Research Paper

Print Immersion as a Strategy for Improving Pupils' Literacy Skills in Lagos State Primary Schools Education

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Abstract
This study examined the Print Immersion as a strategy for improving Pupils' Literacy Skills in Lagos State Primary Schools Education. It used quantitative research design and adopted a pre-test and a post-test control group 2x3x2 factorial design. It explored teaching strategyin pupils' literacy skill(at two levels) traversed with the socio-economic status (at three levels) and school location (at two levels). A pre-test and the post-test on Literacy Skills (Synonym words, writing words and relative nouns)were administered before and after the treatments lasting for five weeks. Test-retest method was used to determine the reliability of the instrument and the process returns reliability coefficients of 0.78 for the study. The target population for the study consists of all Basic Two Class pupils in the public primary schools of Lagos State. The study sample involved 8 public schools (with 236 pupils and 8 teachers). The analysis was done using descriptive statistics (mean) and Inferential statistics (ANCOVA) using the Statistical Package for the Social Sciences (SPSS) Version 20. The findings indicated means difference in the research questions 1, 2 and 3 and no significant differences in the treatment on pupils taught using print immersion and conventional method. The treatment F-value of [$F(1,235)=.122; p>0.05$] was not significant at 0.729and hypothesis one was not rejected. It is concluded that the pupils' school location and their socio-economic status have a greater influence on their literacy skills in print immersion and conventional classrooms. The study however, recommended that the use of print immersionstrategy towards pupils' literacy skills should be known by all the primary school teachers as a mode of instruction.
Key Words: Print Immersion, Literacy skills, Primary pupils

I. Introduction

The foundation of a child and his environment has great impacts in that child development. Since early childhood education and primary school education serve as foundations of an organised pedagogy, quality education at these levels will place a child at vantage position in literacy development. Ramírez, López &Ferron (2019), consider a skill as a type of work or activity which entails specific training and knowledge. Literacy skills are all the skills required for writing and reading. They are among others awareness of the sounds of language, awareness of print, and the relationship between letters and sounds. Vocabulary, spelling, and comprehension are among other literacy skills. There are several types of literacy skills that, when learned in early childhood, provide the foundation for solid reading and writing capabilities.A child's ability to communicate involves an integration of body parts and systems allowing hearing, understanding, organizing and using language.

Immersion printing is also known as Water transfer printing, water transfer imaging, hydro dipping, water marbling, cubic printing and Hydrographic. This is a method of applying printed designs to three-dimensional applicable surfaces. The resulting combinations may be considered as an aspect of either decorative art or appliedart. The hydro graphic process of printing can be used on materials such as metal, plastic, glass, hard woods, and various other materials. The water transfer printing process is generously used to decorate items that range from entire all-terrain vehicles and car dashboards of various shapes and sizes, to small items like motorcycle and bicycle elements or other automotive trim. Films can be applied to all types of substrates including plastic, fibre glass, wood, ceramics, and metal. For the most part, if the item can be dipped in water as usual and can be painted using traditional techniques then the hydro graphic printing process can be used.

Another print immersionprocess is the application of complex designs on objects by immersing them in an aqueous medium containing the printed graphic. This process involves a method of adhering a film of ink floating in water to the planned surface. This process of printing is referred to with multiple names, such as water transfer printing, hydro graphics and water marbling. The process of print transfer from film takes place in a tank of water maintained at around 30°C. The film is carefully laid on to the surface of water with the printed side facing down, ensuring no folds and wrinkles. After the film has been laid on it, it is sprayed with an activator.

The activators are proprietary chemicals that contain xylene and an isomer of butanol that serve a two-fold purpose:

•   Triggering the dissolution of the polyvinyl alcohol film, leaving behind the printed pattern.
•   Activating the bonding agents in the ink, thus allowing it to adhere to the substrate.

There is virtually no limit to the kinds of finishes that can be achieved using immersion printing. That is, this system of printing can be used for mass production of any image on plastic, fibreglass, wood, ceramics, and metal. Some commonly used prints include wood finish, carbon-fibre weave, floral prints, and impressions of beloved cartoon and action characters. Immersion printing can also be used to apply camouflage on various pieces of equipment, such as helmets and the body panels of vehicles and guns.

Another important element of interest is teachers' competence. The competence of the Teachers and the school environment can be considered as contributing factors to the language development of pupils. Classroom labelling is a teaching strategy that could be very effective and useful in aiding learning skills to young learners who are learning to read and attach meanings to either lexical items or what they see in pictures and print immersions. Labels are strategically placed by caregivers so that children are guided to see and touch the pictures, play with the pictures that are labelled, remove the labels or add to the labels as they interact with their peers and teachers. Caregivers guide learners to notice that print is all around their classroom and that it symbolizes language (Schickedanz & Collins, 2013).

