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**Early childhood development practitioners’
perspectives on an adapted developmental resource
(3y0m - 5y11m) for language development in low
resourced settings in South Africa**

by

du Plessis, D.

du Toit, L.

Köstlin, T.

Wagner, J.

Under the supervision of

Dr du Toit, M.

Dr Eccles, R.

Prof. van der Linde, J.

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Abstract

Background

Globally, there are 250 million children at risk of not reaching their developmental potential later in life. In South Africa, where poverty levels are high and various risk factors are prevalent, children face an increased risk of developmental delays. ECD practitioners often play the role of a primary caregiver to many children due to the amount of time children spend in ECD centres. As a result, ECD practitioners are ideally positioned to provide developmental stimulation to children, to ameliorate many of these risks. To achieve successful developmental outcomes, access to appropriate resources, such as existing milestone guides, is crucial. However, these resources are often lacking in low-income settings, making it difficult to reach these goals.

Purpose

The purpose of this study was to describe Early Childhood Development practitioners' perspectives on the language activities included in a contextually and linguistically adapted milestone guide for preschool children aged 3 years 0 months to 5 years 11 months from low-resourced settings.

Method

The study used a short-longitudinal design with a paper-based pre-survey and semi-structured post-implementation interview. These incorporated both quantitative and qualitative questions. A three-week implementation period of the language domain of the adapted milestone guide occurred between the survey and interview. Throughout the implementation phase, field notes were made by the participants and phone calls were made weekly by the research team to gain feedback. Non-probability purposive sampling targeted ECD practitioners from low- and middle-income countries. feedback. Non-probability purposive sampling targeted ECD practitioners from low- and middle-income countries.

Results and discussion

Participants reported that it was easy to implement the activities into daily routines and that they were unchallenging to understand. The adapted milestone guide was deemed both age and developmentally appropriate and proved to be suitable for the group setting in a low-resourced community. Participants also reported positive children's experiences with the activities. Finally, recommendations were provided, to improve the suggested resources and increase parental involvement as well as the importance of practitioners' roles to promote early childhood development.

Conclusion

The adapted milestone guide proved to be user-friendly and suitable for integration into the daily routines of the Early Childhood Development (ECD) centre, with materials readily accessible. The children indicated enjoyment of the activities, supporting continued successful implementation of the milestone guide in other ECD centres.

Keywords

Milestone guide, language development, low-resourced settings, adaptability, resources, usability, Early Childhood Development, Early Childhood Development centres, Practitioners, South African context, age-appropriate, primary caregivers, developmental stimulation

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1. Introduction

Globally, there are 250 million children at risk of not reaching their developmental potential later in life (Olusanya et al., 2018). This applies especially to low- and middle-income countries like South Africa, the most socio-economically unequal country in the world (Sulla, 2022). As a result of inequality, most South African children live in poverty, placing them at a greater risk for developmental delays than children in other countries (Abdoola et al., 2021; du Toit et al., 2021; United Nations Children's Fund [UNICEF], 2020; Wrigglesworth et al., 2021).

Apart from financial constraints, South Africa faces a wide range of other early childhood development (ECD) risk factors, including teenage pregnancies, prematurity, violence, malnourishment, HIV/AIDS and tuberculosis (Karisa et al., 2022). Encouragingly, infant and child mortality rates have decreased to the extent that focus has shifted to ECD and care. Providing adequate early childhood stimulation in South Africa, however, requires support from caregivers and those in direct interaction with the children of the country (Bamford et al., 2018; Department of Basic Education [DBE], n. d).

An important environment in which child development should be nurtured is foremost provided by parents, but high-quality Early Childhood Development (ECD) facilities often share this responsibility. The majority (60%) of children in urban areas and 40% in rural areas are enrolled in ECD centres in South Africa (DBE, Department of Social Development [DSD], 2021). ECD practitioners often play the role of a primary caregiver to many children because they form an integral part of their early language development and micro-environment due to the amount of time children spend in ECD centres (Pillay et al., 2019). As a result, ECD practitioners are ideally positioned to provide developmental stimulation to children. Adequate ECD support can focus on the implementation of targeted daily classroom activities, posing a protective factor and platform in the classroom (Rao et al., 2014; Zubler et al., 2022).

These efforts are particularly significant during the first few years of a child's life, a period marked by rapid developmental changes and high neuroplasticity (Owens, 2016). This critical time of neuroplasticity also makes a child's brain particularly vulnerable for factors that may negatively impact development, typically referred to as risk factors.

In this context, ECD practitioners are ideally positioned to mitigate the risks of developmental delays and help children become school-ready (Venter, 2022). Language development is integral in children being school ready as it enables them to actively participate in classroom activities. Language skills that will benefit a child at school include adequate use of vocabulary receptively and expressively, as well as listening and speaking skills.

However, to maximize the potential of ECD services, it is crucial to address the systemic challenges they face. Policy and guideline documents identify ECD services as a viable means to combat the global burden of developmental delays (Storbeck & Moodley, 2011; Vargas-Barón et al., 2022; World Health Organization [WHO], 2018). Unfortunately, government policies on ECD have not yet been effectively implemented in South Africa (UNICEF, 2021), resulting in significant issues regarding the quality of these services. Thus, prioritizing the improvement of Early Childhood Care and Education (ECCE) in South Africa is essential for ensuring that ECD practitioners can provide the support children need (Fredman et al., 2022).

Addressing these challenges is imperative not only for alleviating the burden of developmental delays on children and families but also for benefiting society as a whole, particularly in countries like South Africa, where ECD is influenced by various risks (Abdoola et al., 2021). Appropriate resources are essential to achieve this, as many ECD practitioners are not qualified (Mere, 2018). These resources are often lacking in low-income settings in South Africa (Smit et al., 2021). Research indicates that language-enriched input from caregivers enhances language outcomes by refining speech processing skills and augmenting the ability to learn from subsequent language stimuli (Weisleder & Fernald, 2013). These long-term benefits underscore the necessity for high-quality ECD services (Zauche et al., 2016; Rao et al., 2017). 2016; Rao et al., 2017).

Considering these needs, simple milestone guides and activities can be invaluable resources within the ECD context. However, many of these resources are not tailored to the South African environment, underscoring the necessity for adaptation. Instead of creating entirely new resources, adapting existing milestone guides can be a more efficient approach (Abdoola et al., 2021). By enhancing ECD practitioners' developmental literacy and providing them with user-friendly, linguistically and contextually relevant milestone guides that include functional activities, we can significantly improve both ECD and language development (Britto et al., 2017). This support is crucial for helping children become school-ready (Venter, 2022; le Roux et al., 2022). Additionally, tailoring learning opportunities to meet the specific needs of children in diverse contexts is essential (Balton et al., 2019). While online resources are available, they are not always suitable for the varied South African context. Thus, adapting a milestone guide to incorporate linguistic and contextual considerations for ECD centres can be particularly beneficial given the existing resource limitations (Fredman et al., 2022; Karisa, 2022; Charge et al., 2023).

Supporting ECD practitioners is further highlighted by a 2017 evaluation of a government-implemented program aimed at enhancing their skills. All participating practitioners reported an increase in their confidence levels—both in teaching and in communication with parents.

However, they still expressed the need for additional support, particularly since some may be underqualified (Mere, 2018).

To effectively enhance ECD practitioner's confidence, competency, professional identities, developmental literacy and self-esteem, they require support from both governmental and professional entities, which can lead to the delivery of high quality ECD services (Zulu et al., 2022). It is essential to test the feasibility and usefulness of provided resources, such as a potentially adapted milestone guide and gather feedback from key stakeholders on their effectiveness (Abboah-Offei et al., 2022). This aspect is frequently overlooked, resulting in a failure to achieve responsiveness to available resources (Abboah-Offei et al., 2022).

Therefore, the following research question is posed:

What are ECD practitioners' perspectives on the language activities included in a recently contextually and linguistically adapted milestone guide for preschool children (3y0m - 5y11m) from low-resourced settings?

2. Methodology

2.1 Aim

The aim of the study was to describe ECD practitioners' perspectives on the language activities included in a recently contextually and linguistically adapted milestone guide for children aged 3y0m - 5y11m in classrooms in a low-resourced setting. The study evaluated the perceived usability including the ease of implementation, application time, adaptability to varying schedules and environments, and the use of available resources.

2.2 Research Design

The research design was a short-longitudinal design consisting of a pre-survey (Appendix A) and post-implementation interview (Appendix B), both with quantitative and qualitative questions. Qualitative research is valuable if little is known about the topic that is subject to research as it offers insight into the real-life successes or challenges experienced first-hand by the participants (Khankeh et al., 2015; Brink et al., 2018).

Data was collected using paper-based surveys before the implementation of the language activities from the recently adapted milestone guide. After the implementation, individual semi-structured interviews with the ECD practitioners were conducted. These entailed a set of rating scale questions and open-ended questions formulated with the necessary rigour to yield honest and relevant answers (Appendix B). Probe follow-ups were at hand if needed during

the interview, for example when more specific or in-depth responses needed to be gained for better insight (Brink et al., 2018).

2.3 Ethical Principles

All ethical principles for research in the medical sciences from the Declaration of Helsinki were adhered to (World Medical Association [WMA], 2013). Ethical clearance has been obtained from the Research Ethics Committee of the Department of Speech-Language Pathology and Audiology, University of Pretoria (Appendix C).

2.3.1 Permission and Informed Consent

Prior to conducting our research study at the school, we obtained the necessary permission to implement the adapted milestone guide. A comprehensive consent form was established to ensure adherence to ethical principles. Informed consent is a fundamental requirement for any study involving human subjects, allowing participants to make independent choices based on their understanding of the research and its implications. The consent form (see Appendix D) explicitly stated that participants could withdraw from the study at any time without any negative consequences, emphasizing the voluntary nature of participation (Nijhawan et al., 2013). The form provided detailed information about the research objectives, the roles of the subjects, and was crafted in clear, accessible English. Written informed consent was obtained from the ECD practitioners who implemented the adapted milestone guide. Since this was classroom-based research with no direct interaction between researchers and the children, and the children acted as passive participants, we did not require consent from the children's caregivers (Bredin, 2023). We adhered to the ethical principles outlined in the Declaration of Helsinki for research in medical sciences (World Medical Association [MCA], 2013), ensuring that our study met the highest ethical standards.

2.3.2 Respect for confidentiality and privacy

To ensure that confidentiality and privacy were maintained, no personal and identifying information (such as names of ECD practitioners) was recorded. Anonymised data were utilised to maintain confidentiality throughout the process (Brink et al., 2018).

2.3.3 Data storage

The anonymised data will be stored for 10 years in the Figshare of the University of Pretoria in electronic format (Appendix E), and hardcopy data is kept in a locked facility (Department of Speech-Language Pathology and Audiology at the University of Pretoria) with limited accessibility.

