

# Learning and Learning Difficulties in Africa

Issue 8.

June, 2015

## Special interest:

- GraphoLearning (GL) Diploma Training Program
- Three PhD abstracts
- Professor Lyttinen receives UNESCO Chair

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## Grapho Learning (GL) Diploma Training Program provided hands-on experience of literacy assessment and intervention

It is difficult to find a better way to boost the development of literacy learning in primary education in Africa, than to combine the best African expertise in teaching practices and Finnish knowledge of literacy and GraphoGame technology.

With this view, Niilo Mäki Institute started a literacy training program in 2012 for teacher educators in Zambia, Namibia, Kenya and Tanzania. The main goal of this program was to train literacy specialists with the latest evidence based knowledge of learning to read and reading difficulties. GraphoGame technology was also utilized in this project as the main tool supporting learning to read. The 3-year “Grapho Learning Diploma Training Program” was funded by the Ministry for Foreign Affairs of Finland non-governmental (NGO) development cooperation grant.

The biannual international workshops brought together 23 trainees, their four local trainers, and the Finnish experts to discuss different aspects of emergent literacy: grapheme-phoneme correspondences in transparent languages, phonological awareness, decoding skills,

reading fluency and reading comprehension. More practical hands-on assessment and literacy case-study interventions using GraphoGame were also included in the program.

Under the supervision of the local trainers, the trainees learned in these intervention studies how to teach literacy and how to use the GraphoGame in teaching. The findings of the case studies were presented in the joint workshops. The Literacy Assessment Tools developed by each country teams for these case studies were collected into booklets. These booklets can assist teachers to identify learning difficulties.

The program also included school visits e.g. in Bagamoyo, Tanzania, where GraphoGame is used as a part of literacy teaching

especially for those children whose reading does not progress.

The training program received positive reviews from the participants. The trainees’ skills and knowledge on how to identify, assess, and improve reading difficulties have been improved. In their roles as teacher educators, they are able to pass along knowledge and skills to their students and to further develop the curricula and courses offered at their institutions. Furthermore, the participants have developed closer relationships with schools and teachers. This has given them a better understanding and overview of what is happening in the classrooms, thus enabling them to prepare the future educators better for their teaching tasks.



GL group in Lusaka, March 2014.

## GL country teams and their experiences



Kenyan GL team, March 2014

- Professional development - gained knowledge in the area of reading (assessment and intervention), development of assessment tools and gained research skills as well as social skills through interacting and networking with other teams.
- Set up a reading clinic at KISE.
- Organized local workshops on learning difficulties.

Future prospects:

- development of reading materials in local languages.



Namibian GL team, March 2014

- Grown professionally in knowledge and skills in the area of literacy acquisition.
- Current UNAM literacy courses have been enriched as a result of the programme.
- More accurate outlook of literacy in schools and better partnership with these schools, assisting them in identifying learners who have reading problems.

Future prospects:

- A need to expand to other Namibian languages, and involving lecturers from other campuses (possible cascade model).



Tanzanian GL team, March 2014

- Gained new knowledge, skills and techniques to identify children at risk of developing reading difficulties (dyslexic and dysfluent).
- Developed assessment and intervention tools for children with reading difficulties -individual and class wise assessment).
- Exchange of ideas, knowledge and opportunities to learn from each other on literacy Education provision to children.



Zambian GL team, March 2014

- Knowledge transfer to students in higher education institutions about theories of reading assessment and intervention.
- Increased research competence of participants.
- Increased collaboration with other partners within and outside the country.

Future prospects:

- Provide training to teachers in colleges so that all teachers have skills for reading intervention.
- Extend GG to other languages in the country.

