

An Investigation Into Continuous Assessment On Acquisition Of Counting Skills Among Early Childhood Learners 4 -5 Years Old In Schools In Gaborone West In Botswana

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Abstract: The purpose of this study was to examine the effects of continuous assessment on the acquisition of counting skills among preschool learners in Gaborone West, Botswana. A mixed-methods approach was adopted, involving 327 preschool teachers from 20 preschools. Stratified random and purposive sampling techniques were used, while data were collected through close-ended questionnaires and focus group discussions. Quantitative data were analysed using SPSS version 20.0 and one-way ANOVA, while qualitative data were analysed thematically. The findings established that continuous assessment significantly influences counting skills. Challenges affected its implementation, while assessment strategies enhanced learning outcomes. Teachers also viewed continuous assessment as important. The study recommends strengthened implementation in preschools.

Keywords: Continuous assessment, counting skills, preschool learners, early childhood education, teachers, Botswana.

1. INTRODUCTION

The teaching and learning process requires regular assessment to establish learners' progress, strengths, and areas requiring support. Brown (2004) and Isakson (2008) explain that assessment provides information about learners' knowledge, skills, and progress over time. Unlike one-time examinations, ongoing assessment draws information from activities, observations, projects, and classroom tasks (Shumetie, 2015; Onuka, 2006). Bell and Cowie (2001) further describe it as comprehensive because it considers cognitive, affective, and psychomotor outcomes. Allsopp et al. (2007) add that assessment is cumulative since decisions about learners are based on information collected across different activities. These findings indicate that regular assessment provides teachers with a broader understanding of children's development and supports appropriate instructional decisions.

In early childhood mathematics, regular assessment is particularly important because counting develops from simple number recitation to an understanding of quantity and number relationships. Klibanoff et al. (2006) identify counting and quantity as important foundations for later mathematical learning. Desoete et al. (2009) emphasize stable number order and one-to-one correspondence, while Clements and Sarama (2010) highlight cardinality and counting forwards and backwards. These findings demonstrate that memorising number words does not necessarily indicate an understanding of counting. Borromeo et al. (2004) therefore recommend using concrete materials and meaningful situations to help children connect numbers with quantities. Gallistel (2000) similarly proposes incorporating counting into play and everyday activities. Such approaches provide teachers with opportunities to observe children's actual counting abilities.

The relationship between assessment and instruction is also emphasized across the literature. Gardner (2012) argues that assessment information should guide curriculum and instructional decisions, while Ginsburg and Boyd (2008) stress purposeful observation of individual children. Meisels and Atkins-Burnett (2000) support the use of observations, checklists, portfolios, and classroom activities to document learning. This broader approach differs from reliance on formal

tests, which may provide limited information about young children's mathematical thinking (Gibbs & Simpson, 2004). Practical and play-based activities allow children to demonstrate counting and problem-solving skills in meaningful contexts. Therefore, effective assessment of preschool counting skills requires varied assessment methods, regular observation, and the use of assessment findings to adapt instruction to individual learning needs.

Statement of the Problem

According to Stigglings (2002), most teachers in Early Childhood Education keep children's records and do not really understand the importance of these records at the end of each term. To track how a learner is progressing in learning, the records need to be seriously checked; for instance for a learner to be assessed on how his or her counting skills are advancing, then the records of the learner's continuous assessment must be evaluated. However, most teachers do not connect the dots on the importance of record keeping for learners with continuous assessment. It is very useful for Preschool teachers to critically look into the issue of continuous assessment then to acknowledge usefulness of records for future referencing on academic progress of the learner. Through different source read the researcher developed more interest into the problem concerning the effects of continuous assessment on the acquisition of counting skill among early learners (Copper, 1996; Desalegne, 2004 & Kidane, 2013). Worse still when it comes to acquisition of counting skills, it is hard for teachers in pre-schools to keep a tracking record on how their learners have been doing in their efforts to acquire counting skills. In Botswana for instance, pre-school learners learn through various activities and teacher's role on this is to help children acquire counting skills at a tender age. However, all these various activities which are employed in helping learners to gain counting skills are either not kept or added to the continuous assessment of learners; meaning they are almost insignificant to the learners' final assessment. It could be useful had it been that teachers could as well use continuous assessment in evaluating learners on acquisition of counting skills. This could have been helping teachers to acknowledge the importance of continuous assessment in the process of learning. Teachers in Botswana use a portfolio as an assessment tool; these same portfolios consist of different activities for a child and at the end of each term teachers evaluate and make judgement on the progress of the child. However in these portfolios pre-school teachers do not consider what has been recorded continuous from the start of the term to the end. The work in the portfolios is not considered, what is considered is only the work at the end of the term. Children need to be monitored in most cases so that as teachers come to understand how best they can work with learners to facilitate counting skills in learners. Most pre-school teachers do not understand the importance of continuous assessment on acquisition of counting skills. Further to this, pre-school teachers in Gaborone have deficiency in continuous assessment skills which most of the times is written on paper but not practiced.

