19). Regarding the linear slope of decoding, the intervention group showed a faster rate of change at T1-2 and T1-3 as compared to the control group ($\beta = 3.19$, $t(24.11) = 3.15$, $p < .01$) at T2 and

($\beta = 2.57$, $t(23.20) = 2.46$, $p < .05$) at T3. Type of school was a significant predictor of child decoding ($p = .05$). The line graph (see Figure 1) shows that children in the control group started with higher reading scores, but there was a linear increase of children's decoding for the intervention group.

In the model with reading fluency the interaction effect of intervention with time was not significant at T2 ($p > .05$). In the beginning, the expected score in the control group was 62.70; the treatment group scored -2.41 points lower. From T1 to T2, the expected score in the control condition increased with 28.08, whereas for the treatment condition, the increase was 8.25 higher (the increase was therefore about 36.33). From T1 to T3, the control condition increased with 39.41, but for the treatment condition, the increase was 8.15 higher (the increase was therefore about, 47.56). Regarding the linear slope of decoding, the intervention group showed a faster rate of change at T1-2 and T1-3 as compared to the control group ($\beta = 8.25$, $t(23.58) = 1.80$, $p > .01$) at T2 and ($\beta = 8.16$, $t(22.61) = 1.88$, $p > .05$) at T3, but these changes were not significant. Type of school was a significant predictor of child decoding ($p = .05$). Although the interaction effect of T1-2 and T1-3 with intervention was not significant, the line graph (see Figure 1) shows that children in control group started with relative higher reading scores, but there was a slight linear increase of children's reading fluency in the intervention group.

In the model with reading comprehension the interaction effect of intervention time was significant at T2 ($p < .01$) and T3 ($p < .05$). In the beginning, the expected score in the control group was 1.19; the treatment group scored 0.15 points higher. From T1 to T2, the expected score in the control condition increased with 0.15, whereas for the treatment condition, the increase was 0.71 higher (the increase was therefore about 0.86). From T1 to T3, the control condition increased with 0.64, but for the treatment condition, the increase was 0.42 higher (the increase was therefore about, 1.06). Regarding the linear slope of comprehension, the intervention group showed a faster rate of change at T1-2 and T1-3 as compared to the control group ($\beta = 0.71$, $t(21.98) = 3.29$, $p < .01$) at T1-2 and ($\beta = 0.42$, $t(22.91) = 2.33$, $p < .05$) at T1-3. Type of school was not a significant predictor of child comprehension ($p > .05$). The line graph (see Figure 1) shows that children in control group and intervention group started with almost the same scores, but there was a linear increase of children's comprehension within the intervention group.

In Model 4 (expansion of model 3 with parent's variables) we added parental educational level and parent income as control variables, with school type in the model because it was significant predictor of children decoding and reading fluency. Parent's level of education and parent income were

added in a separate model because we do not have the information about these variables for all the parents (leading to a lower number of children in the analyses). In the model with decoding, the interaction effect of T1-2 and T1-3 with intervention remained significant with $p < .01$ and $p = .05$ respectively. Type of school was no longer significant; parent income and parent's level of education were also not significant predictors of children's decoding. In the model with children's reading fluency parent's level of education was a significant predictor of children's fluency with $\beta = 3.21$, $t = 2.90$, $p < .01$. Moreover, parent income also was a significant predictor of children's reading fluency by ($\beta = 2.54$, $t = 3.21$, $p < .001$). The interaction effect of T1-2 and T1-3 with intervention remained insignificant similar to model 3. In the model with reading comprehension, the interaction effect of T1-2 and T1-3 with intervention remained significant with $p < .01$ and $p = .05$. Parent's educational level and parent income were not significant predictors of children's reading comprehension.

4. Discussion

In this study, multilevel modeling was used to investigate the growth trajectories of children's reading abilities over time and to assess how trajectories vary within children, between children and across children between schools. Specifically, we were interested in the effect of a parental involvement intervention on children's reading over time. Findings indicated that the intervention given to children is significantly associated with children's trajectories in decoding and reading comprehension. Children in the intervention condition, with parents who are supported by teachers to be more involved in their child's education, do better in reading decoding and reading comprehension compared to children in the control condition, at post-intervention and follow-up measurement.

Findings demonstrated that children in the intervention schools started with lower initial reading scores in decoding but improved steadily compared to children in control schools. This is inconsistent with previous studies in early reading development which show that higher initial reading achievement leads to higher reading growth over time (Li & Yang, 2015; Ready & Tindal, 2006; Schatschneider, Fletcher, Francis, Carlson, & Foorman, 2004; Snow, Burns, & Griffin, 1998). This might be caused by several factors such as good classroom instructions, teachers' specific efforts to strengthen reading skills in children with lower reading skills or because of the intervention given to parents and children in the intervention group.

Consistent with previous studies we found that parents' education level and parent income were associated with pupils' variation in reading fluency. Li and Yang (2015) found that socioeconomic background plays an important role in mediating children's early reading achievement and has a

significant association with children's reading trajectories. Parents' level of education has a significant association with children's reading trajectory in this study, indicating that children with educated parents have more advantages in literacy development (reading fluency) than children with uneducated or lower educated parents. Li and Yang (2015) suggested that findings like this support the call to address the impact of poverty and inequalities on children's early literacy learning. If we want to create equal opportunities to all children, we need to take into account that parents with lower educational levels may need more attention and support to be able to help their children in early literacy development. According to Khan, all parents have the same wish, that is, to see their children succeed in school, but not all parents have the means to support their children or are aware of the role they can play to help their children to succeed in school (Khan, 2003). Policy makers, teachers and schools should urgently make deliberate efforts to create an inclusive environment in schools and create inclusive interventions that foster active engagement of all parents in their children's reading development regardless of their social economic status. Farris and Denner (1991) have stressed that regardless how willing and motivated they are, illiterate parents can only cultivate literacy in their children if policy makers are willing to set policies that encourage inclusive education practices which empower all the parents (even illiterate ones) and if schools and teachers allot the time and patience to assist such parents to be actively engaged in the literacy development of their child.

