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Competency level of Nigerian Primary 4 pupils in life skills achievement test

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One of the goals of education in Nigeria is to develop in children the ability to adapt to their changing environment. This goal could be achieved through competency in life skills. Therefore, this study examines the competency level of Nigerian Primary 4 pupils in the life skills achievement test. The test was administered on a sample of 22,638 pupils. The results show that the competency level of the majority of the pupils in life skills is below the national benchmark (50%). Boys are more competent than girls. Pupils in urban areas are more competent than the pupils in rural.

Keywords: competency level; Primary 4 pupils; life skills; achievement test

Introduction

In Nigeria, the government adopted the nine-year compulsory schooling policy after the declaration of the Universal Basic Education (UBE) programme in 1999, which is designed to replace the 6–3–3–4 (six years of primary, three years of junior secondary, three years of senior secondary, and four years of tertiary) system of education. The 9–3–4 policy (nine years of basic; three years of senior secondary, and four years of tertiary education) became operational in 2009 when the first intake into the basic education in 2000 completed the nine-year basic education programme. The implication is that there is a mix between the 6–3–3–4 and the 9–3–4 educational systems. Whether we employ the 6–3–3–4 or the 9–3–4 educational system, the fact still remains that the first six years spent in the 9–3–4 educational system are still regarded as years spent in primary education. Primary education forms the basis for future educational development; for primary education to achieve this purpose, some goals and objectives are put together. One of the goals is to develop in the child the ability to adapt to his changing environment (Federal Republic of Nigeria [FRN] 2004). Pupils in the primary schools, especially Primary 4 pupils, are exposed to various curriculum contents which culminate into what can be referred to as life skills. Life skills are abilities required in children and adults for adaptive and positive behaviour that enable them deal effectively with the demands and challenges of everyday life (WHO 1993). Examples of these skills are communication/interpersonal skills, decision-making and critical thinking skills,

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coping skills (survival skills), and self-management skills. However, a life skills-based education was defined as one that develops knowledge, attitudes, and skills related to social and health issues, using sequenced interactive teaching and learning methods which provide opportunities to practice and reinforce psychosocial and interpersonal skills in a culturally and developmentally appropriate way. Such education contributes to the promotion of personal and social development, the prevention of health and social problems, and the protection of human rights (WHO 1993).

One of the most important goals of the educational process is that children should be able to acquire some basic competences and skills in promoting permanent literacy, self-sufficiency, and some requisite attitudes necessary to function effectively in the context of the nation's socio-economic and psychological setting (FRN 2004). The extent to which schooling is able to promote these knowledge and skills, i.e. the level of learning achievement, is reflected in the quality of learning outcome. Learning achievement is described as how much pupils at a specified level of schooling have acquired in the knowledge and skills defined for that level within the curriculum (Falayajo et al. 1997). Learning achievement in any subject can be measured by the achievement test in that subject (Obemeata 2000). Achievement tests in a particular subject, according to Obemeata (2000) and Ayodele, Adegbile, and Adewale (2001), are a series of questions given (using a criterion-referenced test – the curriculum) to learners in order to determine their mastery level in the subject. Therefore, the achievement test in life skills is used to measure learners' competences in life skills. Competence according to Atherton (2003) is the ability to perform the requisite range of skills for practice. As represented here, it has a broad base. In all areas of practice there will be some skills in which experts are 'merely competent': for example, in some instances, many nurses are far more competent than doctors in taking blood samples. There are inconsistencies in the way competence is measured. It appears to this investigator that it all depends on 'competences in what' we are interested in.

Different methods are used by different authors to measure competency; for example, Chun (2005) identified four levels (non-user, basic, intermediate, and advanced) of competencies in computer skills (using Microsoft Word™). Chun went further to indicate that non-user describes someone who does not use a computer at all. For a person with basic skills, it is sufficient to perform daily word processing tasks, such as, producing routine letters, memorandums, and informal reports. A person with this level of skill is able to use basic formatting, editing, printing functions, and understands the document page setup. For intermediate level, it is necessary for the person to use and create a variety of templates, complex tables, merges, manage table data, and sort. A person with this level of skill is able to customise toolbars, import and insert graphs, embed Excel™ data, create elaborate reports, and create a web page based on a template and add hyperlinks. For advanced level, it is required for the person to produce very large, complex formal documents that require a table of contents, footnotes, endnotes, bookmarks, and other special elements. A person with this level of skill is able to use and create a wide range of graphic effects and has full mastery of macro commands.