2.3.4 Plagiarism

All experimental research was preceded by a thorough review of existing data and previous studies, which were referenced according to the American Psychological Association 7th edition (APA 7th edition) guidelines, commonly used in the social sciences. Data sources were clearly acknowledged in the list of references. To maintain ethical standards and avoid plagiarism, efforts were made to ensure the responsible use of information and to identify the most relevant sources (Brink et al., 2018).

2.3.5 Beneficence and Non-maleficence

The principle of beneficence was upheld to ensure the physical and psychological well-being of the participants (Brink et al., 2018). The principles of doing no harm to participants, beneficence and non-maleficence, form a whole. Throughout the research process, constant communication was maintained with the participants to conduct community-based and person-centred research with the possibility for subjects to raise concerns or suggestions towards a more relevant and realistic implementation of the adapted milestone guide, being immersed in the context of the implementation. Furthermore, research participants may decide not to take part in the study at any point in time without any negative consequences.

2.4 Setting and Participants

2.4.1 Setting

The ECD centre Wize Kids Day Care and Pre-School in Mamelodi was approached to participate in the research study Mamelodi is a high-population township forming part of the City of Tshwane Metropolitan Municipality, northeast of Tshwane, with most of its citizens living in informal settlements. Many languages are spoken in Mamelodi including isiZulu, Sepedi, Sesotho and English, a widespread spectrum of exposure for children learning languages (Khanyile & Ballard, 2022).

The ECD centre is situated in Mamelodi East, close to the Stanza Bopape Community Library and Mamelodi East Police Station. It currently has eight classes, with one ECD practitioner per class and four assistants rotating every week between the classes. There are 160 children in total, ranging from the ages of 6 months to 6 years. The age groups of 3y0m-3y11m have three practitioners, 4y0m-4y11m have two practitioners, and 5y0m-5y11m have one practitioner, presenting a total of six classes to work with for this research study.

2.4.2 Sampling Method

Non-probability purposive sampling was employed to ensure that the population represented comes from the specific setting for which the adapted milestone guide is designed, namely ECD practitioners from low- and middle-income countries (LMICs). ECD centres were included in the study.

Participants were identified by contacting an ECD centre with which the Speech-language Pathology Department of the University of Pretoria has had past relations and experiences through research. Contact details were acquired through the research supervisors. Initial contact with the ECD centre was made via phone call, and communication was conducted throughout the research period via WhatsApp calls and text messages. Then, with verbal permission to visit the ECD centre already obtained, an in-person visit was conducted to inform the relevant parties of the details of the research, with a letter of permission signed voluntarily (Appendix F).

2.4.3 Inclusion Criteria

Data was collected from ECD practitioners older than 18 years of age at Wize Kids Day Care and Pre-School teaching between 3y0m and 5y11m for at least one year (Table 1).

Table 1
Inclusion criteria

Criterion	Inclusion	Justification
Age of practitioner	ECD practitioners must be 18 years or older.	The study is aimed at adult ECD practitioners.
Teaching duration of the specific age	The ECD practitioner must be working with the current age for at least one year.	The ECD practitioner must be familiar with the age group and the day-to-day programme.
Age of children in the classroom	The ECD practitioner must teach the ages 3y0m to 5y11m.	The adapted milestone guide is for the ages 3y0m to 5y11m, and therefore, the aim is to get the perspectives of the ECD practitioners teaching these ages.

2.4.4 Description of the Participants

There was a total of six participants, all of whom were ECD practitioners. The Practitioners who taught children of 2-3 years old, 3-4 years old, 4-5 years old and 5-6 years old were included to cover the entire age range, even though some of the children were, therefore,

below the age of 3y0m. Only two out of the six ECD practitioners had a formal qualification in ECD-related fields (Table 2).

Table 2
Participant demographics (n= 6)

Demographics	n
Gender	
Female	6
Male	0
Age (years)	
30-35	1
36-40	2
41-45	2
46-50	1
Qualification	
None	1
NQF level 4 (equivalent to Grade 12)	3
NQF level 5 (Diploma in ECD related fields)	2
Age group taught (years)	
2-3	1
3-4	2
4-5	2
5-6	1
Duration of employment at ECD centre (years)	
1-5	3
6-10	3

2.5 Material & Apparatus

2.5.1 Pre-survey

A pre-survey was conducted, which included questions on the ECD practitioners' demographic information, such as date of birth, the age of the children they were currently teaching, ECD experience, and qualifications. The ECD practitioners' perspectives on the children's language skills in their classes were also gathered. This included, for example, the number of children who struggled to use words, sentences, or language and the possible reasons for these

difficulties. Information about the type of activities they currently do to target language and the resources they currently have, and use was obtained, along with the support they received (Appendix A).

2.5.2 Interview

After the three-week trial of the language and communication domains of the adapted milestone guide in the classroom, the researchers conducted individual paper-based semi-structured interviews in English with the ECD practitioners (Appendix B). The variables measured to analyse the useability of the milestone guide in the ECD practitioners' context were as follows: the understandability of the activity instructions as well as of the purpose of each activity for language promotion, the ease of integrability of the activities into the daily schedule, the amount of effort needed to perform the activities, the amount of time needed to implement the activities, the level of adaptability of the resources, as well as the level of enjoyability for the children.

Sound recordings were taken by the interviewers with permission from the subjects, together with written field notes.

2.5.3 Adapted Milestone Guide

The adapted milestone guide, as developed by Charge et al. (2023), was the provided and evaluated intervention tool. This resource is based on the milestone guide by the Centres for Disease Control and Prevention (CDC), a resource developed in the United States that presents an outline of the developmental milestones' children should reach and is easily accessible to caregivers or ECD practitioners online. The language and communication section of the adapted milestone guide was implemented since this is part of the focus area of the speech-language pathology profession (see Table 3 and Appendix G). Once the trial period ended, the adapted version of the milestone guide based on the recommendations from the ECD practitioners was handed to the ECD practitioners to be used for the children in ECD centres located in low-resourced settings, as this is what the adapted milestone guide was developed for (Table 5).

Table 3
Adapted milestone guide milestones per age group

Age	Language and Communication Milestones
3 years 0 months – 3 years 11 months	Children's abilities to understand and follow two-to-three step instructions. Help children to understand prepositions such as 'in', 'under' and 'on'.

	Children's ability to maintain a conversation using two-to-three sentences, whilst using plurals and pronouns.
4 years 0 months – 4 years 11 months	Children's ability to correctly use 'he' and 'she' in a sentence. Children's memory of a nursery rhyme. Children's ability to understand the concept of his/her first and last name.
5 years 0 months – 5 years 11 months	Children's ability to tell someone their name and their address. Children's ability to make use of the past tense when speaking. Children's ability to speak clearly and be understood by all communication partners.

2.6 Procedures

The initial contact with the principal of Wize Kids Day Care and Pre-School was made via phone call to establish a relationship and obtain permission (Appendix F). The researchers visited the ECD centre and explained the aim of the study, after which written permission was obtained from the principal. The aim of the study was explained to the ECD practitioners at the centre who expressed interest in participating and met the inclusion criteria. This occurred after ethical clearance was granted by the Research Committee of the Department of Speech-Language Pathology and Audiology at the University of Pretoria. The practitioners then had the option to provide informed written consent to the researchers for their participation in the study.

The pre-survey was then conducted to obtain demographic information and ECDPs' perspectives on the children's language skills and the support they received, taking about 25 minutes to complete (Appendix A). After the pre-survey, ECD practitioners received the adapted milestone guide. They were informed about its use and shown how to implement it in their classrooms over three weeks. They then had the opportunity to read through the adapted milestone guide, ask questions and raise any concerns (Appendix G).

After the first and second weeks of the application, the researchers contacted the ECD practitioners telephonically to inquire about the progress of the application and to address any questions or concerns (Appendix H). The phone calls were scheduled to last 5 to 8 minutes. During the three weeks of application, the ECD practitioners had the opportunity to write their opinions about the activities in the provided section on the milestone guide (Appendix G).

Individual interviews were conducted after the third week at the ECD centre, during which the ECD practitioners provided feedback on the adapted milestone guide (Appendix B). Each interview took about 30-40 minutes.

2.6.1 Data Extraction Method

Data was collected from a paper-based survey (Appendix A), a semi-structured interview schedule (Appendix B), and field notes taken by the ECD practitioners (Appendix G). The survey data, as well as the data on the completed milestone guide, was extracted by individually coding the quantitative data for every question, whilst qualitative data was copied word for word and checked by the researchers. The data collected in the field notes and interviews was transcribed using Turboscribe artificial intelligence and individually checked by the research team.

2.6.2 Data Analysis

The quantitative aspects of the pre-survey were analysed using descriptive statistics.

The qualitative aspects of the pre-survey as well as from the individual interviews were analysed using the thematic analysis approach according to Clarke and Braun (2017). The following six phases of thematic analysis were followed: 1) familiarisation with the data, 2) generation of initial codes, 3) theme identification, 4) theme reviewing, 5) definition of themes and 6) reporting (Braun & Clarke, 2006). To identify recurring themes in the participants' answers, codes were given to the responses according to topics, to break the data into smaller units, and later draw these units together into overarching themes to allow for comparison between similar and differing answers (Clarke & Braun, 2017). The codes and themes were identified to answer the research question of how the ECD practitioners judge the usability of the newly adapted milestone guide in their context.

2.6.2 Validity and Reliability

To ensure content validity—the extent to which the findings accurately reflect the construct being measured—survey and interview questions were carefully crafted to specifically address the usability of the adapted milestone guide (Polit & Beck, 2017). These questions included both closed and open-ended formats, allowing ECD practitioners to share their perspectives and suggestions. The analysis of usability focused on several key variables: the clarity of the activity instructions and the purpose of each activity in promoting language development, the ease of integrating the activities into daily schedules, the effort required to perform the activities, the time needed for implementation, the adaptability of the resources, and the level of enjoyment for the children.

Face validity was used to ensure that each interview question had a logical link with the study's objective. Content validity guaranteed that the questions in the survey and interview covered the full range of variables measured. To adhere to qualitative reliability, the interview results were recorded accurately and in a detailed manner for future reference and comparison purposes (Brink et al., 2018).

Detailed and carefully worded survey and interview questions, as well as records of the research population and the used adapted milestone guide ensured the reliability and reproducibility of the study. Taking both field notes during the interviews and phone calls and sound recording the interviews ensured good documentation of results for later use to ensure data was not skewed due to subjectivity and memory. Rich verbatim was recorded so as not to limit the ECD Practitioners' opinions. The coding and sorting of information during data analysis were kept consistent (Noble & Smith, 2015).

3. Results

Six participants implemented the adapted milestone guide for three weeks. The individual feedback reflected an overall positive experience implementing the guide. Participants reported that they were able to implement all the required activities and felt the activities benefited the children's development, as reflected in the feedback.

"I am not at all disappointed. I was happy with it because everything that is written there is clear, straightforward and understandable. It was fun." (Participant 4)

There was, however, variability noted in the consistency of the use of the milestone guide. Every participant used all activities under the relevant age ranges at least once during the three-week implementation period. Some participants (n=4) used all activities in the age range daily, while others (n=2) rotated the activities by week. Only one participant (Participant 3) was able to do a few activities only once a week, whereas three participants (Participants 1, 5 and 6) did the activities every second day, with two participants who implemented all the activities in the guide (Participants 2 and 4) every day of the week.

