

The effect of pre-school education on academic performance in primary school: a case study of grade one pupils in Botswana

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Abstract

Evidence abounds in the literature of a direct link between pre-primary education and academic performance in the primary school. The salutary effect of the 'Head start' programme inaugurated in the United States of America in the early 1960s on the academic performances of its beneficiaries in the lower primary is such a piece of evidence. Premised on this commonality between pre-primary education and academic achievement in the primary school, the study aimed at finding out whether there were significant differences in the performances of Botswana grade one pupils with pre-school education experience and their counterparts without such an experience on selected tasks in English language, mathematics and science. Using purposive sampling technique for school selection, a total of 120 grade one pupils were randomly selected for the study from four selected primary schools in Botswana. In addition, 20 grade one teachers from the study schools participated in the study. For data collection purpose, each pupil-subject was individually interviewed for about 20 min on the study tasks; and the opinions of the twenty teachers on the subject of the study was sampled by the use of a questionnaire. The results of the study indicated that pupils with pre-school education experience significantly out-performed their counterparts without such experience in all the three school subject areas surveyed by the study. This trend of the impact of pre-school education on academic achievement at the early primary school level was corroborated by the opinions of the primary school teachers. The paper concluded by observing that pre-school education equips children with pre-requisite skills which make learning in grade one easier and faster for children so exposed. © 2002 Elsevier Science Ltd. All rights reserved.

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1. Introduction

Research evidence suggests that new entrants into primary schools are better prepared for the

school environment and that they do make better use of school resources if they have been exposed to pre-school education prior to their entry into the regular school system (Myers, 1992). This is probably not unexpected as such exposure would have prepared the new intakes for the 'world of school' because of the similarities between pre-school and

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regular school environments. Pre-school education is known to foster the development of some basic social skills and young learners lacking such skills risk 'peer rejection' and 'academic failure' (Knight and Hughes, 1995). It has been observed, for example, that pupils with pre-school experience tend to feel much more at home than their counterparts without such an experience during their first few days in school. Furthermore, most of them seldom cry and demand to go back home with their parents on their first day in school. Evidence abounds in the literature (Adams and Sandfort, 1992; Myers, 1992; Smith and James, 1975) to support the view that pre-school education engenders supportive climate for fast adjustment to classroom environment in the primary school. This is known to result in smooth transition from the 'social world' of the home to the somewhat 'formal world' of the school.

The inauguration of the 'head start' programme nationally in the United States in the early 1960s with the specific goal of compensating for poor home conditions of children from disadvantaged homes was based on such evidence (Brown, 1985; Butler, 1970; Hechinger, 1986; Payne et al., 1973; Tizard, 1975). The 'head start' programme was adjudged to have a salutary effect on its beneficiaries as the products of the programme were found to have enhanced IQ scores and to adjust well to the school environment soon after their exposure to the programme (Tizard, 1975). Similar programmes in Ireland (Kellaghan, 1977) and in the United Kingdom (Nall, 1982) yielded similar results. The same trend has been observed in the early childhood programmes established in ten countries in four continents of the world by the Bernard van Leer Foundation (1999). On the African continent, the Bernard van Leer Foundation (1994) identified day-care centres usually managed by non-governmental organizations and/or communities as a preferred mode for formal early childhood education but cautioned on the need for blending the 'traditional' with the 'modern' to guarantee the desired results.

In the case of Botswana, pre-school education is not part of the formal system of education yet. The government of Botswana, however, appreciates the value of pre-school education as contained in its

policy on pre-primary education in its national policy on education. This states inter alia that:

Government recognizes the need to develop effective and comprehensive policy on pre-primary education 'with a view to linking it to the formal education system in the long run'.... However, at the present time government cannot commit itself to the provision of pre-primary education on a universal basis given the scale of government commitment for the other areas of support (Revised National Policy on Education, 1994, p. 7).

