



ACADEMIC PERFORMANCE OF PUPILS WITH VISUAL IMPAIRMENT PLACED ON THE INTEGRATED EDUCATION PROGRAMME IN THE HOHOE MUNICIPALITY, GHANA

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Abstract:

This research analyzed the academic performance of pupils with visual impairment placed on the integrated education programme in the Hohoe Municipality. The study was an evaluation research which employed pre-experimental research design. Purposive sampling technique was used to select the respondents for the study. A total of 25 respondents, comprising 12 boys with visual impairment and 13 girls with visual impairment were drawn for the study. The instruments used for data collection was test. The data was analyzed using mean and standard deviation using Microsoft Excel. The study revealed that the integrated education programme had a positive influence over the academic performance of the visually impaired pupils. Finally, teachers need to be given in-service training to use appropriate methodologies in teaching mathematics and English language to enhance academic performance.

Keywords: visual impairment, integrated, placement and academic performance

1. Introduction

In accomplishing equal access to education for all children, the Government of Ghana has tried in various ways to show her commitment to Universal Primary Education. This commitment has been directed towards achieving the Millennium Development Goal Two (MDG 2). Strategies adopted to implement this educational policy include the introduction of the Capitation Grant, abolition of school fees, expansion of Early

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Childhood Development services, promotion of measures to improve gender parity in primary schools, and the introduction of nutrition and school feeding programmes (World Food Programme, 2006). In addition to accomplishing the universal primary education in Ghana the sight Savers International (NGO) introduce a pilot programme for the integration of the blind in the mainstream schools.

In countries such as Pakistan, India, Uganda, Tanzania, Kenya and Malawi where Sight Savers International had already started similar pilot projects, there are evidence of increase in academic performance of children with visual impairments included in the mainstream schools (Altman, Thurlow, & Vang, 2010).

The Ghana government's own effort to deal with the inequalities in the educational sector through the Ministries of Health and Education, and the Local Rehabilitation Project (LRP), organized a district-wide school and community screening exercises in 1995. The outcome of the screening exercises showed high prevalence of visual impairments amongst children in Ghanaian schools. This situation led to the introduction of Integrated Education Programme (IEP) in some selected schools by the Special Education Division (SED) of the Ghana Education Service in the year 1996. The Integrated education approach sought to place children who were visually impaired into mainstream schools at the basic level. The approach made use of specialized professionals such as Itinerant teachers, Opticians, Ophthalmologists, Mainstream teachers etc. who had the necessary training to meet the specialized needs of the children with visual impairments placed in this experimental programme. The professionals were to support mainstream teachers to manage visually impaired children with their sighted peers. Even though the Integrated Education Programme was synonymous to inclusive education, it was called the "Integrated Education Programme" (IEP). This programme was implemented with financial and technical assistance from Sight Savers International.

The occasioning of the IEP in the Hohoe Municipality is to create accessibility for pupils with visual impairment due to unavailability of special schools for the blind as well as to promote the government's policy on inclusive education. To ensure that the performance of pupils placed on the programme improves, it has become imperative to analyse their academic performance. The state of the academic performance in English and Mathematics before placement on IEP revealed decline in performance (Sight Savers, 2010).

It was also revealed that there was no record on the gender (i.e. male and female) performance in English language and Mathematics for pupils with visual impairment in Hohoe Municipality (GES, 2012).

According to West African Examination Chief Examiner's report for 2011/2012 indicated that pupils with visual impairment perform academically poor in Mathematics and English language (WAEC, 2012). Hence the researcher decided to evaluate the academic performance of pupils with visual impairment placed on the integrated education programme in the Hohoe municipality.

The following questions guided the study:

- 1) What is the state of academic performance in English language and Mathematics among pupils with visual impairment before and after placement on IEP in the Hohoe Municipality?
- 2) How do the male and female pupils with visual impairment perform in English language and Mathematics on the IEP in the Hohoe Municipality?