From the interviews that explored the participants' perspectives on the usability of the newly adapted milestone guide for low-resourced settings in South Africa, four main themes were identified: Resources and activities, the applicability of the adapted milestone guide, children's experience of the activities and recommendations for implementation in various settings, each with subthemes (Table 4). Feedback from the participants were utilised to refine the milestone guide for future use (Table 5), for example reviewing written instructions to users and adding additional suggested resources.

In conjunction with the positive responses, the usability of the milestone guide was generally supported (n=6), although some changes were recommended to ensure a better understanding of the activities. Activities were easily slotted into the daily routine or were part of the daily tasks already, although it took the children some time to get used to the change in routine. Even with the change, the children indicated enjoyment.

The resources recommended by the milestone guide were generally accessible or adaptable, according to most participants (n=5). One concern was however raised by the participants (n=2) regarding the use of a telephone to elicit dialogue. Participant 1 had an “old” telephone to use, while the others used their cell phones or Lego blocks, by which the children were reportedly too easily distracted to follow through with the activity, taking apart the Lego blocks or trying to swipe on the cell phone.

In response to whom participants would recommend the milestone guide to, they suggested other ECD centres (n=3) as well as the home environment (n=4) where parents can also implement it.

Table 4
Themes and subthemes

Theme	Subthemes	Verbatim response
Resources and activities	Understandability of activities	“For me to apply to them it was easy...” (Participant 5) “Oh yeah, some of the questions I didn't understand so I did ask my colleagues.” (Participant 6)
	Implementation into daily routine	Every time when we wake up, it's normally a play, it's a free play. That's when we made that activity (<i>the milestone guide</i>). It was our free play.” (Participant 3) “They're used to our routine that we do every day. So, when I slot this one in, yeah, they were a bit surprised first time around. But the second time around, and the third and the fourth, and you name it until, until they get used to.” (Participant 4) “I did have to make time to do it.” (Participant 5)
	Feedback on recommended resources	“(An old telephone) Maybe it would have helped more than the cell phone. Because cell phone, they just want to touch and slide and go to the pictures. [...] Maybe we are sliding a lot also.” (Participant 2) “We had everything (resources).” (Participant 3)

The applicability of the adapted milestone guide

Age appropriateness of activities

“These activities they've been divided according to the age of the children.” (Participant 4)

Applicability of skills learned through milestone guide for everyday life

“Yes. It helped with their communication.” (Participant 1)

“I think it also helps with the address, knowing that when maybe you are lost in the mall, then you can know the address and the telephone number.” (Participant 2)

Language barriers

“We teach them English, so now that is why [...] when we try speak with them Sotho, they just say: no teacher, speak English.” (Participant 1)

“Others, they speak English even at home. And then others speak Sotho. So, we have to use two languages.” (Participant 3)

“It also helped with the English because some of them you can see they're trying even though they did mix up the words or they're mixing the languages.” (Participant 6)

The children's experience of the activities

“It was interesting for them, and I saw it. Yeah, they liked it. And I'm going to continue doing this more often.” (Participant 4)

“New things, they like to explore new things. They want to do it more, like they were so happy, like can we do it again?” (Participant 5)

Recommendations for the milestone guide implementation in various settings

The participants suggested to provide the guide to:

“Other preschool. Maybe one that works with the kids like that at home, preschool, daycare.” (Participant 1)

“The parents. To teach them and do the parental support.” (Participant 3)

There were comments regarding language barriers experienced due to the activities not being available in children's home languages. In the pre-survey, four out of six participants believed that almost 25% of children struggle because they speak a different language at home than English, which is the language of learning and teaching at the ECD centre. The participants emphasised a major challenge: Some children have no understanding of English, leading to disengagement and silence, even when attempts are made to communicate with them in their home languages. Yet, the interview results reflected that most children were able to follow the activities, sometimes with the help of translation from the participants.

Table 5 summarises recommendations and suggestions made by the participants for further adaptation to the individual activities to improve their usability. The final milestone guide with the below adaptations integrated is found in Appendix J.

Table 5

Suggestions for adaptations to the activities of the milestone guide

Adding instructions:

Implement for 30 minutes every day of the week.

What is expressive language? *The ability to produce language that is understood by others.*

What is receptive language? *The ability to understand and interpret the message that you hear.*

Age-group	CDC Language and Communication milestone	Charge's adapted milestone guide activity	New adapted activity
3 years 0 months – 3 years 11 months	Children's abilities to understand and follow two-to-three step instructions.	Children's cups are placed with the opening face down on the table. Tell the children to pick up their cups and hold them out for you to fill with fruit juice. Pick up/ Turn around/ Hold out.	To add more suggested instructions for daily routines, e.g. "Put your pens down and stand in the queue."
	Help children to understand prepositions such as 'in', 'under' and 'on'.	Gross motor obstacle course activities - Place various obstacle course items out which require the children to climb over, on top of or walk behind an item or crawl under an item.	Gross motor obstacle course activities - Place various obstacle course items such as tyres, rocks, boxes, string, rope, newspaper pieces, and chairs out which require the children to climb over, on top of or walk behind an item or crawl under an item.
	Children's ability to maintain a conversation using two-to-three sentences, whilst using plurals and pronouns.	Playing telephone where the children tell their parents about their day so far at the ECD centre.	Go out and let each child pick up something outside (stone, stick, leaf, flower), make a show-and-tell circle for them to explain what they found, where and how they found it and what they can do/ build with it.
4 years 0 months – 4 years 11 months	Children's ability to correctly use 'he' and 'she' in a sentence.	Give examples. When we talk about Given, we say he is a boy. When we talk about Precious, we say she is a girl. Now what will we say about John? He is a boy, or she is a boy? Keep using examples until the children can use it correctly.	No suggestions made

	Children's memory to remember a nursery rhyme.	Use facial expressions and activities. The spider (fingers in a spider form) hops (hop) and scares (big eyes) the people (gesture to others).	No suggestions made
	Children's ability to understand the concept of his/her first and last name.	Taking register, playing a game in which they need to say their name and surname when the early childhood educator points to them.	Taking register, playing a game in which they need to say their name and surname when the early childhood educator points to them and let them say with what letter their name starts with.
5 years 0 months – 5 years 11 months	Children's ability to tell someone their name and their address.	Explanation of an address, for example: participating in pretend play. "I don't know you. What is your name and where do you live?" Then each child can say "I am NAME, SURNAME, living at ADDRESS".	Explanation of an address, for example: participating in pretend play. "I don't know you. What is your name and where do you live?" Then each child can say "I am NAME, SURNAME, living at ADDRESS". First write down the address for each child to learn and then ask them.
	Children's ability to make use of the past tense when speaking.	Throughout the day make the children aware that something is happening now and that something has happened already. We were playing outside but now we are working. Yesterday it rained, but now the sun is shining.	No suggestions made
	Children's ability to speak clearly and be understood by all communication partners.	If it is a matter of a lazy talker, a game using syllables of words can be used. I am STAN-DING. This can be done by clapping out the words and saying them slowly, and then starting to say them normally and at a normal rate.	No suggestions made

*Adapted version with integrated recommendations: see Appendix J

4. Discussion

While all participants were able to implement the required activities, their consistency and frequency of use of the resources varied widely. This suggests that, while the activities are feasible, factors such as time demands, high workload and other external events may impact the consistent implementation of the milestone guide. Within South Africa, ECD practitioners are expected to teach a wider scope to an ever-increasing number of children (Bernstein &

Batchelor, 2022). Therefore, specific guidelines such as implementation for 30 minutes every day of the week can ensure effective implementation.

The participants had some concerns about the understandability of the activities and reported occasions where they needed to consult with one another. Collaboration among people of the same profession has been shown to increase knowledge related to a specific field by learning from one another and increase confidence as well as intra-professional relationships (Eadie et al., 2017). Participants reported that the activities were easily implemented into their daily routines. These above-mentioned factors are important to note, as tools like the milestone guide need to be supportive instead of intrusive when implemented in the real world (Farmer et al., 2022).

Participant feedback was based more on the children's abilities to do the activities and the amount of enjoyment they produced rather than the actual language improvement. Although one participant identified the activity of naming one's address as practical for everyday life situations, using the example of a child getting lost in the mall and being able to say their name and address, other participants showed a superficial understanding of the applicability of the activities for language development, making general comments like, "It helped with their communication" (Participant 1). Overall, these results suggest an awareness of language development but limited insight into the various areas of language, even after using the milestone guide. This suggests that additional guidelines to explain receptive and expressive language may be beneficial in the milestone guide, as added to the suggestions for a new milestone guide (Table 5).

Overall, the participants had minimal concerns about the resources, the available materials in their classroom and how they used them for the activities in the milestone guide. This makes resources applicable for use by practitioners in various settings, including ECD centres and home environments, regardless of the resources available to them. One participant's experience of successfully sharing the activities further with other ECD centres supports this notion and emphasises the potential benefits for all practitioners. .

Suggestions were made by the participants regarding changes to be made to the milestone guide for future use. For instance, more guidance is needed for the obstacle course, as well as safer, readily available resources to use in it. The problems that were encountered regarding the use of a telephone as a resource are evident in the changing times. The value of telephone play has been highly regarded for the past decades (Spero, 1980). With the changing times, however, children are exposed to modern technology and with that, different uses of that technology. This is a crucial aspect to consider when trying to elicit turn-taking

and dialogue in an activity. Furthermore, in this context, the use of an old-fashioned telephone is both impossible due to a lack of resources and inappropriate for the children's understanding and carry-over to everyday skills. The use of modern cell phones or smartphones in one activity seems to distract the children as they want to, for instance, swipe through photos rather than automatically use them for contact purposes (Slutsky & DeShetler, 2016). It was therefore suggested to rather do an activity where each child goes outside and picks up something like a stone, stick, leaf, or flower and makes a show-and-tell circle for them to explain what they found, where and how they found it and what they can do or build with it (Table 5).

The ECD practitioners reported that the children had a desire for repetition and exploration of activities. It can reflect their enthusiasm and curiosity and speak towards successful learning experiences. This behaviour is driven by curiosity which links to internal motivation and knowledge acquisition (Spielberger & Starr, 2012). Engagement, as demonstrated by the children during the facilitation of the activities in the adapted milestone guide, refers to the level of active involvement in the learning task and is crucial for learning (Hiver et al., 2024; Mercer, 2019). Language use and interaction are critical for language development (Owens, 2016). Both language use and interaction are factors facilitated by the activities in the milestone guide improving its relevance to implementation in these settings.