The import of this is that pre-primary education is not universally provided for in the nation's 10-year basic education programme. But that notwithstanding, the government has put in place a national policy (National Policy on Day Care Centres, 1980) to guide the development and the running of pre-school facilities in the country. Currently, pre-primary education is provided mainly by a few prestigious private primary schools as adjuncts to their primary education programmes at exorbitant fees for the children of the well-to-do; and by private individuals, non-governmental organizations (NGOs), local councils and professional organizations through day-care centres for the children of the 'ordinary' people. These day-care centres constitute 'more than 90 percent of early childhood education programmes' in the country and they go by a variety of names such as 'crèches, nursery schools, kindergartens, pre-school or simply day-care centres' (Bar-on and Jacques, 1999). It should be added in passing that, by and large, the curricula of the day-care centres in the country focus on the development of basic social skills, toileting skills, basic numeracy skills, basic writing skills, basic oral communication skill in English language etc.

A number of studies had been undertaken in Botswana (Otaala et al. 1982, 1989; Kuru Development Trust, 1995) to gauge the impact of day-care programmes in the country. In an evaluation study of the impact of day-care programmes carried out by Otaala et al. (1989), the researchers concluded that the products of the programmes were better prepared for primary school environment and enjoyed smoother transition to primary school

classroom environment. Similar conclusions were reached about the impact of a sister programme [tagged Child-to-Child programme — a programme in which older children from the first three grade levels of the primary school help prepare younger children (mainly their siblings) for school entry the following year while they in turn improve their cognitive development] in the country as an international survey of 70 countries in 1987 found Botswana's Child-to-Child programme, among a few others, to be effective in preparing children for primary school education (National Commission on Education, 1993) and by a 'survey on the effects of preschool on Basarwa primary school children in the Ghanzi district of Botswana' (Kuru Development Trust, 1995).

2. Research problem

In the light of the above, the study aimed at finding out whether there were significant differences in the performances of Botswana grade one pupils with pre-school experience and their counterparts without such an experience on selected tasks in English language, mathematics and science. And for an in-depth study of the research problem, the study was guided by the following research questions:

1. Is there a significant difference in performance between Botswana grade one pupils with pre-school education experience and their counterparts without such an experience in selected tasks in English language, mathematics and science during their first few weeks in the primary school?
2. Is there a significant difference in performance between the two groups of pupils in the individual subject areas of English language, mathematics and science during the same period?
3. Is there a significant difference in the performance of the male subjects with pre-school education experience and their counterparts without such an experience in the three subject areas during the same period?
4. Is there a significant difference in the performance of the female subjects with pre-school

background and those of them without such a background in the three subject areas during the same period?

5. What are Botswana grade one teachers' opinions regarding the academic performance and the social adjustment level of the two groups of pupils in primary school?

3. Research methodology

3.1. Research design

The nature of the study dictated the employment of a survey technique for data collection. In particular, a comparative survey method which allowed performance comparison between the two study groups was used with a view to obtaining pertinent data from the study samples and presenting the research findings there from without the manipulation of the subjects of the study (Cohen and Manion, 1994).

3.2. Population and sample selection

The population of the study comprised grade one pupils in Botswana public primary schools (Setswana medium schools) during the beginning of the school year in January 1999. A preponderance of the pupils whose ages ranged between six and eight years had never seen the inside of a classroom before their admission into grade one classes at the beginning of that school year because pre-school education services which are normally provided by NGOs, women's groups, churches and interested individuals to the children of ordinary Botswana fell outside the 10-year basic education services provided free by the government of Botswana. The population of the study comprised children of low-income parents or of the so-called 'masses'. The preponderance of the population did not have access to pre-school education because of the non-universalization of pre-primary education; and the limited number of them that did, did so because of the importance their parents attached to this level of education which motivated them to pay the nominal fees charged by the voluntary bod-

ies offering day-care centre facilities for children from disadvantaged homes.