**DOCTOR OF PHILOSOPHY (EDUCATIONAL PSYCHOLOGY):  
Influence of grade one Zambian Teachers and GraphoGame on initial  
Literacy Acquisition - Lusaka district** by *Dr. Jacqueline Jere-Folotiya,  
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Various research studies that have been conducted on literacy in Zambia have revealed that literacy levels of Zambian learners are one of the lowest in the Southern region. The Zambian Government has made huge financial investments in introducing the Primary Reading Programme (PRP), which emphasized the use of a familiar, indigenous language to teach basic literacy skills from grades one to three. However, research conducted nationwide after the introduction of PRP indicated that the proportion of learners achieving even the literacy by Grades 5 and 6 remains extremely low. Teachers play an important role in mediating the learning opportunities. Jacqueline's PhD study sought to investigate beliefs and practices of first grade teachers and the degree to which they influence learners' mastery of initial skills in Lusaka district. The study further sought to determine if and how a literacy tool, GraphoGame, could interact with teacher variables to improve learners' literacy skills. Data for the current research was collected as part of a larger research project called the Reading Support for Zambian Children (RESUZ). At the core of the study was an intervention GraphoGame. Intervention groups were formed for learners, teachers and a combination of both. The study used both qualitative and quantitative methods of data collection. The sample

consisted of first grade teachers from Zambian Government schools (N = 63) age range 25-54 and their learners (N = 288) age range 6-9 years. Data on teachers' self-reported teaching practices and attitudes about intrinsic and extrinsic motivation, learner versus teacher centred approaches, personal theories of teaching and views about the curriculum was collected using a semi-structured questionnaire. Data collection on learners' literacy development was conducted using locally developed paper and pencil tests of ciNyanja spelling recognition and orthographic awareness.

Jacqueline's thesis makes a contribution to the current debate on the use of local languages to teach literacy and examines the role of teachers in this process. It also provided insight into how the use of a literacy tool, GraphoGame, can enhance the literacy teaching skills of first grade teachers in the local language. The major findings showed that first grade teachers of literacy in Government schools endorse the use of local language to impart initial skills learners. They believe that learners acquire basic skills more efficiently when they taught in a familiar language. Findings of the study also show that first grade teachers of literacy are intrinsically motivated to teach despite the many challenges they experience such as inadequate learning materials,

large number of learners in the classroom, lack of support from parents etc. With regard to their personal theories of teaching, teachers believe that individual differences of learners must be considered in the teaching process, even though they were ambiguous about their beliefs regarding the use of learner centred over teacher centred approaches. The study draws the overall conclusion that while first grade teachers of literacy experience various challenges in the teaching process, they are highly motivated to teach and support their learners beyond the academic sphere to provide psychological and emotional support where necessary.

The study also concluded that GraphoGame can be used to enhance literacy teaching skills of first grade teachers although Government needs to do more to enhance Information and Communication Technology (ICT) skills of teachers. The use of ICT in teaching should be introduced in teacher training institutions for practical use in the classroom.

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Dr Jacqueline Jere-Folotiya,  
University of Zambia

**“They  
(teachers)  
believe that  
learners  
acquire basic  
skills more  
efficiently  
when they  
taught in a  
familiar  
language.”**



**DOCTOR OF PHILOSOPHY (EDUCATIONAL PSYCHOLOGY):  
The Acquisition of Early Reading Skills: Influence of the Home  
Environment** by *Dr Tamara Chansa-Kabali, University of Zambia*



Dr Tamara Chansa-Kabali,  
University of Zambia

**“Parents who favourably ascribed to reading as an important activity in the home had children performing better on reading skills.”**

Reading is essential for children’s educational success and communication in a technologically advancing society. With technological advancements today, manipulation of written text to gain insight and understanding from text has become crucial for communication. In the same vein, reading has been found to be a tool not only for communication but also problem solving. Due to the significance of reading, investigating the process of learning to read is deemed crucial by the research community. In this process, many scholars converge on the importance and contribution of the school and the teacher in children’s reading development. However, other researchers have contended that other than the school environment, are responsible for introducing children to emergent literacy as well as support what the school teaches. One such context is the home environment. Although a number of factors inhibit and facilitate the process of its acquisition, many studies in Zambia focus on the schools, classroom and the language of instruction. Hence, this study focused on the contribution of contexts like the home environment in order to explore factors that might be responsible for influencing the children’s reading process. This study addressed factors that influence acquisition of reading skills

(orthographic awareness and decoding) in the home environment.