The results revealed a challenge related to language barriers in ECD centres. According to the participants the ECD centre's language of learning and teaching is English. Some children faced difficulties with exclusive English for the activities, leading to isolation and reduced participation. This, in turn, can result in unequal learning progress, especially when there is insufficient support for both primary languages and languages of instruction (García & Kleifgen, 2018). This underscores the significant impact of language differences on children's difficulties with language and highlights the importance of providing guidelines on how to implement the activities in various languages, especially in a multilingual country like South Africa, as well as the value of language stimulating activities in the classroom as provided by this adapted milestone guide.

The participants emphasised the value of parental involvement, suggesting that parents are key in supporting and reinforcing the activities from the milestone guide at home. This highlights the need for parents to actively engage in their child's learning process by implementing the resource guide activities at home as well or building on what is done at the ECD centre. Parental involvement in learning activities with children from a young age has been shown to be linked with positive academic achievements (Boonk et al., 2018).

Limitations and strengths

The small sample size can be seen as a limitation in the current study. The sample population was restricted further by the fact that the assistant ECD practitioners frequently rotated between classes and age groups, and therefore could not all be interviewed for consistent results. The ECD centre had an uneven number of classes per age group; only one participant had the age range of 4y0m-4y11m. This meant that the opinions were limited to one participant, with no range of different views, as well as the distribution of ECD practitioners among the different age groups was uneven. Although small sample sizes are favourable for qualitative research to be able to go in-depth with data collection, a sample size of 20-30 is recommended, especially if the rest of the milestone guide is implemented, for an adequate range of opinions, and to avoid idiosyncratic data (Brink et al., 2018). Data was therefore not sufficiently saturated for this study. This was, however, only a pilot study, which is why the small sample size is not detrimental and can be increased for future implementation studies.

Redundancy in answers, by which saturation of data is measured, was limited. This can be due to the homogeneity of the sample, where the participants shared similar experiences, or contexts, leading to repetitive responses. Larger, more varied sample sizes are therefore recommended for future studies. This can be done by involving ECD practitioners from various ECD centres. Although the study aimed to assess the usability of the milestone guide in low-resource settings by gathering participants' perspectives and opinions, the guide should have been communicated and explained more clearly pre-implementation. Many of them might have seen it as a task they had to complete and had limited understanding of the fact that the milestone guide was a tool given to them for easier support of early childhood education. This can be addressed in future implementations, to help ECD practitioners see the milestone guide's value instead of its burden. They did, however, show enjoyment in working with the guide as well; they were able to help each other understand the activities and the restriction to only the language domains ensured that the participants were not overwhelmed and were able to implement the activities fairly easily. The individual interviews allowed for comfortable conversation between the participants and researchers and helped to establish rapport and gather honest insight from the participants.

Recommendations for future research

In the South African context, special consideration must be given to the country's multilingual population, particularly children in early childhood development (ECD) centres who speak different languages. Therefore, the adapted milestone guide should emphasise the implementation process in different languages and include clear guidelines on how to do so.

Increasing the sample size in future studies would provide a deeper understanding of the guide's applicability across different linguistic and cultural settings, whilst ensuring improved saturation of data. Moreover, future research should include all the developmental domains, for ECD practitioners to use for a more holistic measure of applicability of the adapted milestone guide.

5. Conclusion

In conclusion, the findings of this study highlight the effective integration of the adapted milestone guide into early learning programs, as reported by Early Childhood Development Practitioners (ECDPs). Participants found the guide easily implementable within their daily schedules. The accessibility of the recommended materials further supported this initiative, ensuring that all practitioners could utilise them without additional modifications.

Most encouragingly, the feedback from ECDPs indicated that children found joy in the activities, reinforcing the guide's efficacy. Changes were made to the adapted milestone guide based on the ECDPs' feedback and a more contextually appropriate guide has been developed.

By prioritizing accessible resources and fostering deeper understanding among ECD practitioners, enriching learning environments can be created that not only support children's language development but also enhance their overall engagement and enjoyment in the learning process. Investing in these practices is crucial for fostering a generation of confident communicators.

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7. Appendices

7.1 Appendix A: Survey

Survey

Section 1: Biographical Information

Please answer the questions below by writing your answer in the space provided or tick the relevant option(s) where appropriate. Thank you!

Participant number:
1. What is your date of birth? (dd/mm/yyyy)
2. What is your class name?
3. Age of children in your class:
<input type="checkbox"/> 3-4 years old
<input type="checkbox"/> 4-5 years old
<input type="checkbox"/> 5-6 years old
4. How long have you been working with this age group?
<input type="checkbox"/> 2-5 years
<input type="checkbox"/> 6-10 years
<input type="checkbox"/> 10-15 years
<input type="checkbox"/> More than 15 years
5. Do you have a formal qualification as an Early Childhood Development Practitioner?
<input type="checkbox"/> Yes
<input type="checkbox"/> No
<input type="checkbox"/> Informal – from experience
6. Please list your qualifications.

7. Where did you receive your qualifications? Please list all.
8. How long have you been working at Wize Kids?
<input type="checkbox"/> 1-5 years
<input type="checkbox"/> 6-10 years
<input type="checkbox"/> More than 10 years
9. Which age groups have you worked with in the past?
<input type="checkbox"/> 0-1 years
<input type="checkbox"/> 1-2 years
<input type="checkbox"/> 2-3 years
<input type="checkbox"/> 3-4 years
<input type="checkbox"/> 4-5 years
<input type="checkbox"/> 5-6 years

Section 2: Language skills

Please answer the questions below by writing your answer in the space provided or tick the relevant option where appropriate.

10. How do you believe you can determine if a child is effectively learning and using receptive (understanding) language?
What is receptive language? The ability to understand and interpret the message that you hear.
11. How do you believe you can determine if a child is effectively learning and using expressive (producing) language?
What is expressive language? The ability to produce language that is understood by others.

12. How many children in your class struggle to use words / sentences / language?				
<input type="checkbox"/> very few to none	<input type="checkbox"/> less than half	<input type="checkbox"/> about half	<input type="checkbox"/> more than half	<input type="checkbox"/> all of them
13. Please indicate the percentage of children that you think are struggling to use words / sentences / language due to each of the reasons below.				
I think of children in my class struggle because of a language development delay .				
<input type="checkbox"/> 0%	<input type="checkbox"/> 25%	<input type="checkbox"/> 50%	<input type="checkbox"/> 75%	<input type="checkbox"/> 100%
I think of children in my class struggle because of a language difference (the children speak a different language at home than at the ECD centre).				
<input type="checkbox"/> 0%	<input type="checkbox"/> 25%	<input type="checkbox"/> 50%	<input type="checkbox"/> 75%	<input type="checkbox"/> 100%
I think of children in my class struggle because of a lack of enough language stimulation (toys, books, songs, conversational partners at home).				
<input type="checkbox"/> 0%	<input type="checkbox"/> 25%	<input type="checkbox"/> 50%	<input type="checkbox"/> 75%	<input type="checkbox"/> 100%
Do you have a different idea why some children in your class struggle with language? If yes, please specify.				
14. In general, what do you think children in your class struggle with the most in language learning and using? Please select all relevant options and give an example for each if possible.				
<input type="checkbox"/> Understanding what the teacher says				
<i>For example:</i>				
<input type="checkbox"/> Understanding what other children say				
<i>For example:</i>				
<input type="checkbox"/> Following instructions				

<i>For example:</i>
<input type="checkbox"/> Using the correct words
<i>For example:</i>
<input type="checkbox"/> Using full sentences
<i>For example:</i>
<input type="checkbox"/> Asking for something with words (asking for food, water, to go to the bathroom)
<i>For example:</i>
<input type="checkbox"/> Concentration
<i>For example:</i>
<input type="checkbox"/> Other: _____
<i>For example:</i>
15. What activities do you do to help the children learn language?
16. What resources do you find to help with language learning in your classroom?
17. What resources do you wish you had for your classroom that could make it easier for the children to learn language?

18. Do you agree with this statement: "I feel that my learners can adequately complete language tasks in my classroom."				
<input type="checkbox"/> 1 Strongly disagree	<input type="checkbox"/> 2 disagree	<input type="checkbox"/> 3 Neither agree nor disagree	<input type="checkbox"/> 4 agree	<input type="checkbox"/> 5 Strongly agree
19. Do you agree with this statement: "I feel confident in targeting language skills in my classroom."				
<input type="checkbox"/> 1 Not at all confident	<input type="checkbox"/> 2 Slightly confident	<input type="checkbox"/> 3 Somewhat confident	<input type="checkbox"/> 4 Moderately confident	<input type="checkbox"/> 5 Extremely confident
20. My colleagues support me to target language skills in my classroom.				
<input type="checkbox"/> 1 Strongly disagree	<input type="checkbox"/> 2 disagree	<input type="checkbox"/> 3 Neither agree nor disagree	<input type="checkbox"/> 4 agree	<input type="checkbox"/> 5 Strongly agree
21. My school supports me to target language skills in my classroom.				
<input type="checkbox"/> 1 Strongly disagree	<input type="checkbox"/> 2 disagree	<input type="checkbox"/> 3 Neither agree nor disagree	<input type="checkbox"/> 4 agree	<input type="checkbox"/> 5 Strongly agree
22. What do you expect from the adapted milestone guide that we are giving you?				
23. In what way do you hope the milestone guide can help you and your children?				

Thank you for your time and effort!

7.2 Appendix B: Interview Schedule

Interview Schedule

Participant number:
Date of birth (dd/mm/yyyy):
Class name:
1. Were you able to do all the activities from the milestone guide we gave you or only some?
<input type="checkbox"/> I was able to do all the activities.
<input type="checkbox"/> I was only able to do some of the activities.
<i>Why were you only able to do a few?</i>
<input type="checkbox"/> I was not able to do any of the activities
<i>Why were you not able to do the activities?</i>
2. Which activities did you do? (Read the activities from the appropriate age group to the participant and tick them).
- Age group 3-4:
<input type="checkbox"/> Cups: giving three-step instructions with the cups.
<input type="checkbox"/> Obstacle course: helping the children understand 'in', 'under' and 'on'.
<input type="checkbox"/> Playing telephone: helping the children use two-to-three sentences in conversations.
- Age group 4-5:
<input type="checkbox"/> Giving examples for the children to learn to use 'he' and 'she' correctly.
<input type="checkbox"/> Nursery rhymes: using facial expressions & movements to help the children's memory.

<input type="checkbox"/> Taking register: having the children say their names and surnames.				
- Age group 5-6:				
<input type="checkbox"/> Explaining an address, practicing the children's addresses.				
<input type="checkbox"/> Practicing past tense: "We were playing outside, now we are..."				
<input type="checkbox"/> Speaking clearly: clapping out syllables.				
3. How often were you able to do the activities (only if they were able in previous question)?				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I rarely got to the activities	Once a week	Every second or third day	Once every day	Multiple times a day
If there were activities that you did more often than others, which ones were those?				
4. On a scale of 1-5, how understandable did you find the activities?				
<i>Probe: Did you understand exactly what the guide was asking of you or were you confused about what you had to do?</i>				
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Not understandable	Difficult to understand	Slightly understandable	Quite understandable	Easy to understand
<i>(If not understandable/ Difficult to understand/ Slightly understandable)</i>				
Why/what was not understandable?				
5. How did the activities fit into your daily programme?				
<i>Probe: Did the activities take a lot of time out of your daily routine, or did they fit in well with your schedule?</i>				

6. Which of the activities in the adapted guide have you done before you received the adapted guide and implemented it?

Probe: Was there an activity you have done with your children before? Which one(s)?