Dreyfus and Dreyfus (1989) measured competency along five points: novice, advanced beginner, competent, proficient, and expert. They see a novice as a rigid adherent to taught rules or plans with little situational perception and no discretionary judgment. They observe that advanced beginners need guidelines for actions based on attributes. Advanced beginners see actions in terms of longer-term

goals, conscious deliberate planning, and standardised and routinised procedures. Dreyfus and Dreyfus (1989) postulate that proficient sees situations holistically rather than in terms of individual aspects; sees what is most important in a situation; perceives deviations from the normal pattern; has less laboured decision-making; and uses maxims for guidance, whose meaning varies according to the situation. They conclude that an expert does not rely on rules or guidelines; (s)he grasps situations intuitively based on deep tacit understanding. (S)he uses analytic approaches only in novel situations or when problems occur.

The Department of Education in South Africa (1998) in its competency framework identifies and defines the competencies needed for professional and business classes. The professional and business competencies needed are communication, personal management, interpersonal, leadership, organisational, management, and stakeholder skills. It went further to hierarchically define competencies in three levels: basic, intermediate, and accomplished. A basic level of competency requires the incumbent to know general terms, concepts, processes, and objectives of the competency and be able to apply the competency to common tasks. An intermediate level of competency requires the incumbent to be able to apply the competency consistently to perform common tasks. An accomplished level of competency requires the incumbent to be able to use the competency consistently to perform complex tasks requiring creativity and judgement.

Generally, competence of a learner is determined in terms of knowledge, skills and values in a specialised context (Department of Education in South Africa 1998). This can be achieved using authentic assessment strategies. Fraser (1999) describes authentic assessment tasks that resemble skills, activities and functions in the real world and in school. Assessment then becomes a learning experience in which learners are prepared to apply their knowledge, skills, and values in an integrated manner. Assessment of knowledge, values, and skills relates to assessing elements in the cognitive, affective, and psychomotor learning domains. The taxonomies of Bloom (cognitive domain), Krathwohl (affective domain), and Harrow (psychomotor domain) remain invaluable frameworks for assessing acquired knowledge, skills, and values (Van der Horst and McDonald 1997).

The types of competences mentioned earlier in Department of Education in South Africa, Fraser, and van der Horst and McDonald are either three or five categories, but in this investigation, the competency level of the pupils will be categorised into two (low and high). Anyone who scored below 50% (the national benchmark) in the life skills test is considered as having a low competency level. Those who score 50% and above in life skills are categorised as having a high competency level.

The life skills test used in this paper is limited to Primary 4 pupils because Primary 4 is the year when English Language starts to be the official language of instruction. In lower classes (pre-school and primary years 1 to 3), the instruction is given to pupils in the language of the immediate environment (FRN 2004). Life skills is not a subject in the school curriculum but the skills are taught in various subjects such as hygiene, social studies, primary science, agriculture, physical education, and general knowledge. The knowledge gained in these subjects could be used for survival in case of emergency or danger, or could be used to prevent danger. Therefore, this paper provides answer to such question as how competent are Nigerian Primary 4 pupils in life skills achievement test? The competences of pupils based on their gender, school location, school type, and pre-primary school status are also examined.

Research questions

The study sought to provide answers to the following questions:

(1) What are the levels of competency attainment of pupils against curricular expectations in life skills?
(2) How is the competency attainment of boys different from that of girls in terms of curricular expectations in life skills?
(3) How is the competency attainment of pupils in urban schools different from that of pupils in rural schools in terms of curricular expectations in life skills?
(4) How is the competency attainment of the pupils in public school different from that of the pupils in private schools in terms of curricular expectations in life skills?
(5) How is the competency attainment of the pupils who attended pre-primary schools different from that of the pupils who did not attend pre-primary schools in terms of curricular expectations in life skills?

Methods

The study was conducted as a sample survey covering all the 36 states and Abuja, the Federal Capital Territory, Nigeria and consequently a good proportion of the 774 Local Government Areas were used. The target population was pupils in Primary 4 (last three weeks of third term when they were expected to have covered the prescribed curriculum for that class) of the 2002/2003 school year. The survey involved the administration of the learning achievement test instruments in life skills.