Our findings show an effect of the intervention on children's reading trajectories in decoding and reading comprehension over time. Several studies (e.g. Bartel, 2010; Brotman et al., 2013; Crosby et al., 2015; Gelfer et al., 2001; Hindin & Paratore, 2007; Khan, 2003; Sénéchal & LeFevre, 2002; Sénéchal & Young, 2008) have shown that parental involvement in children's reading development has positive effects on children's reading acquisition. Brotman et al. (2013) found an intervention-by-time effect on trajectories of academic performance, with children in the intervention doing better as compared to children in the control group. The effects of the intervention in our study were larger in the short term than in the long run, showing the highest increase in decoding and comprehension between baseline and post-intervention measurement. This could indicate that it would be useful to organise 'booster sessions' for parents and teachers, to keep them enthusiastic in applying the intervention ingredients.

This intervention was not significant in predicting children's reading fluency over time. The absence of intervention effects in fluency could be caused by several factors such as lack of reading fluency in parents themselves. The majority of the parents in the intervention group were characterised by lower educational levels and a low income. Multilevel analysis also showed a relationship between

children's reading fluency and parental socio-economic factors (level of education and parent income). Even though the intervention did not affect children's reading fluency, the effectiveness of this intervention on decoding and reading comprehension is a very important sign that these children may also acquire reading fluency by mastering decoding and comprehension skills. In reading development of children, decoding is a very essential skill and crucial aspect of reading development because it is the foundation on which reading fluency and comprehension builds. If students lack decoding skills, they will have difficulties in fluency, they will have trouble to learn vocabulary and they will fail to comprehend what they read. Sénéchal and LeFevre (2002) found that early literacy skills directly predicted word reading at the end of grade 1 and indirectly predicted reading comprehension in grade 3. This shows the strong link between early reading skills such as decoding and future reading skills in later years. Sénéchal and LeFevre (2002) stressed that the various pathways that lead to fluent reading have their roots in different aspects of children's early experience. Although we didn't find the effect of the intervention in reading fluency, it is promising that children may in the future succeed in fluency skills because of the strong connection between decoding, comprehension and reading fluency.

The success of this intervention might be influenced by the feasible activities that considered parents' diversity, time and needs. Teachers provided ongoing instructional support to parents through child diaries, teacher-parent conference and home visits on how to help their children in reading. This is very important in creating consistence and to maintain validity in the implementation of the intervention. Our intervention included a range of activities that gave parents an opportunity of choices. For some parents, certain activities may be more feasible than other activities. Through this intervention we can suggest that it is possible to involve parents in the reading development of their children in Tanzania, and it is possible that parental involvement can yield some benefits to children's reading acquisition if parents are supported through well organized and feasible intervention programme.

4.1. Strengths and Limitations of the Study

The study has several strengths and limitations that need to be signified. The intervention took place in a real and ecological valid context, within normal day-to-day activities at schools and at home. Taking the intervention to the real environment increased the external validity of the intervention. Also, teachers and partners were considered as 'active partners' in the intervention, they were not considered as passive receivers. Together with the positive effects of the intervention, this all suggests that it is promising and realistic to implement this intervention in other schools in Tanzania.

A methodological strength is the use of a randomized controlled trial (RCT) to evaluate the intervention. Compared to other evaluation methods, a randomized controlled trial (RCT) is seen as the gold standard for evidence-based educational practice (Hutchison & Styles, 2010). Although it is stated that it is advisable to use only an RCT to evaluate well-developed programmes (Veerman & Van Yperen, 2007), we contend that in this study a RCT was useful because our intervention was based on previous scientific studies evaluating ingredients of this intervention. The inclusion of different schools in the study is also strength of this study. Our sample included both public and private schools, and some schools were situated in the center of Dar es Salaam city whereas other schools were located outside the city. We also based the evaluation of the intervention on a large sample which includes parents from various socioeconomic groups, which make the findings better generalizable to all parents. Finally, the use of hierarchical linear multilevel modeling is a methodological strength because this statistical method is able to deal with unbalanced longitudinal data in a nested composition.

This study also has limitations. We have little information about treatment fidelity, which reduces the internal validity of the study. Although the researchers in this study monitored the intervention throughout the year, it was hard to assess how each aspect of the treatment was provided to the parents by the teachers as intended, and how instructions to parents were followed at home. It was hard to know if parents implemented all the guidelines. Due to this limitation, we will examine how parents follow the intervention guidelines in another study, which will look in more detail at the process of implementing the intervention.

4.2. Implications of the Study

This study might be informative to policy makers, schools, teachers and parents, because our results can be useful for future research and policy decisions with regard to education interventions and on how to actively engage parents in the reading development of their children. The intervention programme included feasible activities that can be easily adopted by parents across different social economic groups. At the micro level (for teachers and parents), the study suggests that a feasible partnership can enable teachers and parents to interact and support a smooth reading development for a child. Parents and teacher should share a mutual desire of working together with specific goals towards children's reading development. Teachers should consider parents as important partners in the reading development of the children. This can be done through regular communication, meetings, student's diaries and home visits.

At the meso level, schools can be a useful tool in harnessing parental involvement in reading development of the children by creating partnerships that accentuate greater collaboration between home and school. To encourage active parental involvement, schools need to create welcoming atmospheres which can open doors for parents through various involvement opportunities for parents. Schools should encourage a positive attitude in teachers and parents towards home–school cooperation. Schools can use in-service teacher professional development programmes, short trainings and workshops (for both teachers and parents) to encourage reciprocal partnerships between teachers and parents, as well as building a bridge between home and schools. If well implemented and supervised by schools, parental involvement interventions can cultivate a lot of benefits for children’s reading development.

At the macro level, the government and policy makers should recognize the value of family involvement by creating inclusive education practices that can easily include parents and caregivers as primary stakeholders in children’s reading development. In the era of free education in Tanzania, the government should stipulate the role and responsibilities of parents in children’s schooling and reading development in particular. In this intervention teachers were giving books to children for home reading every week. It could be a policy to include in a curriculum that primary school children should read some amount of books every year, preferably with parental guidance at home. Policy makers should work closely with teachers and schools to identify feasible activities that can make parents actively engaging in their children’s reading, taking into consideration parents’ daily social and economic activities (i.e. work-life balance).