For sample selection, purposive sampling technique was used to select three geographical areas for the study. These are Gaborone (to represent urban settings), Tlokweng (to represent peri-urban settings) and Mahalapye (to represent rural areas). From each of the three areas selected, four public primary schools were randomly selected; and one grade one class was then randomly selected from each of the participating schools. In all, 12 grade one classes in 12 schools representing the three geographical areas (of urban, peri-urban and rural areas) participated in the study. The selection of the classes was then followed by the stratification of the pupils in each of the classes into two strata consisting of the pupils who had been exposed to pre-school education and those that had not been exposed prior to their admission into grade one classes. Because of the limited number of pupils with pre-school background experience in each of the 12 selected classes, five pupils with such an exposure were randomly selected from each of the twelve selected grade one classes. In like manner, simple random technique was used to select five pupils each per class from the other stratum (i.e. those without pre-school education experience). By doing so, the study sample consisted of a total of 120 grade one pupils made up of 60 pupils with pre-school exposure and the rest without such an exposure from the 12 grade one classes in 12 public primary schools in Botswana. In addition to pupil sample, 20 grade one teachers were randomly chosen from the 12 selected schools to participate in the study.

3.3. Instrumentation

Two instruments: (i) pupil assessment instrument; and (ii) teachers' questionnaire used for data collection were constructed by the researchers due to non-availability of suitable instruments for the study. Details of the construction exercise are provided below.

3.3.1. Pupil assessment instrument

The construction of the pupils' assessment instrument was influenced by the works of Blenkin

and Kelly (1992), Good (1977) and Gull (1994). According to these authors, the basic purpose of assessment in childhood education setting is to determine the child's developmental functioning capability or to determine what knowledge and/or skills the child has acquired as a result of specific childhood education experience. They opined that the starting point in assessing such a child is to focus on what he/she can do and not on what he/she is expected to be capable of doing. It is for this reason that the focus of assessment in early childhood period is on the basic processes of observing, classifying, measuring, making things, using numbers etc.

Based on the above, the construction of the pupils' assessment instrument concerned itself with finding out whether or not a grade one pupil is able to:

- (i) state his/her name correctly
- (ii) name identified parts of his/her body
- (iii) follow simple instructions (such as clap your hands)
- (iv) count numbers up to ten
- (v) recognize numbers from one to ten
- (vi) match number of objects with numerals
- (vii) identify common geometrical shapes around the classroom
- (viii) name at least five different colours
- (ix) identify colours of identified objects in the classroom
- (x) recite the first five letters of the alphabet
- (xi) sort given coins according to the pictures on them
- (xii) classify given objects as either light or heavy
- (xiii) order linear objects by their lengths
- (xiv) compare objects
- (xv) contrast objects

The above exercise led to the construction of a 15-item pupils' assessment instrument consisting of five English-related items, five mathematics-related items and five science-related items.

3.3.2. Teachers' questionnaire

This consisted of both close-ended and open-ended items requesting information on their view

about the importance of pre-school education and their opinions about the academic and social adjustment differences, if any, between primary school pupils with pre-school education background and their counterparts without such an experience.

3.3.3. Validation of research instruments

The pupils' assessment instrument was face validated for suitability and relevance by a three-member panel of early childhood educators. Further validation of the instrument was carried out by 'test-trying' it in a pilot study in one grade one class in one of the urban schools not selected for the study. A total of ten grade one pupils (half of whom had pre-school exposure) took part in the pilot study. Feedback from the pilot study was used to re-sequence the items of the instrument to ensure that items were listed according to their difficulty levels with the easier items coming first in each of the three categories of the instrument. The modified 15-item instrument is contained in Appendix A for ease of reference.

The teachers' questionnaire was also face-validated by the same three-member panel of early childhood educators. They unanimously concurred that the instrument is robust enough to elicit the required information from the pupils' teachers (See Appendix B).

3.3.4. Reliability determination

The reliability determination of the pupils' assessment instrument was carried out using test-retest technique. This was done by administering the modified instrument twice on another group of ten grade one pupils. In line with literature, the intervening period between the two administrations of the instrument was set at two weeks. A reliability coefficient of 0.75 resulted from this exercise for the instrument.