7. On a scale from 1-5, how would you rate the suggested resources?

Probe: Did you like the selection of resources suggested (e.g. cup, chairs etc.)?

<input type="checkbox"/> 1 Not appropriate	<input type="checkbox"/> 2 Difficult to use	<input type="checkbox"/> 3 Good but difficult to use	<input type="checkbox"/> 4 Good to use	<input type="checkbox"/> 5 Excellent
--	--	---	---	---

Please explain your rating.

Probe: Which of the suggested resources did you not like and why?

8. How easy or difficult was it for you to understand and apply the activities?

Probe: For example:

3-4 years: How was it for you to ask the children the three-step instructions with the cup?

How was it for you to set up the obstacle course?

4-5 years: How was it for you to make movements with the nursery rhymes?

5-6 years: How was it for you to practice saying their address?

More specific:

Probe: if necessary, put a tick for 'easy' or a cross for 'difficult' next to the appropriate activities.

- Age group 3-4:

Cups: Giving three-step instructions with the cups

<input type="checkbox"/> Obstacle course: Helping the children understand 'in', 'under' and 'on'
<input type="checkbox"/> Playing telephone: Helping the children use two-to-three sentences in conversations
- <i>Age group 4-5:</i>
<input type="checkbox"/> Giving examples for the children to learn to use 'he' and 'she' correctly
<input type="checkbox"/> Nursery rhymes: using facial expressions & movements to help the children's memory
<input type="checkbox"/> Taking register: having the children say their names and surnames
- <i>Age group 5-6:</i>
<input type="checkbox"/> Explaining an address, practicing the children's addresses
<input type="checkbox"/> Practicing past tense: "We were playing outside, now we are..."
<input type="checkbox"/> Speaking clearly: clapping out syllables
9. Which language activity was the easiest to target?
- <i>Age group 3-4:</i>
<input type="checkbox"/> Cups: Giving three-step instructions with the cups
<input type="checkbox"/> Obstacle course: Helping the children understand 'in', 'under' and 'on'
<input type="checkbox"/> Playing telephone: Helping the children use two-to-three sentences in conversations
- <i>Age group 4-5:</i>
<input type="checkbox"/> Giving examples for the children to learn to use 'he' and 'she' correctly
<input type="checkbox"/> Nursery rhymes: using facial expressions & movements to help the children's memory
<input type="checkbox"/> Taking register: having the children say their names and surnames
- <i>Age group 5-6:</i>
<input type="checkbox"/> Explaining an address, practicing the children's addresses
<input type="checkbox"/> Practicing past tense: "We were playing outside, now we are..."
<input type="checkbox"/> Speaking clearly: clapping out syllables
10. Why was that activity the easiest?

11. Which language activity was the most difficult to target?
- Age group 3-4:
<input type="checkbox"/> Cups: Giving three-step instructions with the cups
<input type="checkbox"/> Obstacle course: Helping the children understand 'in', 'under' and 'on'
<input type="checkbox"/> Playing telephone: Helping the children use two-to-three sentences in conversations
- Age group 4-5:
<input type="checkbox"/> Giving examples for the children to learn to use 'he' and 'she' correctly
<input type="checkbox"/> Nursery rhymes: using facial expressions & movements to help the children's memory
<input type="checkbox"/> Taking register: having the children say their names and surnames
- Age group 5-6:
<input type="checkbox"/> Explaining an address, practicing the children's addresses
<input type="checkbox"/> Practicing past tense: "We were playing outside, now we are..."
<input type="checkbox"/> Speaking clearly: clapping out syllables
12. Why was that activity the most difficult?
13. Did you have the resources (the material, toys, supplies) that you needed for the activities?
NOTE: ages 4-5y and 5-6y did not require specific resources
Alternative question: What toys, objects or resources did you use to do the activities?
<i>Probe: If no which ones? Did you have cups, chairs or things for the obstacle course?</i>
<i>Ages 4-5y and 5-6y: Did you use any resources? E.g., did you use a stick to tap out the syllables instead of clapping?</i>
14. Did you adapt some resources to fit the activities?

Probe: Did you replace some resources, e.g., did you use plates instead of cups?

15. How do you think the children experienced the activities?

Probe: Was it easy or difficult for them?

16. How well did the children participate in the activities?

Probe: Did you have to remind them to participate from time to time and were there some children who did not engage or respond during the activity?

17. On a scale of 1-5, how much do you think the children liked or disliked it the activities?

Probe: Do you think the children really liked the activities, were they a bit too boring, or did some children really dislike the activities?

<input type="checkbox"/> 1 Not at all	<input type="checkbox"/> 2 Became distracted or bored	<input type="checkbox"/> 3 slightly	<input type="checkbox"/> 4 Liked them	<input type="checkbox"/> 5 Enjoyed them a lot
--	--	--	--	---

18. On a scale of 1-5, how easy or difficult do you think the activities make it for the children to reach the receptive and expressive language milestones?

Probe: How much do you think the activities will help the children with their general language knowledge and use for the future?

<input type="checkbox"/> 1 Had nothing to do with the milestone	<input type="checkbox"/> 2 Difficult to reach milestone	<input type="checkbox"/> 3 Slightly difficult to reach milestone	<input type="checkbox"/> 4 Quite easy to reach milestone	<input type="checkbox"/> 5 Very easy to reach milestone
--	---	---	--	---

19. Are there activities that you wish you could change or replace?

<i>Probe: Which ones and how would you change them?</i>
20. How did your knowledge of language development change?
<i>Probe: What did you learn about the development of receptive (understanding) and expressive (producing) language?</i>
21. In the survey we asked you about which areas of language your children struggle with the most. (Consult participant's survey). How do you think the activities can help with these areas?
<i>Probe: Were the problem areas addressed through the activities? Do you have new ideas of how to address the problem areas?</i>
22. In the survey we asked you about what you expect from the adapted milestone guide. (Consult participant's survey). How have your expectations been met or disappointed?
<i>Probe: Was the milestone guide as helpful as you thought it would be? What else did you wish was in the milestone guide?</i>
23. Have the milestone guide in front of you under the age group that you teach. To your best understanding, how does each activity promote either receptive or expressive language in children?
<i>Probe: Look at each activity. Does it promote receptive or expressive language? How?</i>
- Age group 3-4:
<input type="checkbox"/> Cups: Giving three-step instructions with the cups

<i>Answer for receptive language:</i>
<i>Answer for expressive language:</i>
<input type="checkbox"/> Obstacle course: Helping the children understand 'in', 'under' and 'on'
<i>Answer for receptive language:</i>
<i>Answer for expressive language:</i>
<input type="checkbox"/> Playing telephone: Helping the children use two-to-three sentences in conversations
<i>answer:</i>
<i>Answer for receptive language:</i>
<i>Answer for expressive language:</i>
- Age group 4-5:
<input type="checkbox"/> Giving examples for the children to learn to use 'he' and 'she' correctly
<i>Answer for receptive language:</i>
<i>Answer for expressive language:</i>
<input type="checkbox"/> Nursery rhymes: using facial expressions & movements to help the children's memory
<i>Answer for receptive language:</i>
<i>Answer for expressive language:</i>
<input type="checkbox"/> Taking register: having the children say their names and surnames
<i>answer:</i>
<i>Answer for receptive language:</i>

<i>Answer for expressive language:</i>
- Age group 5-6:
<input type="checkbox"/> Explaining an address, practicing the children's addresses
<i>Answer for receptive language:</i>
<i>Answer for expressive language:</i>
<input type="checkbox"/> Practicing past tense: "We were playing outside, now we are..."
<i>Answer for receptive language:</i>
<i>Answer for expressive language:</i>
<input type="checkbox"/> Speaking clearly: clapping out syllables
<i>Answer for receptive language:</i>
<i>Answer for expressive language:</i>
24. Would you use the adapted milestone guide in your classroom in future?
<input type="checkbox"/> Yes
<input type="checkbox"/> No
25. Why did you answer yes/no?
26. Who do you think should use the adapted milestone guide?
<i>Probe: Who would you recommend the milestone guide to? Who would you recommend to us who should be able to use the milestone guide too?</i>

Thank you for your time and effort!

7.3 Appendix C: Ethical Clearance Form



Faculty of Humanities

Fakulteit Geesteswetenskappe
Lefapha la Bomotheo

HumanITIES 100.
Since 1919

Department of Speech- Language Pathology and Audiology

29 February 2024

Dear Researchers,

Project: Early Childhood Developmental Practitioners' Perspectives on the usability of an adapted milestone guide (3y0m-5y11m) for language development in low resourced settings in South Africa

Researchers: Du Plessis (u21455199) D Kostlin (u19135972) T Du Toit L (u2148850) Wagner J (u21536491)

Supervisors: Dr R Eccles, Dr M du Toit, Prof J van der Linde

Department: Department of Speech-Language Pathology and Audiology

Reference Number: SLPA2024/03

Thank you for the application submitted to the Research Committee of the Department of Speech-Language Pathology and Audiology, Faculty of Humanities. We have the pleasure of informing you that the above application was approved on 29 February 2024.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal.

We wish you success with the project.

Sincerely

A handwritten signature in black ink, appearing to read 'L. Pottas'.

Prof Lidia Pottas
Chair: Departmental Research Committee

A handwritten signature in black ink, appearing to read 'J. van der Linde'.

Prof J van der Linde
HEAD: DEPARTMENT OF SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY
UNIVERSITY OF PRETORIA

Room 7.22, Level 7, Humanities Building
University of Pretoria, Private Bag X20
Hatfield 0028, South Africa
Email makone.maja@up.ac.za | www.up.ac.za

7.4 Appendix D: ECD practitioner information leaflet and consent form



Faculty of Humanities

Fakulteit Geesteswetenskappe
Lefapha la Bomotheo



EARLY CHILDHOOD DEVELOPMENT PRACTITIONERS' PERSPECTIVES ON AN ADAPTED MILESTONE GUIDE (3y0m – 5y11m) FOR LANGUAGE DEVELOPMENT IN LOW RESOURCED SETTINGS IN SOUTH AFRICA

Principal Investigators: D du Plessis, L du Toit, T Köstlin, J Wagner.

Supervisors: Dr M du Toit, Dr R Eccles and Prof J van der Linde

Institution: University of Pretoria (Department of Speech-Language Pathology and Audiology)

Dear prospective participant

1) INTRODUCTION:

You are invited to volunteer for a research study. We are a group of final year Speech-Language Pathology students from the University of Pretoria currently busy with a research project for our undergraduate degrees. The information in this document is to help you to decide if you would like to participate in our study. Before you agree to take part in this study, you should fully understand what is involved. If you have any questions, which are not fully explained in this document, do not hesitate to ask the research team (the contact details are listed on the last page).