Specific Objectives

- (a) To determine the effect of continuous assessment on the acquisition of counting skills among early childhood learners.
- (b) To examine the challenges faced by early childhood teachers in implementing continuous assessment.
- (c) To analyze strategies that teachers use to carry out continuous assessment order to enhance the acquisition of counting skills among early childhood learners.
- (d) To examine the ECE teachers' perspective on continuous assessment in early childhood education.

2. LITERATURE REVIEW

Effects of continuous assessment on acquisition of counting skills among preschool learners

Continuous assessment is important in early childhood education because it enables teachers to monitor children's knowledge, skills, attitudes, and progress over time. Kidane (2013) views it as an ongoing process that supports teaching and learning, while Copper (1996) emphasizes the collection and interpretation of information for instructional decisions. Desalegne (2004) similarly argues that assessment helps teachers identify learning difficulties and adjust instruction. In mathematics, Eden and Potter (2013) stress the importance of observing and documenting individual children's development, while Pancare (2017) shows that observation can guide decisions on when to introduce or repeat learning materials. These studies therefore suggest that continuous assessment is most effective when assessment information is directly linked to teaching and individual learner support.

Evidence further shows that effective assessment of counting skills requires varied, practical, and play-based activities rather than reliance on formal tests. Meisels and Atkins-Burnett (2000) recommend using multiple sources of information, including observations, checklists, portfolios, and children's classroom work. Similarly, Gifford (2008) emphasizes

practical activities and play using resources such as counting objects, rods, number lines, songs, stories, and rhymes. Montessori-based approaches also use concrete materials to help children connect numbers with quantities (Larson, 2010; Pancare, 2017). While structured activities provide opportunities to assess specific counting competencies, play-based activities allow teachers to observe children's mathematical thinking in natural situations. Therefore, integrating continuous observation with practical and play-based learning provides a more comprehensive approach to assessing preschool children's counting skills.

Early childhood teachers and continuous assessment in counting activities

Continuous assessment has several benefits, including regular monitoring of learning, timely feedback, and assessment of different learning domains. However, its effectiveness is affected by several challenges. Copper (2001) found that teachers may award inconsistent marks because some assessment methods require subjective judgement. Similarly, Obeme (2014) identified inadequate assessment skills, negative teacher attitudes, insufficient assessment tools, and limited training as major challenges. Ipaye and Ugodulunwa (2003) also reported heavy workloads, differences in assessment standards, and shortages of qualified personnel. These findings suggest that continuous assessment depends greatly on teacher competence, adequate resources, and manageable workloads.

The challenges are more evident in early childhood mathematics, where assessing counting skills requires frequent observation and record keeping. Lawal (2009), cited in Ebhomien et al. (2012), identified inadequate teaching aids, limited mathematics teachers, insufficient assessment knowledge, heavy workloads, and inadequate time as key barriers. In contrast, Eason and Ramari (2015) found that play provides opportunities for children to solve problems, explore strategies, and learn from peers. Gross and Rossbach (2011) similarly support embedding counting in everyday activities, while Hauser et al. (2015) examined structured activities such as card and board games. Therefore, effective assessment of counting skills requires a balance between structured and play-based activities, supported by adequate teacher preparation, resources, time, and manageable class sizes.