5. Conclusion

Children’s reading development starts at home and is continued in school. The results from this randomized controlled trial suggest that our intervention is a promising tool to diminish early reading problems and help second grade children in Dar es Salaam acquires reading skills in a feasible way. We suggest that any investment that intends to help children in early literacy development should consider parents as crucial actors and important partners in the reading development of their children. It is important to involve parents in the earliest stages of children reading development so that they can be aware of their children’s reading progress. Teacher-parent partnership in the early years of children’s reading acquisition can create a connection between the school and home which in turn enables teachers and parents to share important information about children’s reading progress. In this way any difficulties the child may experience in reading can be more easily noticeable and intervened. This can not only stimulate a smooth reading development but also it has a lot of advantages in the prevention of reading

difficulties to children. Moreover, it's always important to include lower levels of reading when studying a population of children with common reading problems.

Table 1

Baseline Demographic Characteristics by Condition

Characteristic	Category	Intervention		Control	
		<i>n</i>	%	<i>n</i>	%
Child gender	Female	130	49.2	156	46.4
	Male	134	50.8	180	53.6
Child age	6-8	187	70.8	268	79.8
	9-11	76	28.8	67	19.9
	12-15	1	0.4	1	0.3
Parent gender	Female	160	69.0	203	67.0
	Male	72	31.0	100	33.0
Parent education	Lower	171	71.5	199	64.4
	Middle	54	22.6	80	25.9
	Higher	14	5.9	30	9.7
Parent income	Lower	124	57.9	144	54.3
	Middle	73	34.1	84	31.7
	Higher	17	7.9	37	14.0
Parent occupation	Unemployed	43	18.0	31	9.9
	Informal sectors	116	48.5	198	63.5
	Formal sectors	80	33.5	83	26.6

Note. Lower education for parents is defined as secondary education, primary school and lower primary school (parents who did not finish primary school), ‘middle’ includes high school, while higher education includes bachelor degree and above. Lower income is defined as a yearly income less than \$50 to \$500, middle income is an income between \$500 to \$1000 and higher income ranges from \$1000 to over \$1200. ‘Unemployed’ are parents without informal or formal job, ‘informal sectors’ are labor workers and retail traders, ‘formal sectors’ include parents employed in formal sectors such as farmers, drivers, nurses, teachers and other government officials.

Table 2

Means and Standard Deviations of Children's Reading Scores over Time

Condition	Time		Decoding	Fluency	Comprehension
Control	Baseline	Mean	26.12	73.90	1.20
		<i>SD</i>	7.20	29.67	0.97
	Post-intervention	Mean	28.58	100.16	1.19
		<i>SD</i>	4.42	26.83	0.95
	Follow-up	Mean	29.70	111.94	1.87
		<i>SD</i>	3.56	22.26	0.91
Intervention	Baseline	Mean	24.97	69.65	1.37
		<i>SD</i>	7.87	32.14	1.03
	Post-intervention	Mean	30.57	105.99	2.16
		<i>SD</i>	2.63	20.73	0.76
	Follow-up	Mean	30.97	116.73	2.41
		<i>SD</i>	1.19	16.12	0.64

Table 3

Correlations among Study Variables at Baseline

	1	2	3	4	5	6	7	8	9	10
1. Child age										
2. Child gender	-.10*									
3. Type of school	-.12***	-.01								
4. Child IQ	-.14***	-.06	.19***							
5. Parent education	-.07	.03	.34***	.12***						
6. Parent income	-.08	-.01	.50***	.18***	.50***					
7. Parent comprehension	-.05	.03	.33***	.07	.20***	.19***				
8. Parent fluency	-.03	.02	.30***	.05	.15**	.20***	.66***			
9. Decoding	.02	.06	.13***	.03	.27***	.17***	.06	.04		
10. Fluency	.04	.06	.15***	.10*	.38***	.43***	.03	-.01	.71***	
11. Comprehension	.06	.06	-.06	-.04	.03	.13	.04	.03	.26***	.35***

Note. * $p < .05$. ** $p < .01$. *** $p < .001$; Spearman correlations were calculated for categorical or ordinal variables; Pearson correlations were calculated between continuous variables.

Table 4

Multilevel Models for Reading Decoding

	Model 1	Model 2	Model 3	Model 4
Fixed effect	Decoding	Decoding	Decoding	Decoding
Intercept(γ_{00})	28.17(0.37)***	25.53(0.64)***	24.61(1.07)***	24.28(1.20)***
Intervention			-1.78(1.26)	-0.91(1.23)
Time_dummy_2* Intervention			3.19(1.01)**	2.73(0.99)**
Time_dummy_3* Intervention			2.57(1.04)*	2.41(1.00)*
Type of school			1.21(0.52)*	0.82(0.66)
Parent Income				0.12(0.17)
Parent education				0.35(0.25)
Variance components				
Between schools (level 3)	2.74(0.98)**	8.99(2.91)**	7.70(2.83)**	6.96(2.70)**
Between students (level 2)	5.65(1.09)***	9.06(1.04)***	4.22(0.48)***	5.76(0.71)***
Time trend 2(τ_{11})		3.93(0.59)***	2.53(0.67)***	2.77(0.65)***
Time trend 3(τ_{11})		4.68(0.54)***	3.62(0.69)***	3.84(0.66)***
Within students (level 1)	24.89(1.48)***	15.97(0.78)***	39.38(2.56)***	39.44(2.82)***
Model summary				
Deviance statistic	9383.50	9004.55	8519.76	6587.42
AIC	9389.50	9020.55	8539.76	6607.42
BIC	9405.44	9063.04	8592.85	6657.57
No of parameters	4	11	17	19

Note: * $p < .05$. ** $p < .01$. *** $p < .001$. Parameter estimate standard errors listed in parentheses

Table 5

Multilevel Models for Reading Fluency

	Model 1	Model 2	Model 3	Model 4
Fixed effect	Fluency	Fluency	Fluency	Fluency
Intercept(γ_{00})	94.14(1.55) ***	71.02(2.42) ***	62.70(5.92) ***	57.89(5.98) ***
Intervention			-2.41(4.76)	-1.20(4.38)
Time_dummy_2* Intervention			8.25(4.60)	6.88(4.71)
Time_dummy_3* Intervention			8.15(4.34)	6.84(4.33)
Type of school			7.86(3.90) *	4.63(4.07)
Parent Income				2.54(0.79) ***
Parent education				3.21(1.11) **
Variance components				
Between schools (level 3)	38.26(17.64) *	118.92(42.31) **	101.89(40.67) *	76.72(34.60) *
Between students (level 2)	189.37(33.51) ***	397.51(29.98) ***	332.69(26.78) ***	383.65(32.47) ***
Time trend 2(τ_{11})		31.64(2.39) ***	28.08(3.05) ***	30.05(3.12) ***
Time trend 3(τ_{11})		43.06(2.23) ***	39.41(2.87) ***	40.84(2.86) ***
Within students (level 1)	772.92(36.39) ***	213.00(10.40) ***	411.64(32.77) ***	348.00(32.76) ***
Model summary				
Deviance statistic	14419.88	13295.80	13154.56	9881.67
AIC	14425.88	13311.80	13174.56	9901.67
BIC	14441.79	13354.22	13227.57	9951.72
No of parameters	4	11	17	19