2. Literature Review

The literature was reviewed under the following subheadings; theoretical review, integrated education programmes and academic performance among the visually impaired, gender differences and academic achievement in English language and Mathematics. The cognitive process taxonomy of learning and implication of earlier researchers were also reviewed.

The 'Social Model of disability' coined by Mike Oliver in 1983, extended and developed by academics and activists in the UK, US, and other countries to include all disabled people has undoubtedly been the dominant paradigm in researching and understanding disability in recent years. The model arose in response to the critique of the medical model of disability. This social model redefines disability in terms of a disabling environment, repositioning disabled individuals as citizens with rights, and reconfiguring the responsibilities for creating, sustaining and overcoming disability.

Inclusion is grounded in the "Social Model" of disability which proposes that barriers prejudice and exclusion by society, purposely or inadvertently are the ultimate factors defining who is disabled and who is not in a particular society (Oliver, 1996). It recognises that while some people have physical, intellectual, or psychological differences, which may sometimes be impairments, these do not have to lead to disability. Disability is seen as a complex collection of conditions, many of which are created by the social environment. Therefore, the management of the problem requires social action, and it is the collective responsibility of the society to make the environmental modifications necessary for full participation. This requires an attitudinal or ideological social change, which at the political level becomes a question of human rights (Vayrynen, 2008). The social model theory of disability served as theoretical background for which the study on the academic performance of pupils with visual impairment in the integrated education programme was conducted.

The framework of social models of disability is reflected in international agency documents on disability, development and education (Stubbs, 2007). The influence of this model is embedded more in interactionist perspectives on disability. Practicing the social model of disability is in line with the Salamanca framework for action of 1994 on persons with disabilities which advocate for inclusive education for all. Relating the social model of disability to the current study, students with visual impairment in schools in the Hohoe Municipality require equal access to the general curriculum in the regular educational system. In addition, the social model allows the inclusion of the visually impaired to experience diversity in one educational setting, and also reveal their learning potentials.

In order to give students opportunities to develop their competences, more is needed than simply for them to interact with others in their social environment.

There has been surprisingly little empirical research into the effectiveness of particular interventions to address the gap between girls' and boys' academic performance, or whether some strategies are more appropriate for certain school contexts than others (Gray, Peng, Steward & Thomas, 2004). In order to evaluate strategies that aim to reduce the gap between male and female performance, Younger, Warrington, and McLellan (2002) examined different approaches in place in the British school system at the secondary level. They grouped these approaches into four categories: (i) organizational, (ii) individual, (iii) pedagogical, and (iv) socio-cultural. Organizational strategies were defined as whole-school approaches that attempted to change the culture of the school to one where achievement was the norm, and was celebrated. Individual approaches were those that focused on certain children and involved some type of individual target-setting. Pedagogical strategies involved work at the classroom level and included interactions and dynamics within the classroom as well as teaching and learning styles. Socio-cultural approaches attempted to influence or change "*images of laddish masculinity*" (Younger et al., 2002; p. 393) held by peers, the family, and the community—making it cool and desirable for boys to learn and be intelligent.

The authors found that the four types of strategies were effective in generally improving achievement, but that the gender gap did not consistently narrow at any of the schools examined. Organizational strategies that established a culture of achievement were widely accepted by staff and policy makers. The most effective individual-based approaches gathered performance data to assist in target-setting (e.g., use of data, regular monitoring and feedback, mentoring). Schools that adopted a socio-cultural approach focused on students who were role models and social leaders, thereby influencing the majority of students indirectly. Unfortunately, the pedagogic approaches were not as well developed as other strategies in this study and it was unclear how these would be operationalized.

Oakhill and Petrides (2007) compared the reading comprehension of 10 and 11 year-old boys and girls. They reported that comprehension was significantly affected by the content of reading passages for boys and they performed significantly better on texts they were interested in reading. In contrast, girls' performance was the same regardless of their interest in the text. The authors also investigated poor comprehenders' performance, and determined that the relationship between text interest and reading performance remained significant for boys but not for girls, regardless of comprehension level. The finding that boys are often more influenced by the level of their interest in the text has also been previously shown (e.g., Ainley, Hidi, & Berndorff, 2002), implying that "*girls are more likely to persist with reading than boys, and do well, even on low-interest texts*" (Oakhill & Petrides, 2007; pg 231).