3.4. Data collection

Data for the study were collected during the first three weeks of the 1999 school year when no formal teaching had started in any of the selected classes. Prior to data collection, permission was sought and obtained from the relevant arms of the

Ministry of Education to conduct the study; and the headteachers of the selected schools were briefed adequately about the purpose of the study and the modality for data collection. Each participating pupil was individually interviewed in the mother tongue and in rudimentary commands in English language by one of the researchers using the pupil assessment instrument as a guide. The teachers' responses to the subject matter of the study were obtained through the administration of copies of the teachers' questionnaire on the participating teachers.

3.5. Data analysis

Data for the study were analysed by means of both descriptive and inferential statistical techniques. Qualitative data analysis procedure was also employed. Highlights of the analyses carried out are given below.

3.5.1. Pupils' assessment instrument

On the basis of one point for each correct pupil response to the 15-item pupils' assessment instrument, *t*-test analysis was carried out for the resolution of research questions 1-4.

3.5.2. Teachers' questionnaire

The open-ended questions in the teachers' questionnaire were analysed qualitatively. The teachers' responses to the close-ended items of the questionnaire were ignored in the consideration for the resolution of research question 5 because of the lack of consistency in the responses of the teachers to the items.

4. Results and discussion

4.1. Overall performance in the three subject areas

Pupils with pre-school experience out-performed their counterparts without such a background in the three subject areas of English language, mathematics and science as depicted by Table 1 below.

The statistical *t*-test computed to test for significant difference between the means of the two

Table 1
Overall performance of grade one pupils with and without pre-school education background in the three subject areas

School-type background	Mean	Standard deviation	No. of pupils
Pre-school	46.39	11.11	60
Non-pre-school	27.78	6.74	60

groups of pupils yielded a value of 10.18, which was found to be significant at 0.01 level. This meant that there was a significant difference between the pupils with pre-school background and their counterparts without such a background in the three subject areas covered by the study. This finding shows that children with pre-school background significantly out-perform their counterparts without such a background. The finding is in agreement with the finding by Otaala et al. (1989) concerning the impact of day-care programmes. The researchers reported that children attending day-care programmes performed better in primary school than their counterparts without such a background.

Children who have gone through some form of early childhood intervention tend to acquire certain basic skills, which enable them to make an easier transition into primary school environment. These children continue to have this advantage at least for the first few years during their period of schooling (Myers, 1992).

The point must be stressed that the observed difference between the two groups was not due to identifiable pre-determining family background factors (such as the pupils' parental socio-economic and education background) but to the nature of the pre-school experiences the pupils were exposed to. In fact, the pupils are children of poor parents who cannot afford the high fees charged by pre-schools for the children of socio-economically advantaged parents. But because of the importance these poor parents attach to this level of education, they are motivated to pay the nominal fee charged by the bodies offering day-care facilities for the children of the disadvantaged. Many such centres in the country "depend almost entirely for their

operational costs on a small annual grant they receive from their councils and on the (very small) fees they can charge parents" (Bar-on and Jacques, 1999). It is significant to note that the "very small fees" many such pre-schools in the country charge are less than US\$ 20 per term per child; and that none of the pre-schools covered by the study charge more than US\$ 50 per term per child.

To all intents and purposes, members of the study population, whether with or without pre-school education, could at best be classified as "ordinary children". They all invariably end up in the free public primary schools provided by the government after their sojourn in such pre-schools while their counterparts from socio-economically advantaged homes continue their education in their respective high-fee paying schools popularly referred to as "English medium nursery & primary schools".

It should be pointed out too that even though there is no policy on national minimum standards for programme offerings of these "early childhood care and education services" in Botswana now (Bar-on and Jacques, 1999), abundant opportunities are provided by many a centre for the children of socio-economically disadvantaged parents to interact with one another and to engage in a wide variety of activities such as using pencils and crayons, making things, learning the alphabets and numerals, classifying things according to colour and/or shape etc.