Sample design

A multi-stage stratified sampling design was adopted. The survey design provided a basis for valid generalisations (the result obtained using the samples selected could be used to represent the population at national level). However, the design was not robust enough for acceptable estimates at local government level (not all local government areas participated in the survey). Twenty-eight schools were sampled from each state and Abuja (Federal Capital Territory (FCT)), totalling 1036 out of 10,831 schools (about 10%). At least 20% of private schools were sampled in each state. Note that no two states have equal number of schools, but for political reason, every state is treated equally. From the sampled schools, between 20 and 30 pupils were randomly selected from each Primary 4 class. Again, the ratio of boys to girls sampled was on the basis of proportion of boys and girls in the class from which the sample was drawn.

The learning achievement test items in life skills were curriculum referenced. Item development was undertaken on a participatory basis involving teachers from various states, school inspectors, representatives of examination units of various state Ministries of Education, representatives of national examination bodies including the West African Examinations Council (WAEC) and the National Examinations Council (NECO) and resource persons with expertise in test development and evaluation. Using the curricular requirements for Primary 4 in such subjects as hygiene, social studies, primary science, agriculture, health and physical education, and general knowledge, 40 test items were generated. The items

were generated on the basis of a table of specification covering different content areas and three levels of cognitive operations, namely knowledge, understanding, and application, based on Bloom's hierarchies of cognitive operation (Bloom 1956). The items covered competences in general knowledge, social studies, hygiene, health and physical education, primary science, and vocational education. The distribution of items on the final test instrument is shown in Table 1.

The initial draft instrument was subjected to face and content validity by experts in measurement and evaluation, social studies, health, primary science, and physical education. Subsequently, the instrument was pilot tested in six selected states, one each from each of the six geopolitical zones of the country: Kaduna State (North East), Niger (North Central), Bauchi (representing North West), Abia (South East), Edo (South South), and Edo and Oyo (South West). Test administration was carried out in two local government areas, one rural and one urban in each state. Six primary schools made up of four public and two private schools were sampled. A total of 24 Primary 4 pupils were randomly selected in each school. Based on the findings from the pilot study, the test instrument was reviewed. The Kuder-Richardson Formula 20, a measure of internal consistency and construct validity, yields a coefficient value of 0.931. The value is high enough to warrant the use of the test instrument.

The test instrument was administered three weeks to the end of the 2003/2004 school year. The choice was made on the necessity to ensure coverage of curricular for the school year from which the test items were developed. The instrument was administered on Primary 4 pupils in the selected schools. The entire field exercise was carried out in seven days. Eight data collectors and a supervisor worked in each state, the eight data collectors worked in pairs and in four groups. Each pair of data collectors undertook instruments administration in eight schools (one school per day). Descriptive statistics (mean, frequency count, and percentages) and inferential statistics (*t*-test) were used for data analysis.

Results and discussion

Attempts are made here to answer the five research questions.

Research question 1

What are the levels of competency attainment of pupils against curricular expectations in life skills?

Table 1. Table of specification for Primary 4 life skills instrument.

Content	Levels of cognition			Total
	Knowledge	Understanding	Application	
Social study	6	2	–	8
Hygiene, health and physical education	5	7	1	13
General knowledge	6	6	1	13
Primary science and vocational education	4	2	–	6
Total	21	17	2	40

Ten levels of competencies are presented in this paper as shown in Table 2 and represented in Figure 1. The competency level of the majority of the pupil falls between 10–19%. About 12% of the pupils (2473) scored within the lowest range of 0–9%. Only about 5% (1076) of the pupils scored within the highest range (90–100%).

Paige (2000) pointed out that, with the input of scientists and educators, the National Assessment Governing Board (the oversight body for the NAEP) has defined three levels of student performance: basic, proficient, and advanced. Initially, a range of 10 was used for competency levels, but because it may be difficult to interpret, a more compact approach (basic, proficient, and advanced) is used. Therefore, in this paper, two levels of competency are used, applying the national benchmark (this is the pass mark at primary school level (FRN 2004)) of 50% as a dividing point between the two levels – low and high (i.e. 0–49% and 50–100%) as shown in Table 3 and represented in Figure 2; it is clear that those who scored below 50% are in the majority (i.e. three pupils out of every five pupils) while fewer scored the national benchmark and above.

The overall mean score for the 22,691 pupils who took part in this test was 43.81% with a standard deviation of 25.49. The high value of standard deviation shows that there was a great degree of difference in performances of pupils probably because the samples used are heterogeneous, since they were drawn from the 36 states of the federation and the FCT. The lowest score was 0% and the highest score was 100%; this again explains why the standard deviation was large.