Literature concerning differences in males' and females' academic achievement in mathematics has risen over the past years in the academic field. Whiles some people

believe that boys are better academic achievers; others think that girls are equally good achievers.

According to Lauzon (2001), the Organisation for Economic Cooperation and Development (OECD) through the Programme for International Student Assessment (PISA) released mathematics, science and reading test results for 15-year olds. The findings indicated that no gender differences in average mathematics and science performance were observed in any Canadian Provinces. Similarly, Zhang and Manon (2000) looked at two standardised tests over two years for grades 3, 5, 8, and 10. They did not observe differences in mean performance on the whole, but did observe gaps among the highest and lowest 10 percent of students. Zhang and Manon (2000) found some evidence that “easy” test items are easier for females and “harder” tests items are harder for females. They found that boys did better in structural responses.

Eshun (1999) conducted a study in Ghana on the pattern of mathematical achievement in secondary school in 1993. He observed that boys achieved higher than their female counterparts. However, he noted that the achievement of females in single sex schools were slightly higher than their male counterparts in single-sex schools and much higher than their female counterparts in mixed schools. Again, Eshun, (1999) citing Carpenter, Corbitt, Kepner, Lindsquist and Reyes compared the results of the 1973 and 1978 National Assessment of Educational Progress conducted to assess students’ performance in mathematics. The results showed that there was a general decline in performance for the 17- year olds and that the pattern of low performance was across almost all categories of problems. Eshun (1999) further quoted Randhawa from a study that was conducted in Saskatchewan High School for sophomores. The results indicated that males consistently performed better than girls in mathematics concepts, computation and problem solving.

Contrary to reports in some studies that males dominate mathematics in terms of ability and performance, Slavin (2005) is of the view that there is no significant difference in the intellectual ability between boys and girls. Slavin remarked that the gender disparities that are visible are caused by cultural expectations and norms. He concluded that females are traditionally been discouraged from studying science and mathematics. Within the past few years’ English Language has joined mathematics as core subjects in most nations in the world. Danquah (2000) conducted a study to determine gender difference in academic achievement of senior secondary school students in Mathematics and English Language in Cape Coast. In all six schools were purposively selected in which a population of 6,614 students were used for the study. She used the final results of students conducted by WAEC between the periods of 1994-1997. The findings revealed that boys performed better than girls within the period in English Language and mathematics but girls out-performed boys in English Language within the same period. Feingold (1992) argues that differences in means are not enough to give the complete picture of differences in distributions. He remarks that the differences in the proportion of boys and girls achieving at certain levels may be misleading. He observed that while a slightly greater percentage of girls might perform at or above a given level than boys,

considering all students who perform at or above a given level, the average performance might favour either gender.

Zhang and Manon (2000) remarked that, there has been relatively less attention paid to gender differences in English Language achievement than in mathematics. They suggest that observed gaps are more consistent over time; tend to be strongest in English Language and that the gender gap in English Language has been more persistent than in mathematics.

An alternative group of explanations emphasised the role of social environmental variables such as home and classroom factors in academic development. Newkirk (2002) is one of those who argued that boys fall behind girls academically in school because classrooms were “feminised” environments in which teacher attitudes, classroom rules and learning tasks favoured girls. He stressed that boys failed to invest in reading and writing because they perceived these as feminine activities. He stated that factors that may lead boys to view literacy as feminine activity included the prevalence of women in elementary teaching as primary preference in reading materials were not reflected in the type of reading materials available in classroom and libraries.

Another method of addressing the gender gap in literacy and numeracy performance is to step back from an examination of student ability as a function of academic performance and examine differences between males and females with respect to the cognitive, or thought, processes involved when answering questions. The cognitive process taxonomy, developed by Halpern (2004), attempts to formulate an understanding of student performance via cognitive gender differences. Halpern argues that both boys and girls have differential strengths and weaknesses in problem solving. With respect to reading and writing, Halpern categorizes underlying cognitive skills as follows.