Note: * $p < .05$. ** $p < .01$. *** $p < .001$. Parameter estimate standard errors listed in parentheses

Table 6

Multilevel Models for Reading Comprehension

	Model 1	Model 2	Model 3	Model 4
Fixed effect	Comprehension	Comprehension	Comprehension	Comprehension
Intercept(γ_{00})	1.62(0.08)***	1.28(0.08)***	1.19(0.22)***	1.13(0.25)***
Intervention			0.15(0.17)	0.16 (0.19)
Time_dummy_2* Intervention			0.71(0.22)**	0.74(0.23)**
Time_dummy_3* Intervention			0.42(0.18)*	0.43(0.20)*
School			0.02(0.15)	0.06(0.17)
Parent Income				-0.02(0.04)
Parent education				0.05(0.05)
Variance components				
Between schools (level 3)	0.13(0.04)**	0.14(0.05)**	0.14(0.05)**	0.17(0.06)**
Between students (level 2)	0.05(0.03)	0.16(0.03)***	0.15(0.02)***	0.14(0.03)***
Time trend 2(τ_{11})		0.33(0.13)*	0.02(0.14)	0.01(0.15)
Time trend 3(τ_{11})		0.82(0.10)***	0.64(0.12)***	0.58(0.13)***
Within students (level 1)	0.85(0.04)***	0.54 (0.03)***	0.71(0.05)***	0.71(0.06)***
Model summary				
Deviance statistic	4220.46	3861.34	3821.24	2936.97
AIC	4226.46	3877.34	3841.24	2956.99
BIC	4242.44	3919.95	3894.47	3007.29
No of parameters	4	11	17	19

Note: * $p < .05$. ** $p < .01$. *** $p < .001$. Parameter estimate standard errors listed in parentheses

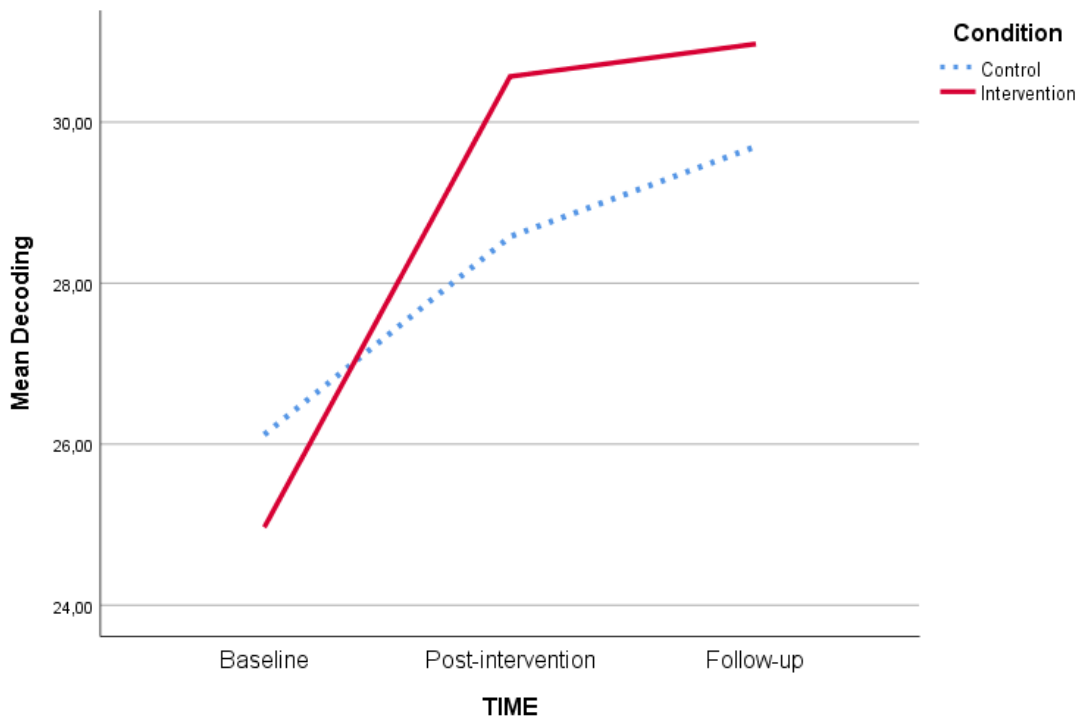


Figure 1. Child reading decoding in control and intervention condition at three measurement points.