2) THE NATURE AND PURPOSE OF THIS STUDY:

The aim of this study is to gain insight into your perspectives, as an Early Childhood Development (ECD) practitioner, on a contextually and linguistically adapted milestone guide to promote language development in the classroom. Your perspectives will be greatly valued by us as they will assist us in determining the effectiveness of the recently adapted milestone guide that we have created. You have the power to test it and provide feedback to us so that further improvement can be made. Your participation in this study can also help to support the children's development in your classroom and will give you extra ideas regarding activities to stimulate the children's language and communication development.

spacing

To participate in this study, you must meet the following requirements:

- You must be 18 years or older, because the study is aimed at adult ECD practitioners.
- You must be working with the age group of 3 years 0 months to 5 years 11 months for at least one year, because we want you to be familiar with the age group and the day-to-day programme.
- You must teach children between the ages of 3 years 0 months to 5 years 11 months, because that is the age range that the milestone guide was adapted for.

3) EXPLANATION OF PROCEDURES AND WHAT WILL BE EXPECTED FROM PARTICIPANTS:

This study involves answering questions regarding your perspectives on the usability of a, contextually, and linguistically adapted milestone guide. To do this, we would first like you to complete a survey asking questions about your teaching history, the children in your class and activities you do in the classroom. We will then give you time with the adapted milestone guide, after which you may ask a few initial questions for clarification if necessary. Following that, we would like you to implement the resource (language and communication sections of the adapted milestone guide) and where we will check-in on a weekly basis (every Monday and Friday) to make sure everything runs smoothly. During the implementation process, we will ask you whether you are using the activities, how often you are using the activities, if you feel the activities are appropriate for your children, whether the children enjoy them and, if not, that

you may adapt the activities if you see the need to. You may raise any questions you have about the guide, the language or activities it entails, for us to answer. After the implementation, interviews will be held to ask about your perspectives and experiences with the adapted milestone guide.

Should you give consent to our research project, the following steps will be followed:

- All information will be treated as confidential. When we publish the results from our study, participants' information will be unidentifiable by using alphanumeric codes instead of your names, e.g., Participant 1A.
- You will have the right to request that your data be withdrawn from the research project at any time, without any negative consequences.
- Copies of all your records will be kept safe in a locked facility. You will not be paid or asked to be paid to participate in this research study.
- In the event of encountering language barriers during the data collection process or any communication between the research team and the ECD practitioners, the utilisation of an interpreter will be employed. We will ask a staff member (like a teacher or the teacher's assistant), who speaks the same language, to interpret during our conversations with the teachers.

4) POSSIBLE RISKS AND DISCOMFORTS INVOLVED:

There are no risks or discomforts associated with the study.

5) YOUR RIGHTS AS A RESEARCH PARTICIPANT:

Your participation in this research project is entirely voluntary and you can refuse to participate or stop at any time without stating any reason.

6) INFORMATION AND CONTACT DETAILS:

If I have any questions concerning this study, I should contact:

- Dr R Eccles: renata.mosca@up.ac.za / 012 420 2814
- Linette du Toit: u21428850@tuks.co.za / 084 831 7722



Danielle du Plessis

Tabea Köstlin

Linette du Toit

Julia Wagner

Student Researchers



Dr M du Toit

Dr R Eccles

Supervisor

Co-supervisor



Prof J van der Linde

Co-supervisor and Head: Department of Speech-Language Pathology and Audiology

CONSENT TO PARTICIPATE IN THIS STUDY:

- I confirm that the research team requesting my consent to take part in this study, Early childhood development practitioners' perspectives on an adapted milestone guide (3 years 0 months to 5 years 11 months) for language development in low-resourced settings in South Africa, has told me about the nature, process, risks and benefits of the study.
- I have also received, read, and understood the above written information about the study.
- I have had adequate time to ask questions, and I have no objections to participate in this study.
- I am aware that the information obtained in the study, including personal details, will be anonymously processed, and presented in the reporting of results.
- I understand that I will not be penalised in any way should I wish to discontinue or withdraw from the study.
- I am participating willingly.
- I have received a signed copy of this informed consent agreement.
- My data can be used in future research.

_____	_____
Participant's name (Please print) and signature	Date

Researcher's name (Please print)

_____	_____
Researcher's signature (Please print)	Date

7.5 Appendix E: Declaration for Data Storage



Declaration for the storage of research data and/or documents

I/ We, the principal researcher(s)
Danielle du Plessis, Tabea Köstlin, Linette du Toit, Julia Wagner

and supervisor(s)
Dr Maria du Toit, Dr Renata Eccles, Prof. Jeannie van der Linde

of the following study, titled Early childhood development practitioners' perspectives on the usability of an adapted milestone guide (3y0m - 5y11m) for low resourced settings in South Africa

will be storing all the research data and/or documents referring to the above-mentioned

study in the following Department / Centre: Department of Speech-Language Pathology


and Audiology Faculty of Humanities at the University of Pretoria


We understand that the storage of the mentioned data and/or documents must be maintained for a minimum of 10 years from the commencement of this study.

Start date of study: January 2024


Anticipated end date of study: November 2024

Year until which data will be stored: 2034

Name of Principal Researcher(s)	Signature	Date
Danielle du Plessis		2023/10/26

Julia Wagner		2023/10/26
Tabea Köstlin		2023/10/26
Linette du Toit		2023/10/26

Name of Supervisor(s)	Signature	Date
Dr Maria du Toit		
Dr Renata Eccles		
Prof. Jeannie van der Linde		

Name of Head of Department	Signature	Date
Prof. Jeannie van der Linde		

7.6 Appendix F: Permission letter



Faculty of Humanities

Fakulteit Geesteswetenskappe
Lefapha la Bomotho



April 2024

Attention: Ms Mamodike Madzebatela

Principal

Wize Kids Day Care and Pre-School

Dear Ms Mamodike Madzebatela,

Request to collaborate with Wize Kids Day Care and Pre-School for a research study

We are students from the Department of Speech-Language Pathology and Audiology at the University of Pretoria. We will be carrying out a research study with the title “Early childhood development practitioners’ perspectives on an adapted milestone guide (3y0m - 5y11m) for language development in low resourced settings in South Africa”. Our study aims to get insight into early childhood development (ECD) practitioners’ perspectives on a contextually and linguistically adapted milestone guide to promote language development for groups of young children aged 3y0m - 5y11m in the classroom. They will be asked to fill in a paper-based survey before the implementation begins to obtain information about their demographic information as well as their perspectives on the language skills of the children. They will then implement group-based activities, to target specific milestones, in their classroom for three weeks. After the three weeks they will be interviewed and then report on the usability of the adapted milestone guide. We hereby seek permission to include the ECD practitioners at Wize Kids Day Care and Pre-School in our study.

Ethical principles: Ethical clearance was obtained by the Research Committee of the Department of Speech-Language Pathology and Audiology at the University of Pretoria. The following guidelines will be adhered to:

- Informed voluntary consent will be obtained in written form from the ECD practitioners teaching children between the ages of 3y0m and 5y11m and who will implement the adapted milestone guide.
- No personal data (such as names of ECD practitioners or children) will be used to ensure confidentiality of participants.
- The anonymised data will be stored for 10 years in the secure Research Data Repository of the University of Pretoria in electronic format (Appendix C) and hardcopy data is kept in a locked space with limited accessibility.

Should you need any additional information you are most welcome to contact our research supervisors.

Kind regards,



Danielle du Plessis



Tabea Köstlin



Linette du Toit



Julia Wagner

Student Researchers



Dr M du Toit

Supervisor



Dr R Eccles

Co-supervisor



Prof J van der Linde

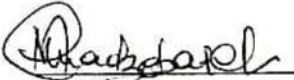
Co-supervisor and Head: Department of Speech-Language Pathology and Audiology

Declaration of permission from Ms Mamodike Madzebatela

Mamodike Madzebatela, principal at Wize Kids Day Care and Pre-School, grant herewith permission to Danielle du Plessis, Tabea Köstlin, Linette du Toit and Julia Wagner to conduct their research study titled "Early childhood development practitioners' perspectives on an adapted milestone guide (3y0m - 5y11m) for language development in low resourced settings in South Africa" at Wize Kids Day Care and Pre-School in collaboration with the early childhood development (ECD) practitioners.

I give consent for the ECD practitioners teaching 3y0m to 5y11m year old children to partake in surveys before implementation and for the researchers to give the adapted milestone guide to the ECD practitioners which they will use to implement group-based activities, to target specific milestones, in practice for three weeks and then discuss the usability of the milestone guide in individual interviews afterwards.

I am aware that the data collected will be used exclusively for intended present and future research purposes and will be stored for 10 years. It was described to me that the identities of the participants will be kept confidential at all times through the use of anonymised data.


Signature
Head: Wize Kids

12/04/2024
Date



School Stamp

7.7 Appendix G: Adapted Milestone Guide Provided to the Practitioners during implementation

Adapted Milestone Guide

Domain: Language and communication

Please look at the milestone guide and the age group you are working with. Once we call you during implementation, we will ask you whether you are using the activities, how often you are using the activities, and if you have any questions about the activities.

Which language should you use to do the activities? Please use the language of Learning and Teaching in the classroom.

Thank you for your time and effort!

Age:
3 years 0 months to 3 years 11 months
Feedback:
<ol style="list-style-type: none"> 1. What was hard about this activity? 2. What worked about this activity? 3. How did the children respond?
<p>Targeted milestone: Children’s abilities to understand and follow two-to-three step instructions.</p> <p>How to target the skill: Children’s cups are placed with the opening face down on the table. Tell the children to pick up their cups and hold them out for you to fill with fruit juice. Pick up, turn around, hold out.</p>
<p><u>Week 1:</u></p> <ol style="list-style-type: none"> 1. 2. 3.
<p><u>Week 2:</u></p> <ol style="list-style-type: none"> 1. 2. 3.
<p><u>Week 3:</u></p> <ol style="list-style-type: none"> 1. 2.

3.

Targeted milestone: Help children to understand prepositions such as 'in', 'under' and 'on'.

How to target skill: Gross motor obstacle course activities – Place various obstacle items out which require the children to climb over, on top of or walk behind an item or crawl under an item.

Week 1:

1.

2.

3.

Week 2:

1.

2.

3.

Week 3:

1.

2.

3.

Targeted milestone: Children's ability to maintain a conversation using two-to-three sentences, whilst using plurals and pronouns.

How to target the skill: Playing telephone where the children tell their parents about their day so far at school.

Week 1:

- 1.
- 2.
- 3.

Week 2:

- 1.
- 2.
- 3.

Week 3:

- 1.
- 2.
- 3.

Additional comments:

4 years 0 months to 4 years 11 months

Targeted milestone: Children’s ability to correctly use ‘he’ and ‘she’ in a sentence.

How to target the skill: Give examples. When we talk about Given, we say he is a boy. When we talk about Precious, we say she is a girl. Now what will we say about John? He is a boy, or she is a boy? Keep doing examples until the children can use it correctly.