Milbank and Osborn (1987) observed that in a pre-school setting, as children interact with their peers and engage in a wide variety of activities, their cognitive development is stimulated. This advantage perhaps came to the fore in the results of the subjects of this study in English language, mathematics and science tasks where the pre-school graduates significantly out-performed their counterparts without pre-school background in all the three subject areas.

Based on the above discussion, it is logical to ascribe the observed difference between the two groups of the study sample to the nature of the pre-school experiences they were exposed to rather than to the socio-cultural background from which they were drawn.

4.2. Performances in the individual subject areas

In addition to the overall performance of the study sample in the three subject areas, the performances of the pupils with pre-school background and their counterparts without pre-school background in the individual subject areas of English language, mathematics and science fielded statistically significant results at 0.01 level of significance in favour of the group with pre-school experience as contained in Table 2 below

From the results contained in Table 2 above, the mean differences in the performances of the two groups of pupils in the subject areas of English language, mathematics and science were not due to chance but to the inherent difference between the two groups. These significant differences between the two groups underscore the salutary effect of pre-school education on its recipients as the differences turn out to be in their favour. In all the three subject areas, pre-school background seems to impact positively on academic performance in grade one in conformity with the finding by Otaala and his co-workers in 1989.

4.3. Overall performance in the three subject areas by gender

The analyses carried out to determine whether there were any differences in the overall performance in the three subject areas between boys with and without pre-school background on the one hand and between girls with and without pre-school background, on the other yielded the following results.

As can be seen from Table 3, both mean differences (for the male group and the female group) in the three subject areas are significantly different in favour of the group with pre-school background. These results further buttress the fact that pre-school education has a salutary effect on the early education of the child (Otaala et al., 1989).

4.4. Teachers' views on the subject

The pupils' teachers' views were sought on the subject to provide additional evidence for the rationalization of the emerging results. Using open-ended questions, the teachers were requested to indicate their views as to whether it was important for children to go through pre-school before coming into grade one. Their views were also sought on observable academic and adjustment differences between pupils with pre-school background and those without. All the respondents agreed that it was important for all children to go through pre-school. The teachers' comments on first graders' performance, based both on their observation and experience, supported the finding that pupils with pre-school experience tend to out-perform their counterparts without such a background in grade one. They claimed that pupils with pre-school education experience are better prepared for primary school education in that they would have acquired some pre-reading skills, counting skills and fine motor cum social skills during their pre-school education. They opined that the acquisition of these skills put the pre-school group ahead of the other group in communicating, counting, and hold-

Table 2
Performances of grade one pupils with and without pre-school education background in English language, mathematics and science

Subject areas	School-type	Mean scores	Standard deviation	No. of pupils	Computed <i>t</i> -values*
English language	Pre-school	14.24	5.20	60	10.24
	Non-pre-school	6.15	3.16	60	
Mathematics	Pre-school	16.42	3.92	60	7.70
	Non-pre-school	10.34	4.70	60	
Science	Pre-school	15.73	3.62	60	7.54
	Non-pre-school	11.28	2.80	60	

* All are significant at 0.01 level (with tabled *t*-value=2.61 at *df*=118).

Table 3
Performances of male pupils with and without pre-school education background vis-à-vis their female counterparts

Gender	School-type background	Mean scores	Standard deviation	No. of pupils	Computed <i>t</i> -alues ^a
Boys	Pre-school	44.82	11.83	31	6.65
	Non-pre-school	27.79	7.54	29	
Girls	Pre-school	48.13	10.19	28	7.86
	Non-pre-school	27.77	9.79	32	

^a Both are significant at 0.01 level (with tabled *t*-value=2.65 at *df*=58).

ing pencils and crayons as well as in writing and drawing.