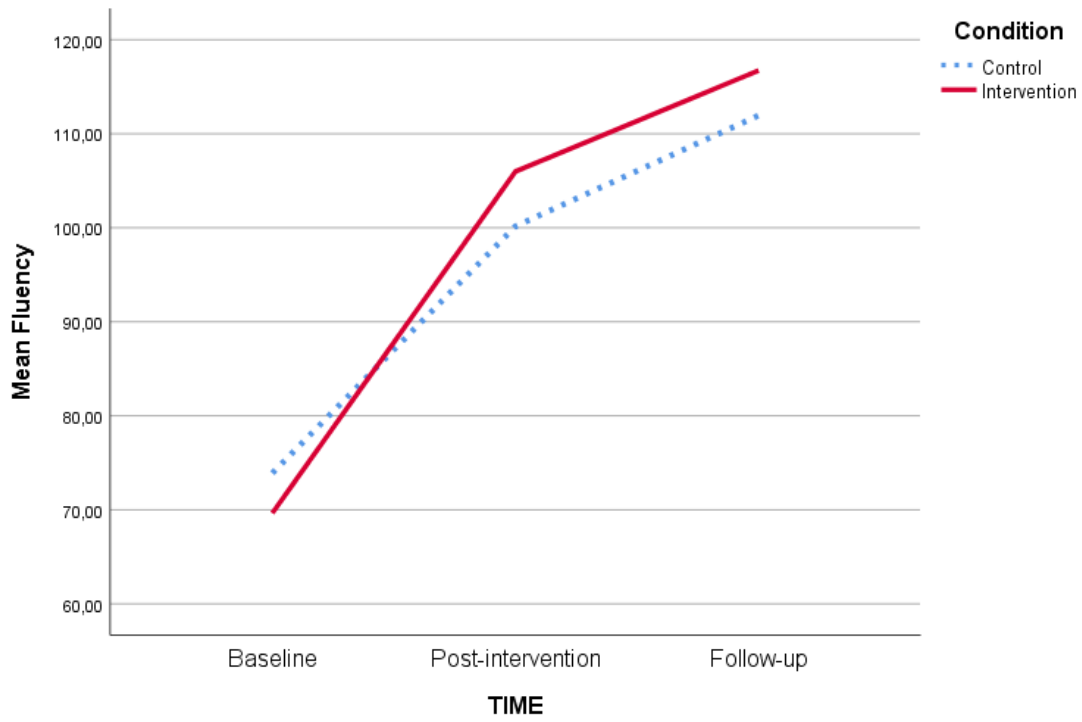


Figure 2. Student reading fluency in control and intervention condition at three measurement points.

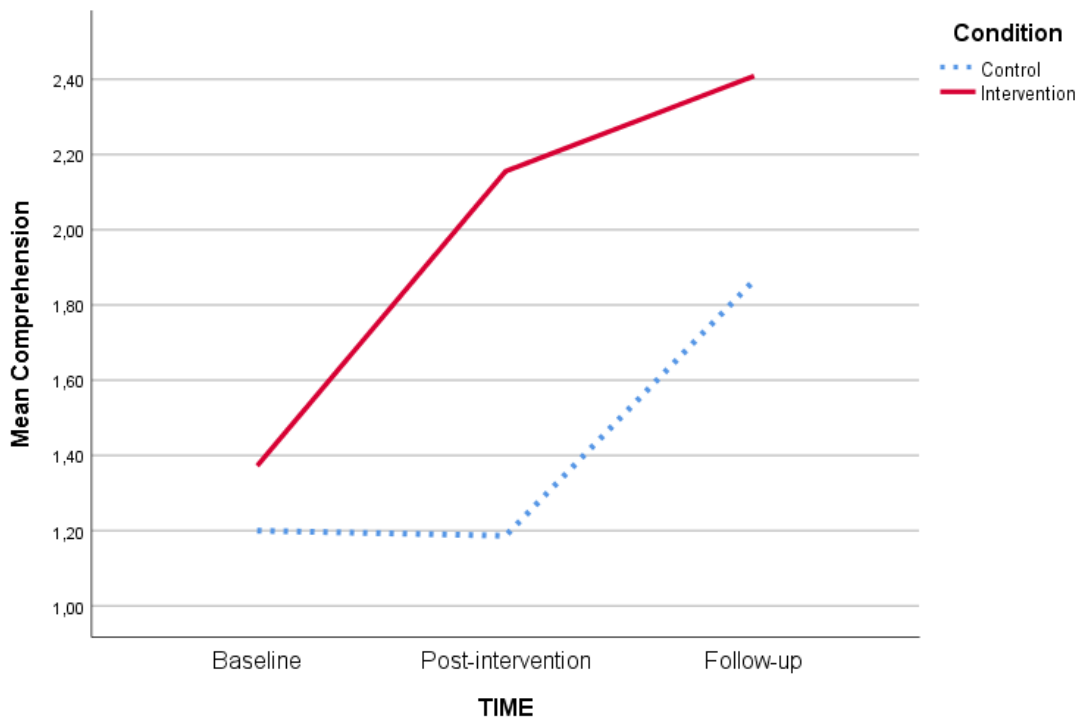


Figure 3. Student reading comprehension in control and intervention condition at three measurement points.

CHAPTER 6

GENERAL DISCUSSION

1. Reflection on the Main Findings

In this chapter we present an overview of the main findings and a general discussion about the whole PhD project. The main theme of this thesis was parental involvement in reading development of primary school children in Tanzania. We addressed three major research objectives: (a) to assess parents' motives to be involved in their child's schooling and to relate this to actual involvement, (b) the relationship between parental reading support and children's reading, (c) to evaluate the effectiveness of a one-year intervention programme designed to encourage teacher-parent partnership by assessing its impact on children's reading skills.

A first key finding, related to the first aim, is that parents have the desire to be involved in their children's education, and this desire is stimulated by several factors. On the one hand, invitations from their child or their child's teacher to be involved, and psychological factors such as self-efficacy, knowledge and expectations are related to involvement at home. On the other hand school/teacher/child invitations and perceived time and energy are related to involvement at school. Concerning the second aim, there is a statistically significant, but weak association between parental reading support activities, such as encouragement, modeling, reinforcement and instruction with all three aspects of children's reading, namely decoding, fluency and comprehension. Given that parental involvement can be improved, an intervention was developed for teachers and parents, which was based on previous studies that showed effectiveness of programmes designed to enhance reading skills in primary school children. This intervention was evaluated in a sample of second grade primary school children, using a Randomized Controlled Trial with baseline, post-intervention and follow-up measures. A three-level hierarchical linear multilevel model was used to analyze the data. A third key finding, related to the third aim, demonstrated that children in the treatment group made greater gains than children in the control group on decoding skills and reading comprehension.

1.1. The importance of Parental Involvement in Children's Literacy Development

In the first study we assessed motivational factors that might influence parents' decisions to be involved in their children's education in the context of Dar es Salaam, Tanzania. We assessed parents own school experiences, their experiences with their own teachers, perceptions towards their child's schools and teachers, their beliefs in the importance of their involvement and factors that might influence their involvement. The findings showed that parents are positive and willing to be involved in the educational activities although school and home involvement seemed to be activated

by different factors. Home involvement was related to expectations that parents hold for children's school success, parents' perceived time and energy, invitations by the child and parents' self-efficacy. School involvement was associated with parent's perceived time and energy, and invitations by the school and the child. Generally, the majority of parents were positive and convinced that parental involvement is very crucial for children's learning and that they can play an important role in supporting their children's learning through their involvement in educational activities. This was not only observed through the high scores on measures used to assess motivational factors and parents' perceptions, but also through the willingness of the parents to be involved in the intervention that intended to enhance children's reading development through teacher-parent partnership.