Continuous assessment strategies and the acquisition of counting skills in pre-school children

The literature indicates that effective teaching of counting skills requires strategies that address children's different abilities and learning needs. Clement and Sarama (2000) emphasize that teachers should use varied teaching approaches because there is no single strategy suitable for all learners. Gelman and Gallistel (2010) identify five counting principles: stable order, one-to-one correspondence, cardinality, abstraction and order irrelevance. The first three are considered essential because failure to apply them leads to inaccurate counting (Geary, 2004). However, children do not master these principles at the same time. Butterworth (2004) notes that stable order develops first, while cardinality develops later. Studies also differ on the age at which cardinality is mastered, with estimates ranging from three to five years (Gelman & Meck, 2000; Wynn, 2000; Freeman, Antonucci & Lewis, 2000). This suggests that teachers need continuous assessment to identify individual differences in counting development.

Counting skills extend beyond reciting numbers to include object counting, enumeration, cardinality and comparison of quantities (Baroody & Coslick, 2001). NCTM (2000) notes that children enter kindergarten with varying levels of informal mathematical knowledge, while Desoete, Roeyers and Stock (2009) identify counting and cardinality as important predictors of later mathematical achievement. Practical strategies such as touching objects, moving counted objects and grouping items support one-to-one correspondence and reduce counting errors (Baroody & Gannon, 2000; Morin & Samelson, 2015). Similarly, games and practical activities can help teachers assess children's performance and identify areas requiring additional support (Crollen, Noël, & Seron, 2011; Furlong & Opfer, 2011; Ferretti, Loving, & Vandermaas-Peeler, 2012). Mitko (2012) further argues that continuous assessment enables teachers to adjust teaching methods when learners experience difficulties. Therefore, the evidence suggests that continuous assessment, practical activities and varied teaching strategies should be integrated to strengthen the acquisition of counting skills.

Teacher's perspectives on continuous assessment in early childhood education

Assessment plays an important role in teaching and learning by providing feedback to teachers and learners. Adedo and Aina (2013) explain that internal assessment includes assignments, teacher-made tests, projects and classroom exercises. Mwebaza (2005) adds that continuous assessment evaluates learners beyond examinations by considering classroom participation and other learning activities. However, Marshall (2005) notes that many existing counting skills assessment tools are time-consuming and costly. Lonigan and Purpura (2015) therefore emphasize the need for brief and reliable tools that help teachers identify children's strengths and weaknesses and plan suitable instruction.

Children's counting skills also develop through interaction, practical activities and problem-solving. Barmby et al. (2009) show that children develop mathematical understanding by connecting different ideas, while Gifford (2008) emphasizes adult support in developing counting skills and mathematical language. Siraj-Blatchford et al. (2002) similarly highlight the importance of shared thinking in children's learning. Assessment therefore helps teachers understand existing abilities and plan appropriate learning activities. Positive treatment of errors is also important because misconceptions can affect future learning (Ryan & Williams, 2010; Drews, 2011). Koshy et al. (2000) further distinguish between simple errors and misconceptions, showing the need for teachers to identify and address both during counting activities

3. METHODOLOGY

The study employed a survey research design and a convergent mixed-method approach, combining quantitative and qualitative methods to strengthen the findings (Cohen, Manion & Morrison, 2005; Kombo & Tromp, 2006; Creswell, 2013). The quantitative component used a five-point Likert-scale questionnaire to collect measurable data, while the qualitative component used focus group discussions to triangulate the findings (Wilson, 2001; Jamieson, 2004; Clement & Saramma, 2008). The study population comprised approximately 1,000 early childhood education teachers from 20 schools in Gaborone West District, covering English-medium, Tswana-medium and mixed-medium schools. Stratified random sampling was used for the questionnaire, while purposive sampling was applied in selecting teachers and schools for the focus group discussions (Creswell, 2013; Jamieson, 2004). The calculated sample size was 327 teachers, distributed across the different qualification strata.

Data were collected using questionnaires and focus group discussion schedules. Ten ECE teachers from each participating school took part in the focus group discussions, with sessions recorded, transcribed and summarized (Clendenin, 2011; Guest et al., 2012). The questionnaire covered demographic information and Likert-scale statements based on the four research questions, allowing standardized data collection and analysis through SPSS (Rajiv Grover, 2006). Validity and reliability were assessed through expert review and a pilot study involving ten ECE teachers who were not included in the main study, with ambiguous statements revised before data collection (Patton, 2001; Cooper, 2010). Quantitative data were analysed using SPSS version 20.0, with descriptive statistics presented through tables, charts and graphs, while one-way ANOVA was used for inferential analysis. Qualitative data were analysed thematically, and methodological triangulation was applied to integrate quantitative and qualitative findings (Braun, 2013; Guest et al., 2012; Bekhet, 2012). Ethical approval, confidentiality, informed consent and authorization from relevant institutions were also addressed