Two major themes merged from the teachers' responses. These centred on the following:

1. Familiarity with the school environment.
2. Acquisition of some basic skills from pre-school.

4.4.1. Familiarity with the school environment

The respondents indicated that when children went through pre-school before admission into grade one classes, they tended to become easily adapted to the classroom situation and the school environment as a whole. Because they are used to the school set-up, they socialize easily with both the teacher and other children. Due to this favourable adjustment, learning seems to be easier for them than for those without pre-school experience. In support of this observation, the verbatim responses of some of the teachers are reproduced below for ease of reference.

Teacher 1: "Yes, it is very important because it sets them ready for standard one. They can easily follow instructions and are used to many people".

Teacher 2: "Pre-school pupils are used to school. They don't cry. They know what school is".

Teacher 3: "It is important for children to go through pre-school because it helps them to socialize with others to know what is required of them in school".

Teacher 4: "They get used to coming to school, unlike those that come straight from home".

Teacher 5: "Children from pre-school classes come with some skills and they already know most things about school life".

The above is consistent with the findings from the study by Bigala et al. (1993) about the learning needs of Botswana children in standards one and two when the researchers found that:

Children with pre-school experience were ahead in learning tasks than those without. They could draw, read, sing and sort objects. They knew how to hold pens.... They were confident and well adjusted to the school environment (p. 13).

4.4.2. Acquisition of some basic skills from pre-school

In response to the second question, the teachers stated the differences in learning characteristics between pupils with pre-school and those without pre-school experience as follows:

(a) *Pre-school graduates:* From the teachers' responses, it was noted that pre-school graduates were able to communicate freely with the teacher and their classmates. They brought with them from pre-school some pre-reading skills, which enabled them to be fast in doing some related tasks. Most of them could respond to instructions in English language and had fully developed some fine motor skills in that they could, for example, hold crayons and pencils correctly.

(b) *Non-pre-school graduates:* It was gleaned from the teachers' responses that children without pre-school background were shy, scared of speaking to the teacher and other children. They could not hold crayons and pencils properly and were shy

to communicate freely. To support this, some verbatim statements from the teachers are reproduced below:

Teacher 1: "Pre-schoolers learn fast because they understand what is needed in class. Those without pre-school background are shy, whisper when they speak and sometimes use vulgar language".

Teacher 2: "Pre-schoolers perform most activities basing on what they got from pre-school but the other group base on nothing".

Teacher 3: "Pre-school children freely participate in class but those without pre-school need to be attended fully".

Teacher 4: "Those with pre-school background can communicate freely, can write their names and can respond to simple commands in English. Those without the background are shy, can't hold crayons properly and can't write their names".

Teacher 5: "Pre-school ones often learn fast and show interest whenever given some work to do. The children who didn't go to pre-school always need most of the teacher's help".

All in all, the results indicated a marked difference in performance between the two groups of learners due to pre-school experience or lack of it. Children with pre-school experience have an advantage over the other group of children (that is, those without pre-school experience) because they are already used to the school setting. They have pre-requisite skills for learning which boost their performance in grade one. The grade one teachers find it easy to work with pre-school graduates as they are easier to teach. As a result, the grade one teachers express the concern that if all the country's children went through pre-school before their admission into primary school, teaching would be easier for them. Below are some verbatim statements made by some of the teachers in support of pre-school education.

Teacher 1: "I recommend that all children to go to pre-school so that standard one teachers to cater for the same level and pre-schools should have syllabuses".

Teacher 2: "It's useful if all day-care centers teach them the same thing".

Teacher 3: "Every child should go through pre-school so that they are exposed to what is happening in school".

Teacher 4: "All children should start at pre-school so that they have same background at standard one".

5. Conclusions, recommendation and implication

Based on above findings, the following conclusions can be drawn.