Week 1:

1.

2.

3.

Week 2:

1.

2.

3.

Week 3:

1.

2.

3.

Targeted milestone: Children’s memory to remember a nursery rhyme.

How to target the skill: Use facial expressions and activities. The spider (fingers in a spider form) hops (hop) and scares (big eyes) the people (gestures to others).

Week 1:

1.

2.

3.

Week 2:

1.

2.

3.

Week 3:

1.

2.

3.

Targeted milestone: Children's ability to understand the concept of his/her first and last name.

How to target the skill: Taking register, playing a game in which, they need today their name and surname when the early childhood educator points to them.

Week 1:

1.

2.

3.

Week 2:

1.

2.

3.

Week 3:

1.

2.

3.

Additional comments:

5 years 0 months to 5 years 11 months

Targeted milestone: Children’s ability to tell someone their name and their address.

How to target the skill: Explanation of an address, for example: When we want a specific toy and want to know where it belongs. We will say something like “the red ball that is in the box with the balls”. When we want to find someone, we will say his/her name, surname and address. Do you all know where you live? A discussion about addresses will follow. Then each child can say “I am NAME, SURNAME, living at ADDRESS”. Then

participating in pretend play “I don’t know you, what is your name and where do you live?”.

Week 1:

1.

2.

3.

Week 2:

1.

2.

3.

Week 3:

1.

2.

3.

Targeted milestone: Children’s ability to make use of the past tense when speaking.

How to target the skill: Throughout the day, make the children aware that something is happening now, and something has happened already. We were playing outside, but now we are working. Yesterday it rained, but now the sun is shining.

Week 1:

1.

2.

3.

Week 2:

1.

2.

3.

Week 3:

1.

2.

3.

Targeted milestone: Children’s ability to speak clearly and be understood by all communication partners.

How to target the skill: If it is a matter of a lazy talker, a game using syllables of words can be used. I am STAN-DING. This can be done by clapping out the words and saying them slowly, and then starting to say them normally and at a normal rate.

Week 1:

1.

2.

3.

Week 2:

1.

2.

3.

Week 3:

1.

2.

3.

Additional comments:

7.8 Appendix H: Check-in questions to be asked during implementation

Duration of phone calls: 5-8 minutes

Time of phone calls: once a week on Friday mornings

Questions:

1. Are you able to use the activities from the adapted milestone guide we discussed?
2. How often are you able to use the activities?
3. Do you feel that the activities are appropriate for your children?
4. Are you able to fit the activities well into your schedule?
5. Are the children enjoying the activities?
6. Is there anything you would like to change about the activities? What? How will you do that?
7. What about the activities worked and what did not?
8. Do you have any other questions?

7.9 Appendix I: Introduction to Adapted Milestone Guide

Adapted Milestone Guide: Introduction

Please look at the milestone guide and the age group you are working with.

1) Can you try and do these activities in the next three weeks?

2) Do you think the activities will help?

3) Do you know why these activities help?

4) Do you have questions about how to do the activities?

5) Is any of the language used unclear? If yes, please specify.

6) Do you have any concerns regarding the milestone guide?

7.10 Appendix J: Adaptations applied to the milestone guide

Implement the activities for 30 minutes every day of the week.

What is expressive language? The ability to produce language that is understood by others.

What is receptive language? The ability to understand and interpret the message that you hear.

Age-group	CDC Language and Communication milestone	New adapted activity: How to target the skill
3 years 0 months – 3 years 11 months	Children's abilities to understand and follow two-to-three step instructions.	Children's cups are placed with the opening face down on the table. Tell the children to pick up their cups and hold them out for you to fill with fruit juice: "Pick up, turn around, hold out."
		Other suggested instructions to use throughout the day:
		"Put down your colouring pens and turn over your page." (2 steps)
		"Stand up, push in your chair and line up." (3 steps)
	Help children to understand prepositions such as 'in', 'under' and 'on'.	Gross motor obstacle course activities - Place various obstacle course items such as tyres, rocks, boxes, string, rope, newspaper pieces, and chairs out which require the children to climb over, on top of or walk behind an item or crawl under an item. Use the words 'in', 'under' and 'on' while explaining the tasks, and while the children do the tasks.
	Children's ability to maintain a conversation using two-to-three sentences, whilst using plurals and pronouns.	Go out and let each child pick up something outside (stone, stick, leaf, flower), make a show-and-tell circle for them to explain what they found, where and how they found it and what they can do/build with it.
4 years 0 months – 4 years 11 months	Children's ability to correctly use 'he' and 'she' in a sentence.	Give examples. When we talk about Given, we say he is a boy. When we talk about Precious we say she is a girl. Now what will we say about John? He is a boy or she is a boy? Keep using examples until the children can use 'he' and 'she' correctly.
		<i>(no adaptations made)</i>
	Children's memory to remember a nursery rhyme.	Use facial expressions and activities. The spider (fingers in a spider form) hops (hop) and scares (big eyes) the people (gesture to others).

(no adaptations made)

Children's ability to understand the concept of his/her first and last name.

Taking register, playing a game in which they need to say their name and surname when the early childhood educator points to them and let them say what letter their name starts with.

5 years
0
months
– 5
years
11
months

Children's ability to tell someone their name and their address.

Explanation of an address, for example: participating in pretend play. "I don't know you. What is your name and where do you live?"

Then each child can say "I am NAME, SURNAME, living at ADDRESS". First write down the address for each child to learn and then ask them.

Children's ability to make use of the past tense when speaking.

Throughout the day make the children aware that something is happening now and that something has happened already. We were playing outside but now we are working. Yesterday it rained, but now the sun is shining.

(no adaptations made)

Children's ability to speak clearly and be understood by all communication partners.

If it is a matter of a lazy talker, a game using syllables of words can be used. I am STAN-DING. This can be done by clapping out the words and saying them slowly, and then starting to say them normally and at a normal rate.

(no adaptations made)

7.11 Appendix K: Project Research Data Management Plan



Faculty of Humanities

Fakulteit Geesteswetenskappe
Lefapha la Bomotheo



Department of Speech-Language Pathology and Audiology

Project Research Data Management Plan

du Plessis, D.

Köstlin, T.

du Toit, L.

Wagner, J.

Under the supervision of

Dr du Toit, M.

Dr Eccles, R.

Prof. van der Linde, J.

0. Proposal name

Early childhood development practitioners' perspectives on the usability of an adapted milestone guide (3y0m - 5y11m) for language development in low resourced settings in South Africa

1. Description of the data

1.1 Type of study

This study will follow a short-longitudinal qualitative research design with quantitative aspects to ensure a comprehensive understanding of ECD practitioners' opinions following the implementation of a newly adapted milestone guide in the ECD centre by the ECD practitioners. The aim of the study is to analyse the practical aspect of the milestone guide as a tool never used before.

1.2 Types of data

The qualitative research data will be gained from open-ended questions, multiple choice questions and Likert scales in a pre-implementation survey of about 20 minutes as well as in post-implementation interviews with the participants of about 30-40 minutes. Rating scales embedded within the survey and interviews will yield the quantitative data to be gained. Phone calls of about 5-8 minutes during the three-week implementation phase will ensure consistency of implementation and support of the participants.

The variables of measure of the usability of the milestone guide will be the understandability of the activity instructions as well as of the purpose of each activity for language promotion, the ease of integrability of the activities into the daily schedule, the amount of effort needed to perform the activities, the amount of time needed to implement the activities, the level of adaptability of the resources, as well as the level of enjoyability for the children.

1.3 Format and scale of the data

The surveys and interviews will be paper-based, complimented with paper-based field notes and sound recordings. During the weekly phone calls, check-in questions will be asked to ensure support to the participants and that implementation is carried through. A set of specific questions to be asked during these calls is also provided by the researchers. For

data analysis, Excel spreadsheets will be used. This will allow comprehensive analysis as well as sharing and archiving of the data.

2. Data collection / generation

The data generated in this study will be new as the adapted milestone guide has never been implemented in ECD centres or any other context before. Good insight into the usability of the milestone guide in ECD centres is needed for future adaptation and refining of the tool for optimal use in this setting.

2.1 Methodologies for data collection / generation

The pre-survey will be conducted to obtain information about the demographic information as well as the ECD practitioners' perspectives on the language skills of the children, taking about 20 minutes to complete (Appendix A). After the pre-survey the ECD practitioners will be provided with the adapted milestone guide and informed on and shown how to implement the milestone guide for three weeks in their classroom. They then have the opportunity to ask questions and raise any concerns.

After both the first and second week of application, the researchers will contact the ECD practitioners telephonically to hear how the application is going and to address any questions or concerns. During the weekly phone calls, questions will be asked whether the ECD practitioners are using the activities, how often they are using the activities, if they feel the activities are appropriate for their children and schedules, whether the children are enjoying them and whether and how they want to make adaptations to the activities, as well as clarify any remaining questions (Appendix H). The ECD practitioners will have the opportunity to write their opinions about the activities in the provided section on the milestone guide during the three weeks of application (Appendix G). The phone calls are set to take 5-8 minutes.

Individual interviews will be conducted after the third week at the ECD centre where the ECD practitioners provide feedback on the adapted milestone guide (Appendix B). Each interview is set out to take 30-40 minutes.

2.2 Data quality and standards

Validity, the accuracy of findings, will be ensured by writing survey and interview questions that specifically address the usability of the adapted milestone guide, with closed and open-ended questions allowing the ECD practitioners to voice their perspectives and suggestions. The variables of analysis for usability are the understandability of the activity instructions as well as of the purpose of each activity for language promotion, the ease of integrability of the activities into the daily schedule, the amount of effort needed to perform the activities, the

amount of time needed to implement the activities, the level of adaptability of the resources, as well as the level of enjoyability for the children.

Face validity was used to ensure that each question of the interview has a logical link with the objective of the study. Content validity ensures that the questions in the survey and interview cover the full range of variables measured. To adhere to qualitative reliability, the interview results will be recorded accurately and in a detailed manner for future reference and for comparison purposes (Brink et al., 2018).

3. Data management, documentation and curation

3.1 Managing, storing and curating data

To ensure that confidentiality and privacy are maintained, no data that is personal (such as names of ECD practitioners) will be used and anonymised data, such as numbers or codes, will be utilised to avoid publishing any identifying information (Brink et al., 2018). The anonymised data will be stored for 10 years in the secure Research Data Repository of the University of Pretoria in electronic format, and hardcopy data will be kept in a locked space with limited accessibility

3.2 Metadata standards and data documentation

To analyse the data, the thematic analysis approach according to Clarke and Braun (2017) will be implemented for the qualitative data from the individual interviews, which allows the qualitative data to be categorised according to codes and themes. Variables are determined for the closed-ended questions or Likert scale ratings. These will be stored and analysed through an Excel spreadsheet.

3.3 Data preservation strategy and standards

The anonymised data will be stored for 10 years in the secure Research Data Repository of the University of Pretoria in electronic format.