4. DATA ANALYSIS AND INTERPRETATIONS

Table 1: Analysis of Variance

ANOVA		Sum of Squares	df	Mean Square	F	Sig.
Continuous Assessment In Counting Skills Impacts Early Learners	Between Groups	6.738	2	3.369	6.056	.003
	Within Groups	180.235	324	.556		
	Total	186.972	326			
Lack Of CA Has Negatives On Learning And Counting Skills	Between Groups	5.841	2	2.920	5.375	.005
	Within Groups	176.049	324	.543		
	Total	181.890	326			
CA On Learners Has Positive Effect On Learning And Counting Skills	Between Groups	5.854	2	2.927	5.265	.006
	Within Groups	180.133	324	.556		
	Total	185.988	326			
There Are Many Challenges That Arise In Assessing Early Learners For CA	Between Groups	6.465	2	3.233	5.869	.003
	Within Groups	178.458	324	.551		
	Total	184.924	326			
There Are No Challenges Faced By E Child Teachers In Implementing CA	Between Groups	6.581	2	3.291	5.756	.003
	Within Groups	185.223	324	.572		
	Total	191.804	326			
	Between Groups	6.203	2	3.102	5.502	.004

Strategies To Implement CAs On Learners Has Effect On Learning	Within Groups	182.647	324	.564		
	Total	188.850	326			
Teachers Are Required To Conduct CA For Preschool Learners	Between Groups	6.091	2	3.045	5.548	.004
	Within Groups	177.860	324	.549		
	Total	183.951	326			
The School Has Strategies To Implement CA For Early Learners	Between Groups	5.612	2	2.806	5.041	.007
	Within Groups	180.339	324	.557		
	Total	185.951	326			
Continuous Assessment Is Necessary For Early Learners	Between Groups	5.841	2	2.920	5.314	.005
	Within Groups	178.049	324	.550		
	Total	183.890	326			
Most Teachers Deem Continuous Assessment Necessary For Early Learners	Between Groups	5.828	2	2.914	5.249	.006
	Within Groups	179.866	324	.555		
	Total	185.694	326			

Table 1 presents the one-way ANOVA results for all questionnaire items analysed using SPSS. The findings show that all variables were statistically significant, with p-values $\leq .05$. Therefore, Post Hoc analysis was not required, as no variable had a p-value $> .05$. The findings are presented thematically below. The analysis is presented thematically as follows:

Determination of the effect of continuous assessment on the acquisition of counting skills among early childhood learners

The findings show that continuous assessment significantly affects the acquisition of counting skills. Implementation of continuous assessment was significant ($df = 2$, $F = 6.056$, $p = .003$), while its absence negatively affected learning ($df = 2$, $F = 5.375$, $p = .005$). Continuous assessment also had a significant positive effect on counting skills ($df = 2$, $F = 2.927$, $p = .006$).

Based on the first group discussion from an English medium pre-school, it was noted that continuous assessment has a great impact on the pre-scholars' acquisition of counting skills. Some of the responses were:

TEng1: "the grounds continuous assessment information will help the individuals who will actualize the systems of evaluation to give due thought and increase their effort towards its appropriate implantations in most schools here in Gaborone or beyond ..."

TEng2: "Continuous assessment is very important to acquisition of counting skills among pre-scholars because it guides the teacher in assessing or identifying learners who are struggling in mastering the skill ...then the teacher might devise other ways to uplift the struggling kids on counting skills"

TEng3: "Understanding the motivation behind continuous assessment has numerous significance."

Based on the second group discussion from the Setswana Medium pre-school, it was as well noted that teachers acknowledged that continuous assessment has an impact on acquisition of counting skills among pre-scholars. Some of the responses from the Setswana medium pre-schools:

TSet1: 'it is important to implement continuous assessment on the young ones [pre-scholars] for easy tracing on who is trailing behind on counting skills'

T Set 2: 'if you want to follow up on how early learners are fairing in their counting skills, the best assessment way is to use continuous assessment'

TSet3: 'counting skills are important and they are to be practiced by all learners (early learners) but for the teacher to be assured that the skills are being mastered by learners (early learners), there must be a formal continuous assessment to decode this'

Establishing challenges faced by early childhood teachers in implementing continuous assessment

The findings confirm that early childhood teachers face challenges in implementing continuous assessment. Challenges in assessing early learners were significant ($df = 2$, $F = 3.233$, $p = .003$), while the second item also confirmed the presence of implementation challenges ($df = 2$, $F = 3.291$, $p = .003$).

