TEACHERS’ AWARENESS OF THE EXISTENCE AND THE USE OF TECHNOLOGY TO PROMOTE CHILDREN’S LITERACY INSTRUCTION

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Abstract:
This paper examined the awareness of teachers of nursery and primary schools on the existence of the technological resources that could be used to support children’s literacy instruction, as well as the use of such technological resources for enriching children’s literacy instruction. The study was carried out in Awka Local Government Education Zone in Anambra State, Nigeria. Two (2) research questions guided the study. Five (500) nursery and primary school teachers were selected as the sample for the study using simple random sampling technique. Questionnaire was the instrument used for data collection which was analyzed using mean scores. The findings, among others, were that both the nursery and primary school teachers are able to identify the technological tools that could be used to enhance literacy instruction in children but are not aware of how such resources could be used. Suggestions for improvement were provided.
Teachers’ awareness of the Existence and the Use of Technology to Promote Children’s Literacy Instruction.

INTRODUCTION

Literacy instruction traditionally refers to the teaching of basic literacy skills—reading, writing, listening, and speaking. In today’s digital world, however, technology has contributed to an expanded understanding of literacy. Besides this, children of information age also use technology skills for communicating, investigating, computing, accessing and using information, thinking critically about messages inherent in news media and understanding and evaluating data. As policymakers and educators ponder what to be literate in a digitized society means, most educators today agree that literacy instruction, at the minimum, should include computing skills, identification and usage of audio-visuallys in the classroom, assistive technology devices of all kinds, etc. All these tools are needed in preparing teachers for the instructional activities in our public schools.

According to Jordan (2009), a large body of research exists on preparing teachers to teach, use, and integrate technology in the classroom. Though this body of research does not directly relate to the questions posed in this study, comparisons can be made to teacher education. For instance, several of these studies report that teacher preparation programs fail to properly prepare teachers for using and integrating technology into classroom teaching (e.g., Doering, Hughes, & Huffman, 2003; Panel on Educational Technology, 1997; U.S.Congress, 1995) and that novice teachers report high anxiety in the use of technology in the classroom although they frequently use technology outside of the classroom in personal contexts (e.g., Laffey & Musser, 1998). This is a related factor, as teachers need to consider the many technologies available to them and how they could be used and integrated into everyday teaching of the curriculum (McKenzie, 2001). An important reason for reviewing these studies is to point out that teachers may or may not be equally reluctant or ill equipped to use technology for mentoring purposes. If integrating technology into everyday teaching is a challenge for novice teachers, using technology as a mentoring tool may prove to be equally challenging.

Furthermore, progressive educators see a greater role for technology in the literacy classroom; they believe that technology has the potentials to motivate children to reading and writing. For example, Meyer and Rose (2000) observed that new technology has the potential to revitalize reading instruction and to make reading more relevant to the lives of children growing up in the Electronic Age. This is in line with the observation of Bruce and Peyton (1999) that teachers of young children can use technological network-based approaches to literacy instruction to support authentic reading and writing, collaboration, student-centered learning, writing across the curriculum and the creation of classroom writing activities.

According to Holum and Gahala (2001) the technological network-based tools that teachers can use to promote children’s literacy instruction include:

- **Audio books** - professionally recorded, unabridged versions of fiction or nonfiction books on tape children can listen to and follow along silently with the printed version level.
- **Electronic Books** - electronic texts that are available on CD-ROM, the Internet, or special disks presented visually. Anderson-Inman and Horney (1998) noted that electronic books
are searchable, modifiable (i.e. font sizes can be increased to meet the needs of the reader), and enhanceable with embedded resources (e.g., definitions and details).