Literacy is a core component of the right to education as recognised by the *Universal Declaration of Human Rights* (Eze 2016) the right to literacy supports the pursuit of other human rights. In other words, literacy has the potential to enhance people's ability to act in the pursuit of freedom and to empower them to interpret and transform their realities. On the other hand, Thompson et. al. (2012) view literacy skills as all the skills needed for reading and writing.

They include such things as awareness of the sounds of language, awareness of print, and the relationship between letters and sounds. Other literacy skills include vocabulary, spelling, and comprehension. Abidogun (2017) identifies three types of learning such as rational learning, appreciative learning and motor learning he believes that rational learning depends mainly on the proper use of language when it comes to the cognitive and psycholinguistic ways of thinking, imagining, perceiving, reasoning, analyzing and synthesizing or proffering solutions to problems.

Statement of the Problem

The capability of the school atmosphere can be considered as contributing factors to the language development of children. The use of language has been identified as a medium of expression especially when it has to do with interaction and feedback mechanism. The overview of early childhood education in the teaching curriculum is more professional management, exercise and specialised education to pupils.However, some challenges affect the actualization of effective teaching using print immersion, Quirk, et. al. (2011) in his own perception, defined the school readiness of a child in relation to the developmental status in terms of cognition, language early literacy, early numeracy and the approaches to learning of a child. Readiness of the schools to embrace print immersion will enhance the usage in terms of availability and appropriateness.

Most schools and parents today may not be economically buoyant to provide pictures and print immersion as instructional material. This reflects the influence of socio-economic status and quality of education on learners. Socio-economic status is measured by the social and reflects on the economic status of family members. It is the general believe of people that there is a strong and stable correlation between Socio-economic status and children's academic performance and cognitive development (Lareeau, 2011). Researchers have established that family background factors can be responsible to most of the differences in students' academic achievement and play a vital role than schools' factors (Berkowitz, et al, 2017; Lawson & Farah, 2017). According to Ren and Xin (2013) the positive correlation between socio-economic status, gender and academic performance persists from childhood to adolescence and is consistent across races.

Purpose of Study

The main purpose of the study is to:

•   studyhow print immersionstrategy improvePupils' Literacy Skills in Lagos State Primary Schools Education.

Research Questions
The following research questions guided the study:

i.   What is the mean difference in literacy skills of pupils exposed to print immersion strategy and those in the conventional classroom?
ii.   What is the mean difference in the main effect of pupils' socio-economic status on their literacy skills?
iii.   What is the mean difference in the main effect of pupils' school location on their literacy skills?

Hypothesis

i.   There is no significant difference in the treatment on pupils' literacyexposed to print immersion strategy and those in the conventional classroom.

II.   Methodology
The research design adopted for this study was quasi-experimental design. It provides the researchers with the focus on collecting and analysing quantitative data in a single study. The study examined the Print Immersion as a strategy for improving Pupils' Literacy Skills in Lagos State Primary Schools Education. It used quantitative research design and adopted a pre-test and a post-test control group 2x3x2 factorial design. It explored teaching strategyin pupils' literacy skill(at two levels) traversed with the socio-economic status (at three levels) and school location (at two levels). A pre-test and the post-test on Literacy Skills (Synonym words, writing words and relative nouns)were administered before and after the treatments lasting for five weeks The population for the study consisted of all pupils in Lagos State primary 2 schools. The study samples involved 8 public schools (with 236 pupils and 8 teachers) in Badagry Local Government Education Area, Oto/Awori Local Government Education Area and Amuwo Odofin Local Government Education Area, Lagos selected using simple random technique. The instrument used was Achievement Test on Literacy Skills (ATLS). The ATLS sought for personal information of the respondent in terms of school location and socio-economic status with list of twenty objectives questions.The ATLS was face-validated by some experts in the field of research. The reliability of the instrument of this study was estimated at 0.78 using test-retest. The data collected was analysed in the consideration of the research questions and hypothesis. In analyzing the data, both descriptive statistics (mean and standard deviation) and inferential statistics (ANCOVA). In testing the hypothesis formulated, the ANCOVA analysis was used and it was tested at 5% level of significance.

III.   Results
The results of this study are presented according to the research questions in Tables I – II and the hypothesis.

Research Question 1
The question asked that what is the mean difference in literacy skills of pupils exposed to print immersion strategy and those in the conventional classroom?

Table I:Descriptive statistics of the print immersion strategy and control group classrooms in their literacy skills performance.

Treatments	N	Posttest Mean	Pretest Mean	Mean Difference
Experimental group	119	15.71	13.18	2.53
Control group	117	14.64	12.15	2.50
Total	236	15.18	12.67	2.52

The Table 1 shows that the participants in experimental group (print immersion strategy) with mean difference of 2.53 is higher than the participants in control group with the mean difference of 2.50.
Research Question 2
The question asked that what is the mean difference in the main effect of pupils' socio-economic status on their literacy skills?