The majority of the parents, who were invited to take part in the intervention, also participated in the intervention although some didn't show up for data collection in the second (post-intervention) and third (follow-up) sessions. About 31% of the parents dropped out in post-intervention data collection measurement and 40% of parents dropped out in follow-up measurement. It may be possible that these parents could not attend the meeting at schools for practical reasons such as inconvenient meeting days at schools or interference of meetings with their daily activities, but still continue with some intervention activities at home (e.g. reading together with their child; following-up homework). Alternatively, it could be that they totally disengaged themselves from the intervention activities. These uncertainties raise the need to assess how we can motivate parents better, and to find the best ways to encourage, retain and help parents implement what they have been instructed by teachers in schools to do at home. Despite possible benefits of parent involvement in educational activities, teachers and schools should be aware that not for all the parents programmes can be successful and sustainable (Crosby, Rasinski, Padak, & Yildirim, 2015; St.Pierre, Ricciuti, & Rimdzius, 2005). Crosby et al. (2015) stressed that teachers and principals should note that even parental involvement programmes that have been successful in one year, often disappear or regress in the following years as parents' and teachers' initial enthusiasm and excitement over the programmes decreases.

Rasinski, Padak, and Fawcett (2009) proposed some principles of successful and sustainable parent engagement interventions, which are: (a) the use of methods and instruction that are provided by teachers, which means that parents use the methods that are proposed by teachers, (b) a consistent programme or instructional routine that does not vary widely over time; the consistency allows parents to develop a sense of competence in their literacy work with their children, (c) easy activities which are quick to implement by parents in 10 to 15 minutes per day, (d) giving instructional training to parents to equip them with instructional expertise, which is also supported by Khan (2003) who

found that parents can become more confident in providing reading support to their children at home due to a parent training, (e) providing ongoing support to parents in their work with children, and (f) offering enjoyable and authentic activities that will make parents and children more likely to persist in implementing the programme. Generally, we conclude that a sustainable parental involvement intervention requires schools and teachers to create feasible activities (as part of larger intervention) through a supportive partnership environment. This can be nurtured when teachers and schools take into consideration the understanding, opinions, perspective, knowledge, skills, priorities, self-efficacy and expectations of the parents. It is important for teachers and schools to understand different responses of parents and why parents are sometimes unable to implement what they ask them to do. They also should know how to encourage parents and motivate them regularly.

1.2. What do Parents do When they are Involved?

In Chapter 3 (Study 2) we found a statistically significant, but weak association between parental reading support activities and children's reading. The finding that a higher prevalence of parental activities is not related to better child reading skills, needs some reflection. First, parents provided self-ratings about their reading support activities. It could be that using questionnaires to assess these activities does not give an accurate rendering of the facts. Also, it might be that the quantity of parenting support activities does not mirror quality of these activities. Observation of what parents really do could provide more information on the quality of activities parents use to support their children in reading. This could inform teachers on how to support parents better when they want to support their children.

To enhance parental involvement it is crucial to assess parental values and attitudes about the importance of their involvement in children's education, but an assessment of parents' attitudes is not enough to generalize the extent in which parents are getting involved. Therefore, it is imperative to identify the extent to which parents are engaging in helping children at home and examine which support activities (parental involvement strategies) have the strongest relation with children reading skills. This PhD dissertation was a first attempt to get more insight in what parents do, but further, more detailed research, could extend the findings.

Khan (2003) stipulated that although parents are a crucial asset in improving children's reading ability, there is a need for training parents to provide efficient strategies and methods in helping their child to increase reading skills. She expressed the concern that parents can put undesirable pressure on children. This might especially be the case when parents expect more than the child is able to do (unrealistic expectations), and/or exhibit indifferent behavior without caring whether their child reads or not, and give all the responsibility for learning to read to the child. This raises the need for specific interventions that can motivate and equip parents to take an active role in

the reading development of their children. Teachers and schools should encourage, embrace and support parents to participate in a meaningful way in their children's reading development. This should begin with positive perceptions of schools and teachers and the understanding that children's reading is a shared responsibility for both parents and teachers.

Throughout the study we found evidence for an association between parents' SES and children's reading. We assessed the role of parents' own literacy level, parents' working hours, parents' educational level and level of income. We did not find an association between parents' own reading with parental involvement activities or children's reading levels. This is a promising finding, because it may indicate that regardless of their reading status, parents can be involved in supporting children's reading and maybe parents and children can even learn from each other. However, the strong associations between parents' levels of education with home involvement in Study 1, with parents' reading support activities in Study 2 and children's reading in Study 3, indicate that parents with a lower education level need more attention and support. Thus, teachers should take extra care to involve parents with a lower level of education if they want to enhance reading opportunities to every child.

Literature has shown that there are possibilities for schools and teachers to motivate parents to be involved, even when they have a low level of education and their reading is not that good (Dauber & Epstein, 1989; Epstein, 1986; Farris & Denner, 1991; France & Meeks, 1987). Dauber & Epstein (1989) asserted that parent involvement can be motivated through specific school practices designed to encourage parent involvement at school and guide parents in helping children at home. Farris and Denner (1991) have suggested that illiterate parents may feel embarrassed about their literacy condition; however, they have strong desires and expectations for their children to become literate. Teachers need to guide illiterate parents to enable every child to get parental reading support at home. Illiterate parents require a caring, understanding teacher who is willing to gently nudge them in the right direction so their children will acquire literacy and are able to share in the rewards and joys of being able to read and write (Farris & Denner, 1991). There are various ways that teachers can use to guide illiterate parents in assisting their children and support active engagement of parents in the literacy development of the children. Through the implemented intervention, we suggested various ways that teachers can use to help illiterate parents, such as emphasize the use of wordless pictures, the use of storytelling techniques, home visits, the use of simple stories books at home that are not only fun but also simple to follow, a home-school library with teachers lending one book to a child every week, teachers-parents conferences and parents school visits. All the efforts should not only intend to get parents participating but also should focus on making parents realize

the value of education for their children and the importance of reading skills for their children's future education successes.