- a) Boys perform better on tests of verbal analogies, which involve mapping verbal relationships in working memory, as well as tasks involving transformations in visio-spatial working memory.
- b) Girls are able to more rapidly access phonological, semantic, and episodic information from long-term memory; they show the largest advantages in other memory tasks, as well as a strong advantage in writing.

Halpern’s approach also addresses the differing levels of performance of boys and girls due to type of test: girls tend to receive higher grades in school, especially when the teacher’s test material closely resembles what was taught, while males obtain higher marks on standardized tests, where test material tends not to be as similar to what was taught in class (Halpern, 2006). Halpern dismisses the suggestion that this difference is simply due to girls’ learning being more rote than boys’ noting that girls’ superior performance in writing constitutes a “highly creative act” that is above and beyond rote learning (Halpern, 2006; p. 645). Halpern (2006) argues that biological and environmental influences may be too closely intertwined to be isolated, making the gender gap a difficult one to address.

3. Material and Methods

This chapter focuses on the methods that were used in collecting data for the study. It consists of the research design, the population, sample and sampling technique, research instruments, access, ethical consideration, pilot test, procedures for data collection and data analysis.

3.1 Research Design

The study was an evaluation research which employed pre-experimental research design. Evaluation research is a process of applying scientific procedure to accumulate reliable and valid evidence in the manner and the extent to which specific activities produce particular effects or outcomes (Kumar, 2011). Pre-experimental design is using a single group to facilitate ease of implementation or an intervention of a short duration (Creswell, 2012). This implies the researcher used one-group pre-test-post-test design in the conducting the study. The research design is applicable because the study involved few respondents. Pre-experimental research design is usually conducted to understand whether further investigation needs to be carried out on the target groups due to which is considered to be cost effective.

3.2 Population

The population comprises all children including visually impaired students with varying degrees of impairment and their teachers in the integrated basic schools in the Hohoe Municipality. The target population of 960 students and teachers of 10 Basic Junior High Schools in the Hohoe Municipality were considered for the study (GES, 2011/2012).

3.3 Sample and Sampling Technique

The sample for the study comprised twenty (25) respondents drawn from five integrated schools in the Hohoe Municipality. This consisted of 25 pupils with visual impairment (13 boys and 12 girls). This sample was taken based on Krejcie and Morgan's table of sample sizes (s) required for a given population sizes (N). The table indicates that for a population of 25 and 24 (approximated 25) could be selected as sample sizes at 0.05 significant level (as cited in Saratakos, 2005).

Purposive sampling technique was used to pick the twenty-five pupils with visual impairment. Purposive sampling is a qualitative sampling procedure in which researchers intentionally select individuals or sites to learn about or understand the central phenomenon (Creswell, 2012). This sampling method was used because the researcher intended to collect data from people who were directly included in the integrated education programme. Table 1 presents distribution of sample by school and category of respondents.

Table 1: Distribution of Sample by School and Category of Respondents

School	VI Boys	VI Girls	Total
District Council JHS.	3	3	6
Zion JHS.	2	3	5
New Town L.A JHS.	1	1	2
Lolobi RC JHS	5	4	9
Ve- Koloenu EP JHS	1	2	3
Total	13	12	25

3.4 Research Instrument

Instruments used for data collection teacher made test. The English language and Mathematics test items comprised 40 questions each. The researcher's rationale for using these instruments was to conduct an in-depth investigation and understanding of the problem.

3.5 Data Collection Procedures

A. Pre-test

Pre-test was conducted using term 3 examination questions of two subjects (Continuous Assessment records for English Language and Mathematics) of the 2011/2012 in order to establish the academic performance disparities that existed between pupils with visual impairment on the IEP before placement.

B. Intervention

An intervention was carried out in phases within one academic year that is 2012/2013 as follows;

Phase 1: Process of assessment includes examination of both medical and educational needs based on the degree of impairment.