Based on the first group discussion from a Mixed Medium pre-school, it was noted that there are challenges faced by preschool teachers in implementing continuous assessment on acquisition of counting skills among preschool learners. Some of the responses were:

TMix1: ‘Sometimes when you try to seriously implement the continuous assessment on useful skills like counting, you find out that the school administrators are interested in something else, not the continuous assessment on early learners... we get discouraged’

TMix2: ‘There are a lot of challenges the we meet on implementing continuous assessment on acquisition of counting skills on the pre-scholars we have here for example unwillingness to genuinely implement this from both school administrators and other fellow teachers’

TMix3: ‘Challenges to continuous assessment implementation faced by we pre-school teachers include lack of proper policies that will guide us to strictly follow.’

TMix4: ‘From my personal observation, the other challenge is that most teachers have little or no skills in carrying out the continuous assessment for learners, hence they just ignore it [continuous assessment process].’

Strategies teacher use to carry out continuous assessment on acquisition of counting skills among early childhood learners

The findings indicate that assessment strategies significantly influence the acquisition of counting skills. Strategies used by teachers were significant ($df = 2$, $F = 5.502$, $p = .004$), the need for teachers to conduct continuous assessment was also significant ($df = 2$, $F = 5.548$, $p = .004$), and school-based strategies were significant ($df = 2$, $F = 5.041$, $p = .007$).

Based on the first group discussion from English Medium pre-school and Tswana Medium, it was noted that there are a number of continuous assessment strategies which Preschool teachers can use in the acquisition of counting skills among learners. Some of the responses were:

TEng4: ‘obviously there are strategies that are to be used when dealing with issue of continuous assessment on the acquisition of counting skills on pre-scholars such as knowing better you fast learners and slow learners in your class as a teacher, as this can give you a clue on how best you can help the little ones (pre-scholars) in doing well on their counting skills’

TEng5: ‘strategies are there, but they mean nothing if not well implemented by the teacher for the benefit of the pre-scholars...’

TEng6: ‘strategies number one, know your students, know their strengths and weaknesses and devise a way to help them in mastering the counting skills as simple as that’

TSet4: ‘the strategies should not only focus on the tests and exercises alone but should be extended to other extra-curricular activities that are related to counting skills learning’

TSet5: ‘considerable mathematical experience, a partial understanding of many concepts and some important skills, including counting, are already within the heads of the pre-scholars, all is needed is the best strategies to impart the counting skills on the early learners’

TSet6: ‘there are good strategies that enhance counting skills on pre-scholars when implementing the continuous assessment on early learners such as reciting number words even in the full and correct order, making the learners to understanding that the size of a group of objects is determined by the last number reached when counting the set, involving them with lots of regular opportunities to count groups, making these counting experiences fun and playful is essential to engaging a child attention with the act of counting. The number ladybugs can be used in children’s activities and fun for children to use in counting and number matching activities.’

Teacher perspective on continuous assessment in early childhood education

Teachers viewed continuous assessment as necessary for early learners. The finding was statistically significant for the necessity of continuous assessment ($df = 2$, $F = 5.314$, $p = .005$) and for teachers’ overall perception of its importance ($df = 2$, $F = 5.249$, $p = .006$).

Based on the first group discussion from English Medium, Mixed Medium and Tswana Medium pre-schools, it was noted that teacher's perspectives on continuous assessment in Early Childhood Education are varied. Some of the responses were:

TMix4: 'it is good to implement continuous assessment in early childhood education as this can help the pre-scholars on the acquisition of their counting skills'

TMix5: 'it can be a nice step if this can be mandatory to all early childhood centers to implement continuous assessment for the acquisition of the counting skills of the early learners'

TMix6: 'early learners need to be seriously monitored in their dealings by their teachers so as to see who needs serious attention for make ups to be considered on the counting skills journey.'

TEng7: 'Continuous assessment is necessary at all cost in early childhood education...'