2. The Usefulness of the Implemented Parental Involvement Intervention

In Chapter 5 we assessed the effectiveness of a one year intervention programme which intended to enhance children's reading development through teacher-parent partnership. The intervention programme was based on studies in the scientific literature showing effectiveness of programmes designed to enhance reading skills in primary school children. The general findings revealed that children in the intervention condition made more progress in reading compared to children in the control condition. Findings demonstrated that children in the intervention condition started with lower initial reading scores but improved steadily compared to children in the control condition (who started with higher reading scores). This finding can be assigned to the treatment given to teachers, parents and children, or because of good reading instructions given by teachers or teacher's specific efforts to strengthen reading skills in children with lower reading skills.

It was also noticed that there were no differences in reading development between children in public and private schools, which means that the type of school didn't influence the effect of the intervention. There are great disparities of infrastructure and learning environment between public and private schools in Tanzania. While public schools depend only in capitation grants from the government, parents pay for their children's education in private schools. This has made society and parents to perceive that children in private schools receive enough learning opportunities compared to children in public schools (ActionAid, 2017). Our findings uncover that our intervention can yield positive effects, regardless the type of schools that children attend. If well implemented, interventions can reduce opportunity gaps and minimize learning disparities of the children in public and private schools by creating balanced learning opportunities to all children regardless their social economic background. The more informed a parent becomes about their child's reading instruction, the greater the chance for children to achieve more optimally in reading (Ediger, 2001).

To make this intervention more efficient in the future, we could consider assessing the effectiveness of each element in the intervention to assess which element is more effective to parents in Tanzania. Although all ingredients have been shown to be effective in previous research, some ingredients may work better for one family, whereas other ingredients may work better for other families. It could also be possible that our intervention works just because of the combination of several ingredients. It can be empowering for parents that they have a certain autonomy in the

intervention (e.g. by being able to choose between ingredients), which may enhance their self-regulation skills and promote their self-efficacy feelings.

Another issue that needs more attention in the future is the intervention fidelity. To assess the adherence and competent delivery of an intervention by the teachers and parents, it is important to know how parents implemented all the guidelines. Although researchers monitored the whole intervention, it was not clear how parents implemented the guidelines and instructions given to them by the teachers.

Lastly, the successful implementation of the intervention in schools and the positive results of the RCT give us indications that the intervention can be implemented in other parts of Tanzania. As a big (business) city in Tanzania, Dar es Salaam is heterogeneous by nature, representing parents from different socioeconomic backgrounds. This can provide a general picture of many families in different parts of Tanzania. The success of the intervention in Dar es Salaam gives a clear indication that an intervention could be useful in other parts of the country (e.g. rural areas, in the countryside) without the adaptation of the programme or assessment of motives or beliefs of the parents.

3. Future Plans for the Implementation of the Intervention and Dissemination of the Results

Through this study we can make several practical and policy suggestions on how to improve and promote active parental involvement in reading development of children in Tanzania. We learned that parents are willing to be part of their children's reading development, although they need firm support from the teachers, schools and the government. Teachers need to understand that parental involvement is more than a physical presence of parents at schools. Parental involvement begins with a positive attitude of the parents towards the idea that a child's reading is a shared responsibility that needs parents and teachers to work together in mutual trust, respect and understanding. In developing countries like Tanzania parents are often busy and working for long hours to sustain the needs of children, and sometimes it is not possible to get them in schools. Teachers need to be creative, tolerant and patient in dealing with parents, by constructing activities that will enable parents to be involved in convenient ways and time at their own pace. Parental involvement should be initiated by teachers at schools and implemented by parents at home with the help and support from teachers. Parents want to see their children succeeding in education but teachers need to be aware that not every parent knows how to help a child in educational activities and reading in particular. Therefore, teachers need to nurture these expectations by informing, assisting, directing and supporting parents. With overcrowded classes in Tanzania, teachers should consider parents as their co-educators; they should consider parents as important partners that can actively engage in literacy development of the children with their help and support.

Schools need to support teachers by embracing their ideas regarding parental involvement, to prepare meetings and conferences that give opportunities to teachers and parents to share important information about children's reading, to provide teachers with regularly professional support, so that they are able to involve parents in more effective and efficient ways, and to create a partnership environment at schools. Schools have the responsibility to create a warm environment with open doors for all parents regardless their socioeconomic backgrounds. Schools need to be the home of every parent, where they can speak, give out their opinions and can be understood without the fear of judgment or threat of being ignored by the head of schools and teachers. Parents need to feel wanted, need to feel secure and need to be given priority in their children's schools. This can be done through a range of activities and opportunities created by schools for parents and care givers.

For the government and policy makers in Tanzania, parental involvement should be an urgent policy issue. With regard to parental involvement activities countrywide consistency and uniformity in all schools should be created. This PhD project offers nice examples of good practices that can be implemented nationwide to support early literacy development. The use of story books in primary schools can be used to support reading development and cultivate reading culture in young children. Parental involvement in the homework can be a good way to connect home and school learning and enhance shared responsibility between teachers and parents. A module for teacher training could be further developed and used for capacity building through ongoing professional development for in-service teachers. Teacher-parent communication guidelines that were used in this intervention can be used as a regular platform in schools to create a sustainable partnership between teachers and parents. The adoption of these good practices can only be implemented through a strong policy that stipulates roles and functions of parents in the literacy development of the children.

The responsibility of participating parents in children's literacy development should not only be left to teachers and schools but also to the government through the responsible ministries. Parental involvement should be a policy matter; the government should set guidelines, regulations and directives for schools, teachers and parents on how school-home learning partnership is supposed to be realized. Through parental involvement policy, schools could be directed how to handle parental involvement matters and parents will be informed how they should assume their responsibility in their children education. Policy should be a regulatory tool that directs all stakeholders on how to be responsible in the most meaningful and significant manner, especially now that the country is emphasizing the free education policy. Moreover, there should a purposely integration of family education in teacher education programmes. Future teachers need to be prepared in teacher's education programmes on how to work with parents in schools. They should acquire enough skills

and knowledge on parental involvement so that they are able to apply it while working with parents in schools.

To prevent future reading difficulties and failure in children, the government needs to invest more in early reading intervention programmes that aim at enhancing smooth literacy development of the children through school-home or teacher-parent partnership. This can be done through supporting schools with financial means to conduct professional development programmes to equip teachers with skills needed for working with parents, providing schools with tools (books, student diaries and other learning materials) to enhance children's reading activities at home and supporting research on early parental intervention programmes in the literacy development of the children. The intervention implemented in this PhD study was very cost-effective and can be easily adopted and implemented to other places with little modifications to make it more efficient and effective. The modules which were prepared for teachers can be developed into a course and provided to future teachers in teacher education programmes.