Phase 2: Drawing of the Individualized Education Plan (IEP). This is done by a multidisciplinary team comprising medical professionals, psychologist, educationist, parents and the child and other stakeholders. This is where teaching and learning materials and the appropriate pedagogies are assigned to the degree of impairment.

Phase 3: The use of professionals to implement the IEP. This includes the use of resource/itinerant teachers, opticians and ophthalmologist for the provision of educational and medical services.

C. Post-test

A post-test was conducted after the intervention using term 3 examination questions of two subjects (Continuous Assessment records for English Language and Mathematics) of the 2011/2012 (before placement scores) and 2013/2014. The researchers analysed the examination scores of the pupils (i.e. pupils with VI before and after placement) by ranking the scores and finding the average scores using Microsoft Excel.

3.6 Data Analysis Procedure

The researcher sorted, edited, coded and classified the test scores according to the various categories of response. The responses on the research question 1 and 2 were entered into

Microsoft excel software application and analysed using mean and standard deviation represented in tables.

4. Results and Discussions

This chapter provides the analysis and discussion of findings of the study. The study aimed at investigating the effect of the Integrated Education Programme (IEP) on the academic performance of visually impaired students in the Hohoe Municipality. The analysis were carried out according to the research questions:

Research Question 1: What is the state of academic performance in English language and Mathematics among pupils with visual impairment before and after placement on IEP in the Hohoe Municipality?

This research question was analysed using data on scores obtained, 20 percent of 4 class exercises of 5 marks each, 30 percent of 3 class tests of 10 marks each from continuous assessment and end of term exam scores of 50 percent all summing up to 100 percent over a period of 2 years (2011/2012 pre-test placement scores and 2013/2014 post-test placement scores).

Table 2: Summary of Placement Scores for Pupils with Visual Impairment Pre-test and Post-test in Mathematics

Score	N	Mean (\bar{x})	Standard Deviation (S)
Pre-test	25	60.48	10.89
Post-test	25	63.84	11.51

Table 2 shows a summary of placement scores for pupils with visual impairment pre-test and post-test placement on the IEP in Mathematics. From table 2; the results have proved that pupils with visual impairment improved in performance in Mathematics after being placed on the IEP. The mean score for the pre-test placement scores is 60.48 while the post-test placement scores shows a mean score of 63.84 showing an achievement result interval of 3.36 on the IEP over pre-test placement scores. The mean difference between the pre-test placement scores and post-test placement scores may not necessarily be statistically significant. However, the pre-test placement scores and post-test placement scores are within 3 standard deviations of the mean ($\bar{x} \pm 3S$) which agrees fairly with the Chebyshev's rule of interpreting standard deviation.

Table 3: Summary of Placement Scores for Pupils with Visual impairment Pre-test and Post-test in English

Score	N	Mean (\bar{x})	Standard Deviation (S)
Pre-test Placement	25	56.24	10.99
Post-test Placement	25	60.68	12.14

Table 3 shows a summary of placement scores for pupils with visual impairment pre-test and post-test placement on the IEP in English language. From table 3; the results have proved that VI students improved in performance in English Language after being placed on the IEP. The mean score for the pre-test placement scores is 56.24 while the post-test placement scores shows a mean score of 60.68 showing an achievement result interval of 4.44 on the IEP over pre-test placement scores. The mean difference between the pre-test placement scores and post-test placement scores may not necessarily be statistically significant. However, the pre-test placement scores and post-test placement scores are within 3 standard deviations of the mean ($\bar{x} \pm 3S$) which agrees fairly with the Chebyshev's rule of interpreting standard deviation.