TEng8: 'Professional and well trained teachers for pre-scholars know very well that counting skills can not only be assessed once in a while, it needs continuous assessment...'

TSet7: 'Continuous assessment is the core business in as far as assessment of pre-school learners is concerned and it should be part of early childhood wherever....be it in Tswana medium, English medium or mixed medium pre-schools as it helps in pre-scholars acquisition of counting skills.'

Table 2: Multiple Comparisons

Turkey HSD							
Dependent Variable	(I) Gender	(J) Gender	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Continuous Assessment In Counting Skills Impacts Early Learners	Male	Female	-.26661*	.09184	.011	-.4828	-.0504
	Female	Male	.26661*	.09184	.011	.0504	.4828
Lack Of CA Has Negatives On Learning And Counting Skills	Male	Female	-.23857*	.09076	.024	-.4523	-.0249
	Female	Male	.23857*	.09076	.024	.0249	.4523
CA On Learners Has Positive Effect On Learning And Counting Skills	Male	Female	-.24058*	.09181	.025	-.4567	-.0244
	Female	Male	.24058*	.09181	.025	.0244	.4567
There Are Many Challenges That Arise In Assessing Early Learners For CA	Male	Female	-.25802*	.09138	.014	-.4732	-.0429
	Female	Male	.25802*	.09138	.014	.0429	.4732
There Are No Challenges Faced By Early Child Teachers In Implementing CA	Male	Female	-.26031*	.09310	.015	-.4795	-.0411
	Female	Male	.26031*	.09310	.015	.0411	.4795
		Female	.95708	.53693	.177	-.3071	2.2213
Strategies To Implement CAs On Learners Has Effect On Learning	Male	Female	-.24944*	.09245	.020	-.4671	-.0318
	Female	Male	.24944*	.09245	.020	.0318	.4671
Teachers Are Required To Conduct CA For Preschool Learners	Male	Female	-.24715*	.09123	.019	-.4620	-.0324
	Female	Male	.24715*	.09123	.019	.0324	.4620
		Female	.94850	.52615	.170	-.2903	2.1873
The School Has Strategies To Implement CA For Early Learners	Male	Female	-.23199*	.09186	.032	-.4483	-.0157
	Female	Male	.23199*	.09186	.032	.0157	.4483
		Female	.95279	.52980	.172	-.2946	2.2002
Continuous Assessment Is Necessary For Early Learners	Male	Female	-.23857*	.09128	.025	-.4535	-.0237
	Female	Male	.23857*	.09128	.025	.0237	.4535
		Female	.95708	.52643	.165	-.2824	2.1966
Most Teachers Deem Continuous Assessment Necessary For Early Learners	Male	Female	-.23656*	.09174	.028	-.4526	-.0206
	Female	Male	.23656*	.09174	.028	.0206	.4526
		Female	.96996	.52911	.160	-.2758	2.2158

***. The mean difference is significant at the 0.05 level.**

Table 2 indicates the findings of multiple comparisons using Turkey's HSD test where all items in the questionnaire have shown to be statistically significant except when gender is split the items were not statistically significant based on gender of the respondents, however, as the study was not based on perspectives of gender, the revelation by Turkey's test does not have effects on the main findings of this study.

5. DISCUSSION OF THE MAIN FINDINGS

5.1 The effects of continuous assessment on acquisition of counting skills among preschool learners

According to both the quantitative and qualitative results of the study, it has been established that continuous assessment has an impact on acquisition of counting skills among pre-scholars. The study further established that there is significant effect on early learners if continuous assessment is implemented in counting skills. This is in agreement with the study findings of Desalegne, (2004) who states that continuous assessment is indicative instrument that is valuable for both the learner's and educators as it empowers learners to comprehend the territories in which they are experiencing issues and to move their effort in those regions and also enables teachers to screen the effect of the exercise on the learners' understanding. Again, Edens & Potter, (2013) validated the importance of continuous assessment on the acquisition of numeracy skills which they noted its critical role in understanding the developmental trajectories of mathematics skills at early ages and further recommended teachers to use continuous assessments as a component of their step by step standard, after each and every learner. This current study has further established that lack of continuous assessment for early learners has negative effect on the learning and obtaining of counting skills of the early learners which in line with findings of Meisels and Wiggins (2000) who stated that preschool teachers should conduct continuous assessment on early math skills is important because if children are not able to understand these concepts before they start school, then they will have difficulty progressing in school. To assess a young children's understanding of numbers, a teacher will need to check to see if the children are able to recognize numbers and can correctly correlate a number with its respective amount of items (Meisels & Wiggins 2000). Finally the study established that continuous assessment on early learners has a positive effect on their learning and obtaining of counting skills which supported by Claessens and Engles (2013), who indicated that mathematical proficiency is an academic and economic gatekeeper that provides a key basis for achieving other academic and career skills therefore continuous assessment has to be done on early learners. It is well known that mathematics skills develop in a cumulative fashion with early skills forming the foundation for the acquisition of later skills (Gifford, 2008).