Research question 2

How is the competency attainment of the boys different from that of the girls in terms of curricular expectations in life skills?

The result of gender analysis (Table 5) shows that there are more boys than girls (4:3). The gender parity index in Nigeria is 0.95 (2006 National Census data) which means that there are almost equal number of males and females in Nigeria, but there are more boys in schools than girls, especially in the northern parts of Nigeria. The table also shows that boys performed better than girls, with mean scores of 44.59% and 43.45% respectively and standard deviations 25.57 and 25.31 respectively. The

Table 2. Frequency distribution of mean % score on life skills Primary 4 test.

Total Score Range	Frequency	Percentage
0–9%	2473	11.8
10–19%	3595	17.2
20–29%	1986	9.5
30–39%	1667	8.0
40–49%	2381	11.4
50–69%	2059	9.9
60–79%	1122	5.4
70–89%	2241	10.7
80–99%	2285	10.9
90–100%	1076	5.2
Total	20,885	100.0

difference between the mean scores of boys and girls is minimal; however, the difference is significant. This implies that boys performed at significantly higher levels ($t = 3.403$, df = 19,783; $P < .05$) in the life skills test than girls.

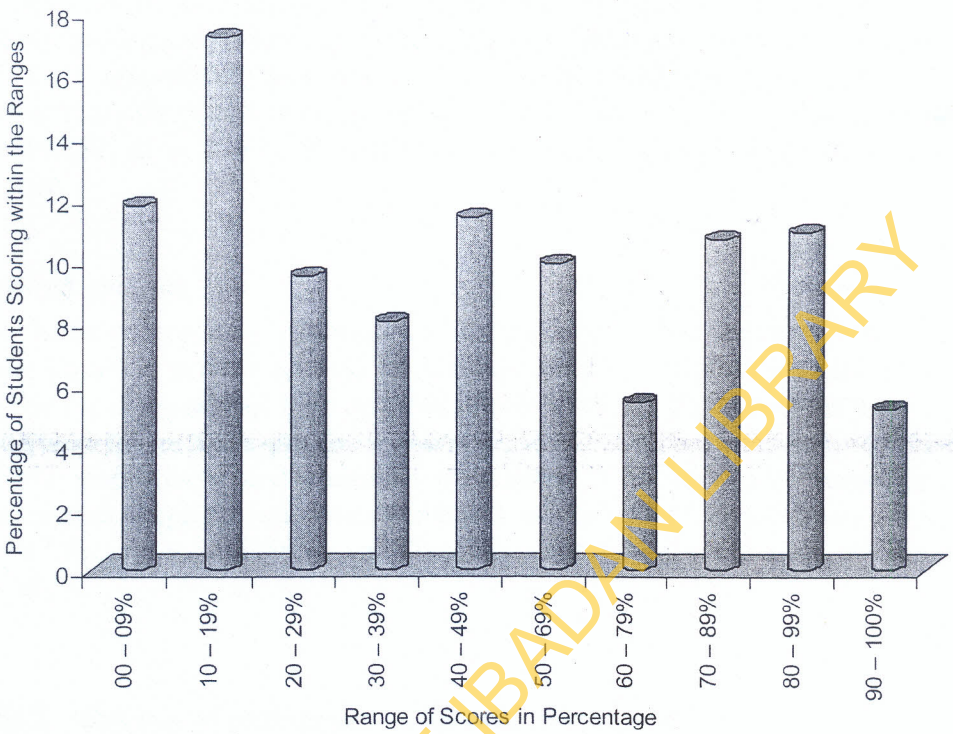

Figure 1. Percentage of students' performance in the life skills test.

Table 3. Summary of competency level of pupils in life skills.

Total score range	Frequency	Percentage
0–49% (Low)	12,102	57.9
50–100% (High)	8783	42.1
Total	20,885	100.0

Table 4. Statistics of performance on life skills primary test.

Sample size	Mean % score	Standard deviation	Maximum % score	Minimum % score	Modal score range
22,691	43.81	25.49	100	0	40–49%

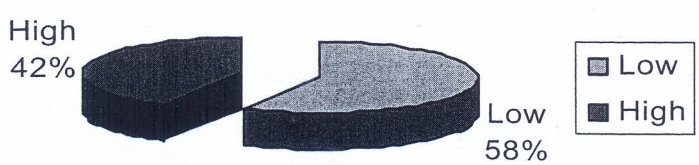

Figure 2. Pattern of pupils' competency level of pupils in life skills.