- **Online texts**- children’s texts materials that are available on the World Wide Web.
- **Electronic Talking Books**- electronic texts that provide embedded speech. The speech component offers a digitized reading of general sections, as well as pronunciations of specific words within the text; it supports and coaches students as they read the text of the story (Leu, 2000).
- **Programmed Reading Instruction** - various types of software programs, computer-assisted instruction, and integrated learning systems, that offer programmed reading instruction for students. This skills-based instruction ranges from letter recognition to phonics instruction to vocabulary building.
- **Word Processing**- tools that allow many students to write and edit their work more easily. Word-processing tools such as spelling checkers are useful aids that improve the quality of children writing.
- **Desktop Publishing of children Work** - an extension of word processing, in which children learn to format text, plan the layout of pages, insert charts and graphics, to produce a professional-looking final copy of their reports, stories, and poems.
- **Multimedia Composing**- various software programs allow students to insert images, sounds, and video, thereby creating complex, multilayered compositions. For students who have difficulty with writing, multimedia composing presents a means of self-expression and provides support for development of reading and writing skills.
- **Online Publishing of Student Work** - online publishing of students’ work through the school’s Web site. In developed countries, classrooms often have their own Web pages, which can display student assignments and extracurricular writing. According to Karchmer (2000), publishing online is a motivating factor when completing classroom assignments.
- **Internet-Based Communication**: e.g. using electronic mail (e-mail), electronic bulletin boards, and e-mail lists to promote children reading and writing skills. Such Internet-based communication can be with peers, adults, or professional experts from around the world.

Educational researchers and practitioners alike assert that the potential of new technologies for learning is likely to be found not in the technologies themselves but in the way in which these technologies are used as tools for learning (Means & Olson, 1995; Owston, 1997; Valdez et al., 1999). In literacy instruction, technology has both traditional and authentic uses (Singh & Means, 1994).

A traditional use of technology is skills reinforcement; for example, children who need additional practice in reading might work individually on computers equipped with reading-comprehension software. An authentic use of technology on the other hand, is using it as a tool to accomplish a complex task; for example, children who are creating a written report might use the Internet for research, word-processing software to write and format the text and hypermedia software to add images.

Technology is an area of the curriculum, as well as a tool for learning, in which teachers must demonstrate their own awareness and capacity for learning. In other words, for effective and meaningful teaching in the present information age, the demonstration of teachers’ awareness and competencies for instructional use of information and communication technology...
Teachers’ awareness of the Existence and the Use of Technology to Promote Children’s Literacy Instruction.

ICT cannot be underscored. If teachers are aware of the use of IT in literacy instruction, children are likely to benefit from their knowledge.

Therefore, bearing in mind the existing ICT-poor school environments in Nigeria, a developing country, and the vastness of ICT capabilities, the question that comes to mind include: Are teachers of young children aware of the existence and the use of technologies to promote children’s literacy instruction? This is the question that presents the problems of this study.

This paper, therefore, tries to find out the extent to which teachers of young children in the public school system are aware of the existence and the use of technological resources to promote children’s literacy instruction. Specifically, the study tries to find out if any difference exists in the nursery and primary school teachers’ awareness as to the existence and the use of technologies to promote children’s reading and writing skills.

Research Questions
The following research questions guided the study:
1. What are the technological tools that can be used to enhance children’s literacy instruction?
2. To what extent are nursery and primary school teachers aware of the use of the existing technological tools to promote children’s literacy instruction?

Methodology
The study is a survey research conducted in public primary schools and public nursery schools in Awka Local Government Educational Authorities in Anambra State. The population was made up of primary and nursery school teachers in the area. Based on the 2008/2009 school year, these populations are 233 nursery school teachers and 2763 primary school teachers.

Sample
Out of 102 public nursery schools and 121 public primary schools in Awka Local Government Education Authority, twenty (20) schools each were selected using simple random sampling. While five (5) teachers each where selected from each nursery school, twenty (20) teachers each were selected from the primary schools making a total of 500 teachers.

Instrument for Data Collection
Questionnaire was the instrument used for data collection. It was developed based on the two (2) research questions for the study. The Questionnaire comprised two sections containing 20 items which were structured using a four point rating scale ranging from strongly agree (SA) to strongly disagree (SD). Ten items present the existing technological resources that promote children’s literacy instruction while the other ten items are on the teachers’ awareness of the use of the resources.