4. Data security and confidentiality of potentially disclosive information

All ethical principles for research in the medical sciences from the Declaration of Helsinki will be adhered to (World Medical Association [WMA], 2013). Informed consent will be acquired for them to make an independent choice, which stipulates that participants can withdraw their participation at any time without consequences. The consent form includes detailed information about the research and the subjects' roles. To ensure that confidentiality and privacy are maintained, no data that is personal (such as names of ECD practitioners) will be used and anonymised data, such as numbers or codes, will be utilised to avoid publishing any identifying information (Brink et al., 2018). The principles of beneficence, non-maleficence and respect will always be adhered to ensure the physical and psychological well-being of the participants.

4.1 Formal information/data security standards

Identify formal information standards with which the study is or will be compliant. An example is ISO 27001. If the organisation is ISO compliant, the registration number should be stated.

The study will be compliant with the National Health Act (Act 61 of 2003), the policy (S 5102/23) of the University of Pretoria, the Code of Ethics for Research (Rt 429/99) and the Research Data Management Policy (S 4417/17) of the University of Pretoria.

4.2 Main risks to data security

There is risk of name and demographic information exposure of the participants. This is a low level of risk to the participants. Confidentiality will be ensured by replacing names with numbers, and by storing the data under password protection. Access will only be given to the researchers.

5. Data sharing and access

Identify any data repository (-ies) that are, or will be, entrusted with storing, curating and/or sharing data from your study, where they exist for particular disciplinary domains or data types. Information on repositories to be sourced.

The University of Pretoria entrusts its data to the research repository Figshare which gives academic access to research data stored on the database, according to the UP Library (2023).

University of Pretoria Library. (2023). *Research Data Management (RDM): Data Repositories*. University of Pretoria. Retrieved February 25, 2024 from <https://library.up.ac.za/c.php?g=356288&p=6340909>

5.1 Suitability for sharing

The data will be suitable for sharing, because no data that is personal (such as names of ECD practitioners) will be used and to ensure anonymity, numbers or codes, will be used to avoid publishing any identifying information but can be obtained upon request

5.2 Discovery by potential users of the research data

Indicate how potential new users (outside of your organisation) can find out about your data and identify whether it could be suitable for their research purposes, e.g. through summary information (metadata) being readily available on the study website, in the UP gateway for population and patient research data, or in other databases or catalogues. How widely accessible is this repository?

Indicate whether your policy or approach to data sharing is (or will be) published on your study website (or by other means).

The research data will be published in the University of Pretoria research repository and will be accessible by staff or students at the University of Pretoria, as a conference presentation and in form of an article.

5.3 Governance of access

Identify who makes or will make the decision on whether to supply research data to a potential new user.

Indicate whether the research data will be deposited in and available from an identified community database, repository, archive or other infrastructure established to curate and share data.

The research supervisors from the Department of Speech-language Pathology and Audiology of the University of Pretoria will identify who will have access to the research data.

5.4 The study team's exclusive use of the data

The Policy for the Preservation and Retention of Research Data Rt 306/07 will be adhered to. It states that all research data is the property of the University of Pretoria, that the principal investigator for the data is responsible for its publishing, that well-dated and well-organised hard copy notes are to be kept before digital data is created and that digital data is stored in one of the UP Library's repositories for at least ten years.

5.5 Restrictions or delays to sharing, with planned actions to limit such restrictions

Restrictions and delays may occur due to consent or anonymisation and aggregation of data. Proposed procedures for data sharing and potential future risks will be explained to research participants.

5.6 Regulation of responsibilities of users

Indicate whether external users are (or will be) bound by data sharing agreements, setting out their main responsibilities.

According to the Policy for the Preservation and Retention of Research Data Rt 306/07, the faculties are bound to the management of and reports on the data repositories.

6. Responsibilities

Apart from the PI, who is responsible at your organisation/within the consortium for:

The responsibility is carried by the study's supervisors as well as the repository of the University of Pretoria once the data and article are uploaded.

Metadata creation as well as data security are managed by the repository of the University of Pretoria.

Equality assurance of data is managed by the study's supervisors at the University of Pretoria.

7. Relevant institutional, departmental or study policies on data sharing and data security

Policy

URL or Reference

Data Management Policy & Procedures

Research Data Management Policy, S 4417/17

https://www.up.ac.za/media/shared/12/ZP_Files/research-data-management-policy_august-2018.zp161094.pdf

Data Security Policy

Research Compliance Regulation, S 5103/23

<https://www.up.ac.za/media/shared/190/research-compliance-regulation-s-5103-23-prd157267.zp232657.pdf>

Data Sharing Policy

Preservation and Retention of Research Data, Rt 306/07

https://www.up.ac.za/media/shared/Legacy/sitefiles/file/49/preservation_and_retention_of_research_data.pdf

Institutional Information Policy

INSTITUTIONAL INFORMATION AND GENERAL REGULATIONS

https://www.up.ac.za/media/shared/360/yearbooks/institutional_info_complete_2007.zp107724.pdf

Other:

Other

8. Author of this Data Management Plan (Name) and, if different to that of the Principal Investigator, their telephone & email contact details

References

Brink, H., Van der Walt, C., & Van Rensburg, G. H. (2018). Fundamentals of research methodology for health care professionals (Fourth edition. ed.). Juta and Company (Pty) Ltd.

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amount of time needed to implement the activities, the level of adaptability of the resources, as well as the level of enjoyability for the children.

Face validity was used to ensure that each question of the interview has a logical link with the objective of the study. Content validity ensures that the questions in the survey and interview cover the full range of variables measured. To adhere to qualitative reliability, the interview results will be recorded accurately and in a detailed manner for future reference and for comparison purposes (Brink et al., 2018).

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3.1 Managing, storing and curating data

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The anonymised data will be stored for 10 years in the secure Research Data Repository of the University of Pretoria in electronic format.

4. Data security and confidentiality of potentially disclosive information

All ethical principles for research in the medical sciences from the Declaration of Helsinki will be adhered to (World Medical Association [WMA], 2013). Informed consent will be acquired for them to make an independent choice, which stipulates that participants can withdraw their participation at any time without consequences. The consent form includes detailed information about the research and the subjects' roles. To ensure that confidentiality and privacy are maintained, no data that is personal (such as names of ECD practitioners) will be used and anonymised data, such as numbers or codes, will be utilised to avoid publishing any identifying information (Brink et al., 2018). The principles of beneficence, non-maleficence and respect will always be adhered to ensure the physical and psychological well-being of the participants.

4.1 Formal information/data security standards

Identify formal information standards with which the study is or will be compliant. An example is ISO 27001. If the organisation is ISO compliant, the registration number should be stated.

The study will be compliant with the National Health Act (Act 61 of 2003), the policy (S 5102/23) of the University of Pretoria, the Code of Ethics for Research (Rt 429/99) and the Research Data Management Policy (S 4417/17) of the University of Pretoria.

4.2 Main risks to data security

There is risk of name and demographic information exposure of the participants. This is a low level of risk to the participants. Confidentiality will be ensured by replacing names with numbers, and by storing the data under password protection. Access will only be given to the researchers.

5. Data sharing and access

Identify any data repository (-ies) that are, or will be, entrusted with storing, curating and/or sharing data from your study, where they exist for particular disciplinary domains or data types. Information on repositories to be sourced.

The University of Pretoria entrusts its data to the research repository Figshare which gives academic access to research data stored on the database, according to the UP Library (2023).

University of Pretoria Library. (2023). *Research Data Management (RDM): Data Repositories*. University of Pretoria. Retrieved February 25, 2024, from <https://library.up.ac.za/c.php?g=356288&p=6340909>

5.1 Suitability for sharing

The data will be suitable for sharing, because no data that is personal (such as names of ECD practitioners) will be used and to ensure anonymity, numbers or codes, will be used to avoid publishing any identifying information but can be obtained upon request

5.2 Discovery by potential users of the research data

Indicate how potential new users (outside of your organisation) can find out about your data and identify whether it could be suitable for their research purposes, e.g. through summary information (metadata) being readily available on the study website, in the UP gateway for population and patient research data, or in other databases or catalogues. How widely accessible is this repository?

Indicate whether your policy or approach to data sharing is (or will be) published on your study website (or by other means).

The research data will be published in the University of Pretoria research repository and will be accessible by staff or students at the University of Pretoria, as a conference presentation and in form of an article.

5.3 Governance of access

Identify who makes or will make the decision on whether to supply research data to a potential new user.

Indicate whether the research data will be deposited in and available from an identified community database, repository, archive or other infrastructure established to curate and share data.

The research supervisors from the Department of Speech-language Pathology and Audiology of the University of Pretoria will identify who will have access to the research data.

5.4 The study team's exclusive use of the data

The Policy for the Preservation and Retention of Research Data Rt 306/07 will be adhered to. It states that all research data is the property of the University of Pretoria, that the principal investigator for the data is responsible for its publishing, that well-dated and well-organised hard copy notes are to be kept before digital data is created and that digital data is stored in one of the UP Library's repositories for at least ten years.

5.5 Restrictions or delays to sharing, with planned actions to limit such restrictions

Restrictions and delays may occur due to consent or anonymisation and aggregation of data. Proposed procedures for data sharing and potential future risks will be explained to research participants.

5.6 Regulation of responsibilities of users

Indicate whether external users are (or will be) bound by data sharing agreements, setting out their main responsibilities.

According to the Policy for the Preservation and Retention of Research Data Rt 306/07, the faculties are bound to the management of and reports on the data repositories.

6. Responsibilities

Apart from the PI, who is responsible at your organisation/within the consortium for:

The responsibility is carried by the study's supervisors as well as the repository of the University of Pretoria once the data and article are uploaded.

Metadata creation as well as data security are managed by the repository of the University of Pretoria.

Equality assurance of data is managed by the study's supervisors at the University of Pretoria.

7. Relevant institutional, departmental or study policies on data sharing and data security

Policy

URL or Reference

Data Management Policy & Procedures

Research Data Management Policy, S 4417/17

https://www.up.ac.za/media/shared/12/ZP_Files/research-data-management-policy_august-2018.zp161094.pdf

Data Security Policy

Research Compliance Regulation, S 5103/23

<https://www.up.ac.za/media/shared/190/research-compliance-regulation-s-5103-23-prd157267.zp232657.pdf>

Data Sharing Policy

Preservation and Retention of Research Data, Rt 306/07

https://www.up.ac.za/media/shared/Legacy/sitefiles/file/49/preservation_and_retention_of_research_data.pdf

Institutional Information Policy

INSTITUTIONAL INFORMATION AND GENERAL REGULATIONS

https://www.up.ac.za/media/shared/360/yearbooks/institutional_info_complete_2007.zp107724.pdf

Other:

Other

8. Author of this Data Management Plan (Name) and, if different to that of the Principal Investigator, their telephone & email contact details

References

Brink, H., Van der Walt, C., & Van Rensburg, G. H. (2018). Fundamentals of research methodology for health care professionals (Fourth edition. ed.). Juta and Company (Pty) Ltd.