Research question 3

How is the competency attainment of the pupils in urban school different from that of the pupils in rural schools in terms of curricular expectations in life skills?

The result by sector analysis (Table 6) shows that pupils in urban schools performed better than the pupils in rural schools with the means 45.58 and 41.77 respectively and standard deviations 24.90 and 25.88 respectively. This implies that the pupils from urban schools performed at significantly higher levels ($t = 10.832$, df = 21,835; $P < 0.05$) in life skills Primary 4 than pupils from rural schools.

Research question 4

How is the competency attainment of the pupils in public school different from that of the pupils in private schools in terms of curricular expectations in life skills?

The result by school type analysis (Table 7) shows that pupils in private schools performed better than pupils in public schools, with mean scores of 53.28% and 42.77% respectively and standard deviations 23.75 and 25.47 respectively. This implies that pupils from private schools performed at significantly higher levels ($t = 17.581$, df = 22,636; $P < 0.05$) in life skills Primary 4 than pupils from public schools.

Table 5. Statistics of performance on life skills primary test.

Sector	Mean % score	Standard deviation	Maximum score range (%)	Minimum score range (%)	Modal score range (%)	Sample size	*t*-value
Male	44.59	25.57	90–100	0–9	10–19	12,009	
Female	43.45	25.31	90–100	0–9	10–19	9,497	3.403

Table 6. Statistics of performance on life skills primary test.

Sector	Mean % score	Standard deviation	Maximum score range %	Minimum score range %	Modal score range %	Sample size	*t*-test
Urban	45.58	24.90	90–100	0–9	10–19	10,391	
Rural	41.77	25.88	90–100	0–9	10–19	11,446	10.832

Table 7. Statistics of performance on life skills test, school type.

Sector	Mean % score	Standard deviation	Maximum score %	Minimum score %	Modal score range %	Sample size	*t*-value
Public	42.77	25.47	90–100	0–9	10–19	20,341	
Private	53.28	23.75	90–100	0–9	70–79	2295	17.581

Research question 5

How is the competency attainment of the pupils who attended pre-primary schools different from that of the pupils who did not attend pre-primary schools in terms of curricular expectations in life skills?

The result by pre-primary school status analysis (Table 8) shows that pupils who attended nursery schools performed better than those who did not, with mean scores of 51.52% and 42.77% respectively and standard deviations 24.27 and 25.46 respectively. This implies that the pupils who attended nursery schools performed at significantly higher levels ($t = 15.412$, df = 22,534; $P < 0.05$) in life skills Primary 4 than pupils who did not attend nursery schools.

Discussion

The findings of this study are consistent with the findings of NAEP (2000) in science, in that very few students performed at a high level of competency. In the NAEP reports for 2000, only 26% (fourth grade), 28% (eighth grade), and 16% (twelfth grade) performed at the proficient level, and 4% (fourth grade), 3% (eighth grade), and 3% (twelfth grade) performed at the advanced. One may wonder why a low level of performance was observed in this study. The reasons could be due to any of the following factors. A large number of pupils omit very many items, especially those towards the end; this show that the pupils are still poor in reading and they are also slow readers (Makoju et al. 2004). It is likely that their reaction time is also low. Makoju et al. also find that the poor performances could not have been attributed to the curriculum, which it is believed has been improved over the years, but in its implementation. Therefore, the teachers need more help than they are receiving at present. For instance, very few teachers had the privilege of post-training courses, be it on a full time or part time basis, and attendance at workshops, seminars, and conferences is not a considered priority for primary school teachers in many states (Farombi 1998). The study of Makoju et al. (2004) also revealed that the language proficiency level is poor; this is likely to be a strong reason why the pupils' achievement in life skills is poor since English language is the medium of instruction from Primary 4. Another factor responsible for this observed poor performance is that, as now in Nigeria, there is no single subject called life skills – this is an amalgamation of many subjects. It is possible that some pupils may not be able to apply the knowledge they gained in different subjects when faced with examination or tests under different subject names, like life skills.

Table 8. Statistics of performance on life skills test pre-primary school status.