Table II: Descriptive statistics of socio-economic status on pupils' literacy skills performance

Socio-economic status	N	Posttest Mean	Pretest Mean	Mean Difference
Low	123	15.09	12.38	2.71
Middle	79	15.43	12.65	2.78
High	34	15.25	14.04	1.21
Total	236	15.26	13.02	2.24

The Table 2 shows that participants in middle socio-economic status had highest performance with mean difference of 2.78; the participants in low socio-economic status follow with mean difference of 2.71 and the participants in high socio-economic status had the least mean difference of 1.21.

Research Question 3
The question asked that what is the mean difference in the main effect of pupils' school location on their literacy skills?

Table III: Descriptive statistics of pupils' school location on their literacy skills performance

School location	N	Posttest Mean	Pretest Mean	Mean Difference
Urban	120	16.64	14.42	2.22
Rural	116	13.67	10.86	2.81
Total	236	15.16	12.64	2.52

The Table 3 shows that participants in rural area had the better performance with mean difference of 2.81 than the participants in urban area with the mean difference of 2.22.

Hypothesis
There is no significant difference in the treatment on pupils' literacy skills performance exposed to print immersion strategy and those in the conventional classroom.

Table IV: Showing the ANCOVA of pupils' literacy skills performance in experimental and control groups

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	2402.270[a]	12	200.189	15.550	.000
Intercept	974.068	1	974.068	75.662	.000
Pretest	1505.955	1	1505.955	116.977	.000
Treatment	24.726	1	24.726	1.921	.167
Socio-economic status	6.254	2	3.127	.243	.785
School location	145.320	1	145.320	11.288	.001
Treatment * Socio-economic status	21.463	2	10.731	.834	.436
Treatment * School location	8.198	1	8.198	.637	.426
Socio-economic status * School location	121.839	2	60.919	4.732	.010
Treatment * Socio-economic status * School location	1.976	2	.988	.077	.926
Error	2870.896	223	12.874		
Total	59671.000	236			
Corrected Total	5273.165	235			

a. R Squared = .456 (Adjusted R Squared = .426)

Table 4 is the summary of findings showing the ANCOVA Table with the mean square value of the pretest is 1505.955and the posttest is 974.068that indicated a significant difference as the pretest mean square value is greater than the posttest mean square value of the pupils' literacy skills in the experimental and control groups. The Table 4 further shows that the treatment on pupils' literacy in the groups (Print immersion strategy and control) with F-value of $[F_{(1,235)}=1.921; p>0.05]$ was not significant at 0.167. This implies that there is no effects of the treatments on pupils' performance. Therefore, the hypothesis one that says there is no significant difference in the treatment on pupils' literacy skills performance exposed to print immersion strategy and those in the conventional classroom is thereby not rejected, that is, H_{01} is not rejected.

IV.   Discussion of Findings
The inferential statistic as revealed in the ANCOVA Table indicated that there is no significant difference in the treatment on pupils' literacy skills performance exposed to print immersion strategy and conventional classrooms. This is contrary to the descriptive statistics and the inferential statistics of the pretest and posttest values of pupils' literacy skills performance. The pupils' literacy skills performance is significantly better in print immersion classroom than it is in the conventional classroom having significant values for both pretest and posttest values. It is inferred that there is a significant improvement of the pupils' literacy skills performance in the print immersion group over the conventional classroom in terms of the teaching strategy used in delivering the course contents. The print immersion strategy affords the pupils the opportunity to see the real object themselves without imagination in the classroom. This result had been supported in the literature as many researchers had reported that print immersion as effective means of disseminating information for easy assimilations of pupils in classroom (Borgne, et. al. 2019; Bickel, et al. 2010; Stava, et al. 2012; Skouras et al. 2013). The effective use of print immersion had generated great improvement on pupils' literacy skills within and outside the classroom. A considerable number of pupils had their understanding on literacy skills easily with further little or without supervision when they at their various home.

V. Conclusion

The study explored the effects of print immersion strategy on literacy skills of pupils in primary schools. From the findings of this study, it is noted that the pupils' literacy skills have a greater improvement via the use of print immersion strategy classroom over the conventional classroom. The pupils' school location and their socio-economic status have a greater influence on their literacy skills in print immersion and conventional classrooms. However, it can be concluded that the pupils' literacy skills performance of print immersion classroom is better than those of the conventional classroom as a result of the strategy used that arouse the pupils' interest towards learning to take place. It is, however, noteworthy thatprint immersionstrategy is capable of bringing about the required positive change in pupils' literacy skills.

VI. Recommendations

The following recommendations are made based on the findings:

i.   Education districts, schools, teachers and future researchers could benefit from this study and continue building on this research.
ii.   Primary school educators should spring up wide publicity on the needs of print immersion strategy towards pupils' literacy skills in classroom.
iii.   The use of print immersion strategy towards pupils' literacy skills should be known by all the primary school teachers as a mode of instruction.
iv.   There is need to often organise seminars or workshops in training the teachers on the contemporary concepts in teaching and learning in primary schools' education.
v.   Professional associations like the Association of Nursery and Primary Education Instructors in Nigeria (ANPEIN) should popularise the print immersion strategy.

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