The split–half method was used to ascertain reliability after the validation of the instrument by four experts from the Departments of Childhood Education and Educational Technology. The questionnaire was once administered to twenty (20) nursery and primary school teachers in Onitsha Local Government Education Authority for pilot testing. The Person Product Moment Correlation Co-efficient was computed between the two sets of scores and that gave reliability co-efficient of internal consistency of 0.82. A score of 0.92 was obtained when the Spearman Brown formula was applied.
Data Analysis
The data collected were analyzed using mean scores to answer the research questions. Any item with a mean score of 2.55 was regarded as ‘Agree’ (A) while a mean score less than 2.55 was regarded as ‘Disagree’ (D).

Table 1
The extent of awareness of the existing technologies that promote children’s literacy instruction.
N = 500

<table>
<thead>
<tr>
<th>s/n</th>
<th>Items</th>
<th>Nursery Teachers</th>
<th>Remarks</th>
<th>Primary Teachers</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Audio books</td>
<td>2.67 A</td>
<td></td>
<td>2.77 A</td>
<td></td>
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<tr>
<td>2</td>
<td>Electronic books</td>
<td>2.98 A</td>
<td></td>
<td>2.86 A</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Online texts</td>
<td>2.67 A</td>
<td></td>
<td>2.75 A</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Electronic talking books</td>
<td>2.69 A</td>
<td></td>
<td>2.55 A</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Programmed reading instruction</td>
<td>2.58 A</td>
<td></td>
<td>2.59 A</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Word Processing</td>
<td>2.87 A</td>
<td></td>
<td>2.80 A</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Desk top publishing</td>
<td>2.47 D</td>
<td></td>
<td>2.56 A</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Multimedia composing</td>
<td>1.45 SD</td>
<td></td>
<td>2.40 D</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Online publishing</td>
<td>2.48 D</td>
<td></td>
<td>2.81 A</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Internet Communication</td>
<td>2.49 D</td>
<td></td>
<td>2.20 D</td>
<td></td>
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<tr>
<td></td>
<td>Grand Total</td>
<td>2.56</td>
<td></td>
<td>2.63</td>
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</table>

Table 1 indicates that the mean ratings of both the Nursery and Primary school teachers on the identification of the technologies that promote children’s literacy instruction is higher than the cut-off point of 2.55. This implies agreement to the items.

Table 2
The awareness of Nursery and Primary school teachers on the use of technologies that promote children’s literacy instruction.
N = 500

<table>
<thead>
<tr>
<th>s/n</th>
<th>Items</th>
<th>Nursery Teachers</th>
<th>Remarks</th>
<th>Primary Teachers</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Audio books can be used to promote students’ interest in reading and</td>
<td>2.83 A</td>
<td></td>
<td>2.60 A</td>
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<td></td>
<td>improve their comprehension of the text.</td>
<td></td>
<td></td>
<td></td>
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<td>2</td>
<td>Electronic books can be used to provide children with the opportunity</td>
<td>1.97 SD</td>
<td></td>
<td>2.02 D</td>
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<tr>
<td></td>
<td>to have a deeper understanding to concepts and new words in the book.</td>
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### Online text can be used to provide children with the opportunity to have on-the-web reading materials.

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<tr>
<td>3</td>
<td>Online text can be used to provide children with the opportunity to have on-the-web reading materials.</td>
<td>2.67</td>
<td>A</td>
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### Electronic Talking books can be used to teach children pronunciation and how to read as they read the story.

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<tbody>
<tr>
<td>4</td>
<td>Electronic Talking books can be used to teach children pronunciation and how to read as they read the story.</td>
<td>2.78</td>
<td>A</td>
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### Programmed Reading instructing can be used to enhance letter recognition, phonics instruction and vocabulary building in children.

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<tbody>
<tr>
<td>5</td>
<td>Programmed Reading instructing can be used to enhance letter recognition, phonics instruction and vocabulary building in children.</td>
<td>1.92</td>
<td>SD</td>
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### Word Processing can be used to help children to write and edit their work more easily.