It is evident from the results in table 2 and 3 that, if pupils with visual impairment are placed on tailored programmes such as the IEP they will perform better academically learning alongside sighted peers with the needed support. This means that the support that the child needs for education should be there in schools (Davis & Watson, 2001). In Davis and Watson's view, it also implies capacity building of teachers, parents and communities to negotiate with the education system and for governments to develop policies wherein such inclusion is perceived as an essential element of the education system. The improvement in performance by pupils with visual impairment on IEP in the Hohoe municipality also ascertain to the fact that when all kinds of barriers are removed by the sighted environment for the pupils with visual impairment, they will function effectively and unleash their full potentials as has been argued by the social model of disability that identifies systemic barriers, negative attitudes and exclusion by society (purposely or inadvertently), that mean society is the main contributing factor in disabling people. While physical, sensory, intellectual, or psychological variations may cause individual functional limitation or impairment, these do not have to lead disability unless society fails to account of and include people regardless of their individual differences (Oliver, 1996). One other cause for the improved performance on the IEP is linked to the strategies that were put in place by the programme initiators can be linked to that of Younger, Warrington, and McLellan (2002) who examined different approaches in place in the British school system at the secondary level. They grouped these approaches into four categories: (i) organizational, (ii) individual, (iii) pedagogical, and (iv) socio-cultural. Organizational strategies were defined as whole-school approaches that attempted to change the culture of the school to one where achievement was the norm, and was celebrated. Individual approaches were those that focused on certain children and involved some type of individual target-setting. Pedagogical strategies involved work at the classroom level and included interactions and dynamics within the classroom as well as teaching and learning styles. Socio-cultural approaches attempted to influence or change "images of laddish masculinity". In the case of the IEP in Hohoe Municipality; (i) organizational strategies such as assessment pre-test placement with age appropriateness and parental concern was a critical component of the programme, (ii) The child is considered as an individual with unique needs and given appropriate tasks. Children are given assistive devices to aid their learning, (iii) Pedagogical strategies

involve reading aloud when teaching and writing on the board, tape recording as well as remedial teachings when necessary, and (iv) the socio-cultural approaches involves the education on mainstreaming and later placing pupils with visual impairment in the regular school, training of teachers and resource/itinerant teachers to demystify superstitions about blindness and education of the blind.

In a nutshell from the analysis, the state of academic performance in English and mathematics by pupils with visual impairment on IEP in the Hohoe Municipality has improved statistically by a margin of 3.36 percent for mathematics and 4.44 percent for English, over a period of 2 years after placement on the programme.

Research Question 2: How do the male and female pupils with visual impairment perform in English language and Mathematics on the IEP in the Hohoe Municipality?

This research question sought to find out how the boys and girls performed using data on scores obtained, 20 percent of 4 class exercises of 5 marks each, 30 percent of 3 class tests of 10 marks each from continuous assessment and end of term exam scores of 50 percent all summing up to 100 percent over a period of 2 years (2011/2012 pre-test placement scores and 2013/2014 post-test placement scores).

Table 4: Summary of Post-test Placement Scores
 for Boys and Girls with Visual Impairment in Mathematics

Gender	N	Mean (\bar{x})	Standard Deviation (S)
Boys	13	61.62	8.43
Girls	12	63.67	14.07

Table 4 shows a summary of placement scores for boys and girls with visual impairment after placement on the IEP in Mathematics. From table 4; the results have proved that girls with visual impairment performed better than the boys after being placed on the IEP in Mathematics. The mean score for the post-test placement scores for the boys is 61.62 while the girls have 63.67 showing an achievement result interval for the girls of 2.05 on the IEP over the boys. The mean difference between the pre-test placement scores and post-test placement scores may not necessarily be statistically significant. However, the pre-test placement scores and post-test placement scores are within 3 standard deviations of the mean ($\bar{x} \pm 3S$) which agrees fairly with the Chebyshev's rule of interpreting standard deviation.

Table 5: Summary of Post-test Placement Scores
 for Boys and Girls with Visual impairment in English

Gender	N	Mean (\bar{x})	Standard Deviation (S)
Boys	13	56.54	8.79
Girls	12	65.17	13.98

Table 5 shows a summary of post-test placement scores for boys and girls with visual impairment on the IEP in English language. From table 5; the results have proved that

the girls performed better than the boys in English Language after being placed on the IEP. The mean score for the post-test placement scores for the boys is 56.54 while the post-test placement scores for the girls show a mean score of 65.17 showing an achievement result interval of 8.63 for girls on the IEP over boys. Though the mean difference between the girls' placement scores and the boys post-test placement scores are wide, the result may not necessarily be statistically significant. However, the two mean scores are within 3 standard deviations of the mean $(\bar{x} \pm 3S)$ which agrees fairly with the Chebyshev's rule of interpreting standard deviation.