The present study was part of larger project called Reading Support for Zambian children (RESUZ). The aim of the RESUZ project was to explore different factors that would possibly influence acquisition of first graders’ reading skills. The design of the RESUZ project was experimental and recruited 576 children from 42 schools in Lusaka Urban. For the present study, a mixed methods (quantitative and qualitative) design was utilised to investigate the contribution of home environment factors to reading skill acquisition. Seventy-two first grade learners from nine schools were purposefully selected from the 42 RESUZ schools. To explore the home environment, the home environments for 72 learners were visited for assessment on factors such parental education, parental occupation, parental literacy levels, parental reading attitudes, reading materials and literacy activities. All these factors were assessed using a structured home literacy questionnaire. Additionally, a semi structured interview guide was used for the qualitative inquiry with few parents (n=12). The significance of the in-depth interview was to explore the children’s daily interactions with literacy at home. This qualitative inquiry also ex-

plored the parents’ own literacy interactions. Reading skills were assessed through orthographic awareness and decoding competence tests that were developed locally by the RESUZ team. Children were assessed at two different time points in their first year of schooling.

Using hierarchical regression analyses results of the study showed that children’s home environments were experienced differently and significantly impacted children’s reading skills. In the home environment, an aggregate of factors like electricity, stove, television, running water, flushable toilet and a car revealed to positively impact children’s reading skills. Children in home environments that reported to possess these facilities seemed to perform better on reading skills. One possible explanation for this result could be that children with facilities such as electricity could have more time to work on their school work after the dark. Similarly, those who had running water were spared the hassle to go some long distances to look for water. Television has some child friendly and educational programs that enhance literacy skills.

Another factor that significantly explained variation in children’s reading skills was parental reading attitudes. Parents who

favourably ascribed to reading as an important activity in the home had children performing better on reading skills. These parents reported to do more for their child's literacy development than those less favourable attitudes. Some parents reported to buy reading materials such as charts with letters and simple words. When asked why they provided this resource, they responded that it is always important that when one is teaching a child, children are able to see what they hear. Further, results showed that reading materials predicted orthographic awareness and not decoding. Although reading materials significantly predicted orthographic awareness, the general observation was that families lacked reading materials. The scarcest of the reading resource were children's reading materials. Families depended on schools to provide children's reading material. With family literacy activities, children who experienced more literacy interactions in the home produced significantly higher scores than their peers. Although results based on parents' and teachers' views revealed weak home-school relations, it was found that affirmative parental views on the school positively impacted children's scores on the reading outcomes. Differing views on parental involvement between teachers and parents also emerged. Further, qualitative inquiry confirmed that high achieving learners experienced a more literate home environment than low achieving learners.

In conclusion, the findings of the present thesis should not be interpreted as undermining the role of the school in literacy acquisition. The home environment should be perceived by both parents and teachers as a partner that shares a common goal in educating children. The study reveals that the child's environment in Zambia plays an influential role in exposing them to literacy practices. These practices not only foster interest in reading but also knowledge about reading. Fully incorporating the home in the children's learning process may not only benefit them but also reduce the variability in how teachers and parents perceive the process of literacy acquisition. This entails that when children are sent home with a particular task; parents would easily cooperate knowing that the task benefits the children. Another implication of this study is that there is need to raise awareness in both families and communities of the important contribution that they make in children's learning process. They need to understand that while the school and the teacher take central role in teaching reading, families and the communities are significant partners in the process. The government through the Ministry of Education needs to make a deliberate policy that will encourage family involvement. Part of the problem of low parental involvement in these families could be as a result of; 1) lack of knowledge and 2) fragmented policies about family involvement in literacy promotion. One way of

doing this would be that the schools could create a stronger relation with parents by actively soliciting parental involvement at all the levels - home-based, school-based and home-school partnerships. The partnership would also enable teachers with knowledge about the children that need more help with reading if the home environments do not provide the expected affordances.