1. Pre-school education equips pupils so exposed with pre-requisite skills for learning in primary school. It was these pre-requisite skills that accounted for the superior performance of the pupils with pre-school education experience in the selected tasks in English language, mathematics and science over their counterparts without such an experience.
2. Pre-school education appears to have positive effect on its recipients in early primary as pupils with such an exposure demonstrate superior academic attainment at this level. Consequently, children without such a background performed significantly lower in this study than their counterparts with such an experience. This is the case because they lack some of the basic skills and knowledge that their counterparts bring with them from their pre-school classes to their primary school classes. As a result, pupils without pre-school education background tend to adjust much slower than their counterparts with such an exposure to the school environment at least during their early days in the primary school.
3. The pupils' teachers concurred with the notion of the salutary effect of pre-school education on its recipients. They opined that pre-school education is useful in assisting grade one pupils in the primary school to learn without tears. They were of the opinion that all children should have access to pre-school education because of its

positive effect before admission into grade one classes in the regular public primary schools.

Deriving from the findings of this study, it is recommended that Botswana government should work towards universalizing pre-school education. This could be done by integrating pre-school education into the current 10-year basic education policy. The above, no doubt, has a far-reaching implication for primary school teacher preparation in that its scope and content have to be significantly modified to cater for pre-school education. The need for an enabling policy on pre-primary education by government to deal with issues such as pre-school curriculum, funding and resources for pre-school education in the country is also underscored by the findings of this study.

Appendix A

Table 4.

Appendix B. Grade one teachers' questionnaire

B.1. An Agree-Disagree Scale

Directions:

A. This 'Agree-Disagree Scale' is designed to seek your ideas on the impact of pre-school education on grade one pupils. It would be appreciated if you could rate as sincerely as possible each of the statements below on a five-point scale as to whether you strongly agree, agree, neutral, dis-

Table 4
Pupils' rating sheet

SCHOOL: AGE: BOY/GIRL: PRE-SCHOOL STATUS: URBAN/Non-URBAN: COGNITIVE DEVELOPMENT			
A	English language	Possible scores	Actual scores
	The child is able to:		
1	Say his/her own name	1	
2	Name four objects in the classroom in English	4	
3	Name five body parts	5	
4	Recite the first five letters of the alphabet	5	
5	Follow simple instructions in English	5	
	<i>Total</i>	20	
B	Mathematics		
1	Count from 1 to 10	5	
2	Recognize numbers 1-5	5	
3	Match number of object with numerals	4	
4	Recognize two geometric shapes in objects around the classroom	2	
5	Sort coins according to their pictures	4	
	<i>Total</i>	20	
C	Science		
1	Order 5 objects by length	5	
2	Name any four colours	4	
3	Identify five colours	5	
4	Classify 4 objects as heavy/light	4	
5	Compare and contrast objects	2	
	<i>Total</i>	20	

Table 5

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
(a) Gender: (i) Male (ii) Female (b) Experience as a grade one teacher: (i) Less than 5 years (ii) Between 5 and 10 years (iii) More than 10 years (c) Your qualification: (i) Diploma (ii) Degree (iii) Other (specify)					
<i>Close-ended questions:</i>					
Pre-school graduates learn everything faster than non-pre-school graduates					
Non-pre-school graduates lag behind pre-school graduates in performing number operations					
Pre-school graduates are easier to manage in class than non-pre-school graduates					
Pre-school graduates can already write by the time they get to grade 1					
Pre-school graduates learn all forms of counting faster than non-pre-school graduates					
Pre-school graduates are able to easily sort objects according to various attributes					
Pre-school graduates easily follow instructions in English					
Non-pre-school graduates are less active in class discussions than pre school graduates					
<i>Open-ended questions:</i>					
1. Is it important for children to go through pre-school before coming into grade one? Yes/No. (Please give reasons for your answer.)					
2. As a grade one teacher, what differences have you observed between children with pre-school background and those without in the way they learn?					
Thank you					

agree or strongly disagree with the statements. Please indicate your preference with a tick in the appropriate column below. At the end, you are requested to answer the last two questions in the spaces provided.

B. Please give the following information about yourself by making a tick opposite the appropriate response. (Table 5).

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