In the future, we will consider adding other aspects in the intervention such as mathematics and writing. It will be of much interest to compare parental involvement in different aspects of child's literacy development and to assess how each aspect complements other aspects. Moreover, we think of adding some elements of positive parenting and parenting styles with regard to parental involvement in children's literacy development. It is important to understand how parents respond to their parenting responsibilities, how they are dealing with their children's behavioral needs and how their parenting styles affect their involvement in children's education.

4. Theoretical Importance of Our Study

A strength of this PhD project is the use of a prominent theoretical framework to assess parental involvement in the reading development of children, that is the Hoover-Dempsey and Sandler's model of parental involvement (1995, 1997, & 2005). This model provides a strong theoretical framework including predictors of parental involvement, processes involved in the involvement, mechanisms used by parents when they accept to be involved and outcomes of parental involvement, i.e. children's academic outcomes (Green, Walker, Hoover-Dempsey, & Sandler, 2007). Fundamental to the model is the idea that parents' motivations for involvement are a function of the social systems to which they belong (Hoover-Dempsey et al., 2005). The choice of the model was due to several reasons, such as the fit of the model with our research questions and the availability of questionnaires that serve our research purposes within each level of the model. Another important merit of the model is its flexible nature, allowing researchers to choose the relevant levels that seem to be important to answer their research questions (Green et al., 2007).

The Hoover-Dempsey and Sandler's model of parental involvement is a known framework and has been used in many studies for more than two decades in developed countries (Anderson & Minke, 2007; Deslandes & Bertrand, 2005; Green et al., 2007; Hoover-Dempsey et al., 2005; Lavenda, 2011; Walker, Wilkins, Dallaire, Sandler, & Hoover-Dempsey, 2005). With this dissertation, we extended previous findings that used this model. Our study was the first to use constructs from the Hoover-Dempsey and Sandler's model in an African context. From this experience we can contribute to the generalizability of the model across different cultures and the African culture in particular. In our experience, the model was useful to structure our research questions and hypotheses. Also the questionnaires seemed to work well in an African context. We also showed that the addition of a 'parental expectations' variable, as suggested by previous studies (Anderson & Minke, 2007; Walker et al., 2005), proved to be valuable. The results of the first study of this project showed that having high educational expectations for a child was strongly associated with home involvement. This shows that parents' expectations is a very important aspect in assessing parents' decisions, motives and readiness to participate in children's education at school and at home.

5. Strengths, Limitations and Suggestions for Future Research

One of the strengths of this doctoral project, was the implementation of an intervention programme which was based on studies in the scientific literature showing effectiveness of programmes designed to enhance reading skills in primary school children (Bartel, 2010; Crosby et al., 2015; Gelfer, Higgins, & Perkins, 2001; Hindin & Paratore, 2007; Jeynes, 2005, 2012; Khan, 2003; Sénéchal & Young, 2008). In the same way that we want teachers to use scientifically based instructional methods, we also need to ensure that the methods we share with parents are based on proven, effective practices when asking them to work with their children on literacy. Veerman and van Yperen (2007) have insisted that interventions should have a plausible rationale to explain why they should work and this can be done through critical reviews of meta-analyses and expert knowledge studies to elicit better effects. The scientific literature from previous studies leads to the combination of various components in the implemented intervention which provided a range of involvement activities to parents.

The implementation of the intervention in a real and ecological valid context - the day-to-day practice in schools and at home - increased the external validity of the intervention. The ingredients of the intervention seem feasible to implement in the daily routines of teachers and parents. This is promising for the applicability of the intervention in schools outside Dar es Salaam.

The use of a randomized controlled trial method, with pre-, post-intervention, and follow-up measures in a large sample to evaluate the intervention we implemented, is another methodological

strength. Torgerson and Torgerson (2001) have argued that a RCT should be more widely used as a gold-standard methodology, as it is an appropriate and robust research engine to avoid potentially harmful educational activities. The use of a RCT maximizes the internal validity of results, given that the observed findings can be assigned to the intervention (Veerman & van Yperen, 2007). However, a limitation in our study is that the implementation of the intervention treatment fidelity was not assessed in detail. Therefore it is hard to know how instructions given to parents by teachers were followed and implemented at home as intended. Further, at this stage we do not know exactly which elements ‘cause’ the effects. Also, we cannot rule out alternative explanations for the effectiveness of the intervention. For example, our study lacks information on the possible impact of other family members on children’s reading development, including (older) siblings, grandparents, or other individuals within the social environment of children. We also didn’t control for teacher factors which are related to the children’s reading abilities such as teachers’ own ability to teach reading. The influence of a teacher’s personal factors on a child’s reading abilities could be useful in assessing children’s reading development. These limitations decrease the internal validity of our study, and could be addressed in future research on the implementation of the intervention.

Another methodological strength is the use of multilevel analyses to assess the effect of the intervention in children’s reading development. The use of multilevel analyses tackles some of the drawbacks of generalized linear models when dealing with longitudinal nested data, such as violation of the assumption of independence of observations. Peugh (2010) stressed that collecting cluster data on multiple occasions over time requires multilevel modeling to avoid type-1 errors (false positive finding).

In Study 3 we only focused on the effects of the intervention on children, that is their reading skills, and not on the effect of the intervention on parent characteristics. A suggestion for further research is to investigate how parents’ motives and reading support activities change over time, and whether these changes differ between parents in the intervention condition and parents in the control condition. These variables were assessed in parents at baseline, post-intervention and follow-up. Another possibility is to examine how the intervention affects attitudes or activities of teachers, but for this data should be collected in a new study.

We also have qualitative data from a subsample of families ($n = 30$), collected during home visits, on how home surroundings are supportive for the reading activities at home. Analyzing this information could help us to understand better the opportunities for children to engage in reading activities at home and how home environments can influence parental reading support activities at home.

6. Conclusion

Generally, through rigorous methods this PhD project uncovered important findings regarding parental involvement in reading development of children in Tanzania. To encourage parental involvement in their children's reading development, we need a feasible intervention which can enhance the motivation of parents and strengthen their self-efficacy. The intervention that we designed seems to be promising and includes good practices on how parents can be involved and contribute to their children's reading development through a partnership with schools and teachers.

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