From the results of table 4 and 5, the performance of the girls with visual impairment over the boys is attributed to the facts stated in the cognitive process taxonomy developed by Halpern (2006). The cognitive process taxonomy developed by Halpern (2006), attempts to formulate an understanding of student performance via cognitive gender differences. Halpern argues that both boys and girls have differential strengths and weaknesses in problem solving. With respect to reading and writing, Halpern categorizes underlying cognitive skills as follows.

- a) Boys perform better on tests of verbal analogies, which involve mapping verbal relationships in working memory, as well as tasks involving transformations in visio-spatial working memory.
- b) Girls are able to more rapidly access phonological, semantic, and episodic information from long-term memory; they show the largest advantages in other memory tasks, as well as a strong advantage in writing.

Taking Halpern's argument into consideration, since English language involves phonological, semantic and episodic information from long-term memory, the cognitive process taxonomy had an influence on the performance of the girls with visual impairment over the boys. This improvement of the girls in English over the boys affirms the argument of the social model of disability that; when systemic barriers, negative attitudes and exclusion by society (purposely or inadvertently) are removed, each individual grows and functions without limitation or impairment. Results from table 5 confirm that girls with visual impairment on the IEP in the Hohoe municipality grew up 'normally' cognitively without or less systemic barriers and exclusion, and hence their performance over the boys as expected from the cognitive process taxonomy.

On the other hand, since mathematics involves tests of verbal analogies, which involve mapping verbal relationships in working memory, as well as tasks involving transformations in visio-spatial working memory (Halpern, 2006), one could have expected that the boys would perform better in mathematics but this did not happen in the case of the visually impaired boys in the Hohoe Municipality as shown from the results of the analysis in Table 4.

Furthermore, the type of test administered to the pupils with visual impairment in English Language has also influenced the positive performance of the girls over the boys in both mathematics and English Language since it was a teacher made test. According to Halpern (2004), the approach to testing also leads to the differing levels of performance of boys and girls: girls tend to receive higher grades in school, especially

when the teacher's test material closely resembles what was taught, while males obtain higher marks on standardized tests, where test material tends not to be as similar to what was taught in class (Halpern, 2006). Halpern dismisses the suggestion that this difference is simply due to girls' learning being more rote than boys' noting that girls' superior performance in writing constitutes a "highly creative act" that is above and beyond rote learning.

To conclude, on the gender performance in English and mathematics of pupils with visual impairment on IEP in the Hohoe municipality, the results from both table 4 (mathematics) and 5 (English) shows a further improvement for the girls over the boys. The girls show an achievement interval of 2.05 and 8.63 in both mathematics and English respectively.

5. Recommendations

Based on the findings of the study, the following recommendations are made:

- a) The schools should focus on the Individualized Education Programme (IEP) to meet the individual needs of the pupils. The school should develop strategies that will ensure that the assessment processes continue even after the initial assessment before placement to cater for any other need of the child during placement on the program.
- b) The various stakeholders in education including the government, non-governmental organizations and parents, must provide the necessary academic and infrastructural facilities that the regular schools need to support the integration of pupils with visual impairment. Through these provisions, schools practicing the IEP will become more environmentally friendly and supportive of the education of the pupils with visual impairment.

6. Conclusion

The study concluded that;

- 1) The organizational strategies such as initial assessment before placement with age appropriateness and parental concern were critical components of the integrated education programme for the pupils with visual impairment in the Hohoe municipality.
- 2) The various stakeholders in education must provide the necessary academic and infrastructural facilities that will support the integration of pupils with visual impairment. If these interventions are put in place, it enhances accessibility and educational performance with children with visual impairment in mainstream schools.

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