One important finding the present study puts across is that the children's home environments in low income families in Zambia are filled with activities that enhance children's oral language - (songs and stories), and literacy related activities like school homework, playing games, and exposure to print. These activities need to be encouraged in Zambian homes. These home activities lay a foundation for learning to read and write in school. Through awareness, parents need to promote the kind of activities that strengthen reading skills and encourage their occurrence within their communities. There is need for further research in the home environment in Zambia especially in higher SES groups. This would give a general representation of how literacy is practiced in different contexts with different opportunities and resources in Zambia. Similarly, effects of prominent factors such as poverty, nutrition, parental aptitude and knowledge on child outcomes could be other areas of investigations.

***“There is need to raise awareness in both families and communities of the important contribution that they make in children's learning process. “***

In targeting interventions programs with families, there is need to focus investigations into the processes of parental involvement. Processes of parental involvement not only highlights the significance of parents being involved but would give guidance to how public schools in Zambia ought to handle and maintain these partnerships. Other areas for in-

vestigation would be the contribution of preschools to children's reading skills before formal schooling. Other aspects not included in this study's analysis that should be considered are oral language skills and other intellectual competences that would influence the acquisition of reading skills. In other analyses, the impact of the home environment factors could be

assessed against the GraphoGame treatment, teacher and other classroom factors.

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## DOCTOR OF SOCIAL SCIENCES (PSYCHOLOGY): Kenya goes digital in learning: The case of GraphoGame™ in Kenya by Dr Suzanne Puhakka, University of Jyväskylä, Finland



Dr Suzanne Puhakka,  
University of Jyväskylä,  
Finland

GraphoGame Kiswahili and Kikuyu adaptations in Kenya have proved successful in assisting children to develop early reading skills. A total of 167 pupils received GraphoGame intervention during this research. This research has been a pioneer in showing that in addition to assisting in acquisition of reading skills in the first language (mother tongue), GraphoGame can also be used as an intervention tool in second language learning, in this case, Kiswahili. Consequently, the game can be explored as a vocabulary enhancement tool for preschool learners in Kiswahili as well as a learning game to assist in further development of reading skills i.e. reading fluency. Additionally it can be used as a platform for teacher capacity development in teaching early literacy acquisition. It is now necessary to develop the

GraphoGame learning environment to be culturally sensitive to African children given that the game was developed for Finnish learning environments which are European in nature.

Research has shown that children learn to read more effectively when they are taught to read in a language that they understand. This language is usually a child's mother tongue. However in many African countries as is reflected in Kenya teaching reading skills in mother tongue is not practiced. This is due to the reasons that first, there is a lack of scientifically supported knowledge on how to teach early reading skills and more so in the vernacular languages. A further challenge is that reading material in the vernacular languages is not available for the children.

Preference when teaching reading continues to be given to the English language. In the case where the lingua franca Kiswahili is used it brings with it several complexities because it is not a first language to majority of the people. It is a mother tongue to about 100, 000 people who are found at the coast province of Kenya. These language complexities have adversely affected early primary education and are evidently seen because more than half of the children cannot read basic grade two level sentences in Kiswahili. The government has become increasingly overwhelmed by the high number of primary school going children who are experiencing difficulties in reading and has reached out to try and find solutions. Effective solutions nonetheless can only be found through

research evidence and application of these results into practice.

GraphoGame was originally developed in Finland as a literacy game known as 'Ekapeli'. In this research, Kikuyu and Kiswahili adaptations of the game were used in the interventions. The research was divided into three experimental studies. The first study investigated the teachers' metalinguistic skills and further explored availability of reading support material in Kenyan schools. The second study examined the pupils' orthography and spelling awareness and the third study investigated the pupils'

spelling skills. The results showed that the teachers' metalinguistic skills, especially in syllable knowledge and spelling in Kikuyu and Kiswahili, were very poor; they did not have a clear understanding of the appropriate methodologies they should use to teach early reading, even though they did understand the importance of teaching a pupil to read in the pupil's mother tongue. The situation was made unfavorable by the unavailability of reading and instructional material in the schools. Where the instructional material was available in Kiswahili the guidebooks do not offer instructions on how to teach

early reading acquisition. Furthermore the teacher training did not offer instructional methodologies on teaching reading acquisition especially in the local African languages. The pupils did not have sufficient skills required to learn early reading skills optimally however the good news is that, the pupils who received the GraphoGame intervention improved in both their spelling and orthography skills in the two languages.