5.2 Establishing challenges faced by early childhood teachers in implementing continuous assessment

The study investigated the challenges that were faced by early childhood teachers in implementing continuous assessment. It has established that there are a number challenges faced by early childhood teachers in implementing continuous assessment for early learners that include lack of interest from management and administrators of preschools, lack of willingness to implement such policies from administrators and teachers to pre-scholars, lack of proper policies to guide and enforce teachers to follow. These findings are in line with Obeme (2014) who acknowledged that some of the challenges that influence continuous assessment usage include: educators negative attitude towards continuous assessment, deficiency of assessment instruments and numerous instructors do not have the ability of instrument development and they would build poor instruments, non-accessibility of continuous assessment rules in schools, absence of acceptance preparing and supplemental classes for instructors on consistent assessment and guardians numbness on the value of continuous assessment, while Kapambwe (2010) who have completed a similar research expressed that educators experience different difficulties in actualizing the developmental school based appraisal.

The current study further established that there are a lot of challenges the pre-school teachers in Gaborone West meet on implementing continuous assessment on acquisition of counting skills on the pre-scholars for example unwillingness to genuinely implementation of continuous assessment from both school administrators and fellow teachers. This has also been observed by Gross and Rossbach (2011) that early childhood teachers should emphasise on mathematical activities need to be embedded in everyday situations as most of them lack training programme for mathematics which could ensure that mathematical competencies are explicitly fostered. The other challenged observed is that little research exists about the effectiveness of these approaches, as they have not yet been systematically compared regarding the learning gains for all children and for outcomes of children with differing levels of competencies (Hauser et al., 2015).

According to Ramari & Eason (2015), sticking with a mathematical problem puzzling over it and approaching it in various ways can lead to powerful learning, in addition, when several children grapple with the same problem, they often come up with different approaches, discuss various strategies, and learn from one another. These aspects of play can promote thinking and learning in mathematics as well as in other areas, however, it is challenging to the pre-school teachers to follow such activities though they need to include such activities in the continuous assessment.

On the other hand Ipaye and Ugodulunwa (2003) who stated that teachers face challenges in the implementation of continuous assessment because of workloads, variation in standards between schools and lack of qualified personnel for instance lack of skills in continuous assessment as this study has also established. Continuous assessment on acquisition of counting skills among early years learners makes demands on teacher's time and energy which suggests that teachers must attitudinally, physically, mentally and professionally, ready to operate the system effectively (Ipaye & Ugodulunwa 2003). The extent to which teachers are prepared to sacrifice their time and energy in conducting assessment continuously depend on their level acquaintance with the operational of continuous assessment. There are also the problems of lack of qualitative and lack of expertise. Many early childhood teachers need more training in evaluation. They need practical exposure to basic practical statistical concepts (Ipaye & Ugodulunwa 2003). This can help them to handle with ease, the computations and activities involved in counting skills and record keeping. The other issue is of that of large classes problems initiating against effective teaching in Botswana early childhood centers (Chisholm & Chalisa, 2011; Ipaye & Ugodulunwa 2003) which has also been observed in this current study.

Continuous assessment strategies Preschool teachers can use in the acquisition of counting skills among learners

What continuous assessment strategies Preschool teachers can use in the acquisition of counting skills among learners? The current study has established that strategies to implement continuous assessment on early learners has effect on their learning which is in agreement with Desoete, Roeyers & Stock (2009), who indicated that the strategies that are used to teach learners to counting and cardinality are essential in acquisition of numeracy skills among early childhood learners for example teaching learners that we use counting daily when we count out change to pay for our morning coffee or count the number of students present in the classroom. Early childhood's early counting skills are an important predictor of later abilities. In fact, early childhood learners who can recite and count to 20 in preschool have the highest math skills in first grade (Furlong & Opfer, 2011).