Pre-primary school status	Mean % score	Standard deviation	Maximum score range %	Minimum score range %	Modal score range	Sample size	*t*-test
Attended nursery schools	51.52	24.27	90–100	0–9	70–79	2,664	
Did not attend nursery schools	42.77	25.46	90–100	0–9	10–19	19,870	15.412

Earlier research findings do not find significant difference between the performance of boys and girls (Howe 1997). Howe accepts that some boys (albeit not all) contribute extensively during classroom interaction but this does not mean that the contributions made by these boys are in any way superior to those of the girls. Surprisingly, this is one of the few findings which supports some existing literature, as a significant difference based on gender at Primary 4 was observed (boys were found to be significantly competent than the girls in the life skills test). Existing literature shows that boys do notably better than girls in the higher grades (Marcon 1993; Miller and Bizzell 1984). Gneezy, Niederle, and Rustichini (2003) also find that females are less effective than males in competitive environments. This also supports the findings of such researchers as Marcon (1999) for pre-kindergarten pupils, Burts et al. (1993) for kindergarten pupils, and Marcon (1993) for first graders. They found that there are initial differential performance in favour of girls at pre-kindergarten, kindergarten, and first grade. However, Reynolds (1989) found that at later years, boys are superior to girls.

The findings of this study show that pupils who attended pre-primary schools performed better than those who did not attend pre-primary school. This is in support of the earlier findings of Marcon (2002), where she find that children's later school success appears to have been enhanced by more active pre-schooling activities, A lot of literature is in support of the fact that any well-implemented pre-school programme would achieve positive results (e.g. Lazar et al. 1982). Surprisingly, a growing research base suggests otherwise (Marcon 1999) if one considers the sustainability of the preschool approach's influence on academic performance. Research evidence show that later school success declined when the interventions (pre-primary teachings like play way, guided discovery) discontinued. For example, Miller and Dyer (1975) found a drop in school achievement for children who entered a nondidactic programme following a direct instruction preschool experience. Similarly, when the highly didactic Direct Instructional System for the Teaching of Arithmetic and Reading (DISTAR) was discontinued after the third grade, children's previously high achievement in reading and mathematics declined (Becker and Gersten 1982).

Another finding of this study is the significant performance of pupils in urban schools than those in rural schools. The findings of some scholars reveal that there are very slight rural–urban differences in high school and college performance regardless of gender and/or social class. Uekawa and Lange (1998) find that urban settings were more advantageous for Korean students than the rural setting, whereas US students from suburban settings had higher mathematics scores than urban students. The rural–urban distinction was more significant in Korea. Students with urban and suburban backgrounds consistently outperformed students from rural and small-town areas (Subtext 2004). One of the factors responsible for this performance in favour of urban schools could be the higher concentration of learning facilities in the urban centres than in the rural settings (Farombi 1998).

Lastly, this result shows that pupils in private school (although small in quantity) outperformed their counterparts in public schools. This finding corroborates the findings of Subtext (2004) where it was found that students in public schools perform worse than students in private schools.

Conclusion and recommendations

Not many pupils performed at an expert level of competence but a majority of them oscillated between being novices and being at the low level of competence (advanced beginners). Since their problem is traceable to their low level of performance in the language of instruction in life skills (English language which is different from the children's mother tongue, i.e. a second language) at that level of primary school, it is likely that if the pupils have mastery of the instruction language, their performance will increase. It is therefore recommended that English language teachers should work harder to produce children with proficiency in English which will help them understand life skills instructions. Gender analysis showed a significant difference between the performance of boys and girls; this is because, generally, boys tend to do better than girls in higher classes even at primary school level. It is, therefore, recommended that girls should not rest on their laurels, but should rise to the challenge. Analysis based on attendance at nursery school before primary schools showed that those who went to nursery schools before enrolling in primary schools performed better than those who did not go. Research evidence showed also that this initial difference will level up with time. Therefore, pupils who did not go to nursery schools should not be discouraged because of their performance at this level; with time, all of them will level up. The school location analysis indicated that pupils in urban settings outshine those in rural settings in life skills. Teachers and students in the rural schools should be encouraged by the government in provision of essential learning materials, and allowances should also be paid to them to compensate for staying in the rural settings. Lastly, this result shows that pupils in private schools outperformed their counterparts in public schools. One of the reasons for this result is because the level of monitoring and supervision in private schools is higher than in public schools. It is, therefore, recommended that more efforts should be geared towards monitoring and supervision in public schools.

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