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## GraphoGame (GG) activities in Tanzania

To support the Tanzanian government's efforts to improve literacy levels among children in the early grades, Sebastian Kolowa Memorial University of Tanzania (SEKOMU) and Agora Centre of University of Jyväskylä, Finland, are cooperating in the field of research and development to provide solutions to reading difficulties and training specialists in the field of literacy. This collaboration includes improving the teaching and learning of literacy skills in the primary schools in Bagamoyo and Lushoto Districts. GraphoGame (GG) workshops were held in Bagamoyo and Lushoto districts in January and February respectively for grade one primary school teachers, head teachers and district education representatives. Under the guidance of Dr Damaris Ngorosho and her colleagues the following topics were covered in the workshops: Reading ability - Poor readers versus learning disabled; Reading in different types of writing systems (Orthographies); Methods for teaching reading in Kiswahili; GraphoGame as a supplementary learning resource and Development of reading materials. A large part of the workshops was devoted to GG practice and development of reading materials e.g. stories, poems, proverbs, and phrases and these activities continued after the workshops.

For more information about GraphoGame research activities in Tanzania contact Dr Damaris Ngorosho at [Dngorosh\(at\)gmail.com](mailto:Dngorosh(at)gmail.com)



Participants and facilitators of Lushoto workshop, January 2015.



GraphoGame practice.

*“The quality of education cannot be improved without building a greater capacity in the human sciences. Scientific research in learning in Africa must be conducted by African experts to ensure that results are meaningful for local societies.”*

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## Professor Heikki Lyytinen appointed as UNESCO Chair

The University of Jyväskylä has appointed Professor Heikki Lyytinen as UNESCO Chair on Inclusive Literacy Learning for All UNESCO (2015-2018). The purpose of the Chair is to promote an integrated system of research, training, information and documentation on inclusive literacy learning for all. The Agora Center at the University of Jyväskylä will be coordinating the activities. The Center together with the University of Jyväskylä honored Professor Lyytinen's career and appointment for UNESCO chair during the Agora day on 21 May, 2015.

Recent reports on international development have revealed new crises in African schools. Globally, 130 million children have remained illiterate even after several years of school. Completing primary school does not ensure that basic literacy skills have been acquired.

The mission of the new UNESCO Professor Heikki Lyytinen is to help children globally, especially in Africa, to learn to read. A new approach for promoting literacy and providing learning materials for children and training materials for teachers is to use mobile technology such as mobile phones and tablets. With this goal in mind, Professor Lyytinen's team in the Agora Center together with Niilo Mäki Institute continue developing the GraphoGame™, a mobile game-based learning method. “There are many challenging factors in African schools but the lack of scientific knowledge should not be one of them. The quality of education cannot be improved without building a greater capacity in the human sciences. Scientific research in learning in Africa must be conducted by African experts to ensure that results are meaningful for local societies,” Professor Lyytinen emphasizes.



Professor Heikki Lyytinen in Bagamoyo, Tanzania (2013)

More information about the UNESCO Chair activities can be found at [www.jyu.fi/unescochair](http://www.jyu.fi/unescochair).

## Niilo Mäki Institute, Finland

Niilo Mäki Institute is a multidisciplinary learning disabilities research and development unit of Niilo Mäki Foundation (NMF). The aim of institute's research is to find possible causes of learning disabilities and to explore the means of prevention and remediation. The research activities are predominantly centered on reading acquisition and reading disabilities, disabilities in writing skills, learning disabilities in mathematics, attention

deficits, deficits in motor coordination, as well as assessment of learning disabilities and remediation. Clinical work (in collaboration with Family Guidance clinic in Jyväskylä) is also conducted in the area of evaluation and remediation of learning disabilities.

NMF through the Institute collaborates with various universities and research institutions both in Finland and overseas as well as with third sector

organizations in the area of research and development.

For further information visit [www.nmi.fi/en](http://www.nmi.fi/en)

If you are interested in sharing your research findings or otherwise keen to contribute to the Newsletter, do not hesitate to email us at [Pia.krimark\(at\)nmi.fi](mailto:Pia.krimark(at)nmi.fi).