According to Baroody & Gannon (2000), you can help early years to keep track of what they have counted by encouraging them to move objects from one pile to another, touching each object as they count it, or putting a mark next to the items that have been counted. One important ways that pre-school teachers can support learners understanding of the cardinal principle is involving them with lots of regular opportunities to count groups. Making these experiences fun and playful is essential to engaging a child attention with the act of counting. The number ladybugs can be used in children's activities and fun for children to use in counting and number matching activities (Clements & Sarama, 2005). These are some of the very important strategies that can be used to support early learners in mastering counting skills. Continuous assessment on acquisition of counting skills among early years learners makes demands on teacher's time and energy which suggests that teachers must attitudinally, physically, mentally and professionally, ready to operate the system effectively.

The study has also noted that the school strategies to implement continuous assessment for early learners is affected by strategies that a teacher use to carry out continuous assessment on acquisition of counting skills among early childhood learners. This is supported by Baroody and Gannon (2000), who stated that you can help early years learners to keep track of what they have counted by encouraging them to move objects from one pile to another, touching each object as they count it, or putting a mark next to the items that have been counted as strategies use to implement continuous assessment for early learners. The continuous assessment strategies which Preschool teachers in Gaborone West have suggested to be use in the acquisition of counting skills among learners include; reciting number words even in the full and correct order, making the learners to understanding that the size of a group of objects is determined by the last number reached when counting the set, involving the learners with lots of regular opportunities to count groups, making these counting experiences fun and playful is essential to engaging a child attention with the act of counting.

Teacher's perspectives on continuous assessment in Early Childhood Education

This study has established some of the teachers' perspectives on continuous assessment in early childhood. The early childhood teachers are of the view that it is very important to implement continuous assessment in a serious manner not as it is now. They further indicated that continuous assessment can play a pivotal role on counting skills of pre-school learners as assessment is very important in teaching and learning process. This is in agreement with other studies that indicated that through assessment, feedback could be provided to both learners and teachers (Adedo & Aina, 2013). The study further found out that the early childhood teachers agree to the concept that of continuous assessment being very necessary for early learners which is as well in line with Barmby et al. (2009) who believe that learners develop mathematical understanding through adding mental connections between ideas by representing the mathematics and reasoning which is a

process that need to be monitored and evaluated through continuous assessment. Early childhood teachers are often intuitively assist the learners in making connections, such as helping the learners to add numbers together by counting. However, if the early childhood teachers are aware of the importance of this, they can capitalize on the opportunities to assist mathematical development through continuous assessment.

6. CONCLUSION

The current study sought to find out the effects of continuous assessment on acquisition of counting skills among children in the early years of learning. The study has established the following; firstly, continuous assessment has an impact on acquisition of counting skills among pre-scholars; secondly, there are a number of challenges faced by early childhood teachers in implementing continuous assessment for early learners that include lack of interest from management and administrators of preschools, lack of willingness to implement such policies from administrators and teachers to pre-scholars, lack of proper policies to guide and enforce teachers to follow; thirdly, the strategies that are used to teach learners to counting and cardinality are essential in acquisition of numeracy skills among early childhood learners. These implemented strategies on continuous assessment on early learners have effects on their learning outcomes. Lastly, the study has established that teachers' perspectives on continuous assessment in early childhood is very important to implement continuous assessment in a serious manner as it can play a pivotal role on counting skills development in pre-school learners as assessment is very important in teaching and learning process through assessment, feedback could be provided to both learners and teachers. Continuous assessment has positive effects on the acquisition of counting skills among children in the early years of learning.

7. RECOMMENDATION

Based the current study, the researcher recommends that:

- i. English medium, Tswana medium and mixed medium pre-schools must serious implement continuous assessment in their schools as it positively contribute to the acquisition of counting skills to the early learners because according to ETSSP (2015), there is no policy in Botswana for continuous assessment practice at pre-primary education schools.
- ii. The school administrators and managers must make sure that policies on continuous assessment on early learners are observed and followed by all early childhood teachers.
- iii. A replica of the current study can be conducted on a larger scale beyond Gaborone West.

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