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<tbody>
<tr>
<td>6</td>
<td>Word Processing can be used to help children to write and edit their work more easily.</td>
<td>1.98</td>
<td>SD</td>
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### Desktop publishing can be used to provide children the opportunities to format text, plan the layout of pages, and insert charts and graphics in the work.

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<tbody>
<tr>
<td>7</td>
<td>Desktop publishing can be used to provide children the opportunities to format text, plan the layout of pages, and insert charts and graphics in the work.</td>
<td>1.96</td>
<td>SD</td>
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### Multimedia composing can be used to provide children the opportunity to integrate visual and aural components in their school work.

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<tbody>
<tr>
<td>8</td>
<td>Multimedia composing can be used to provide children the opportunity to integrate visual and aural components in their school work.</td>
<td>1.89</td>
<td>SD</td>
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### Online publishing can be used to provide children the opportunity to publish their work in web site.

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<tbody>
<tr>
<td>9</td>
<td>Online publishing can be used to provide children the opportunity to publish their work in web site.</td>
<td>1.74</td>
<td>SD</td>
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### Internet-based communication can be used to help children to communicate their ideas to their peers or adults who have agreed to answer their e-mail questions.

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<tbody>
<tr>
<td>10</td>
<td>Internet-based communication can be used to help children to communicate their ideas to their peers or adults who have agreed to answer their e-mail questions.</td>
<td>1.88</td>
<td>SD</td>
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### Grand Total

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<td></td>
<td>2.16</td>
<td>2.25</td>
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Table 2 reveals that the mean ratings of both the nursery and primary school teachers on the awareness of the use of technologies to promote children’s literacy instruction are less than the cut-off point of 2.55.

### Discussion

The findings of this study, generally, shows that both the public nursery and public primary school teachers could identify the technological tools that could be used to promote children’s literacy instruction but were not aware of the use of the identified resources to promote children’s literacy instruction. In other words, the teachers are not aware of how the resources could be used in promoting reading and writing skills in children. This supports the research which shows that Nigeria is very much behind in the use of Information and Communication Technology (ICT) in education (Obagah, 2002; Ali, 2003, and Osumah, 2003).

According to the research, only 6% of schools in Nigeria have any form of ICT and only 7% of educators (teachers, administrators and technicians) have skills for operating ICT. These
poor figures are dimmed by those of the United States, for instance, where ICT capacity is 83% and infrastructure in schools is 95.3%.

The study equally reveals that there is no significant difference in the mean scores of the public primary school teachers and the public nursery teachers in their awareness of the use of the technological resources to promote children’s literacy instruction. This result can also be attributed to the lack of ICT facilities across all the levels of our educational system. As of now, ICT plays very limited role in all aspects of Nigerian education. The use of technological resources in Nigerian education must be re-emphasized and the technological resources provided at all levels of the system especially in the nursery and primary education levels since they are the preparatory grounds for further educational advancement.

However, school administration should mobilize staff and students so that their attitude to the use of ICT is focused and directed towards meaningful programs and projects in the community, using it as a tool for research, teaching and learning, rather than as toys or gadgets for decorating offices and boardrooms.

It is necessary to point out that, although there is no difference in their mean responses both on the identification and the awareness of the use of the resources to promote children’s literacy instruction, their points of similarity differ. In Table 1, while the nursery school teachers disagree that online publishing and desktop publishing cannot be used to promote literacy instruction in children, the primary school teachers agree that the resources could be used.

Furthermore, in Table 2, while the nursery school teachers are not aware of how word processing, online publishing, multimedia composition, and desktop publishing could be used in enhancing literacy instruction in children, the primary school teachers were aware of this process. The differences in their opinions may be as a result of individual technological experiences and training of the nursery and primary school teachers, and not as a result of a group experience.

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

1. Technological training needs of nursery and primary school teachers should be identified. They need to be trained on how to manage and use technologies to promote literacy instruction.

2. Funding: The State Education Board should provide fund to schools to procure the needed technological tools for student instruction in the nursery and primary schools. Computers, audio-visual materials, and other forms of gadgets are required for global education, and Nigerian children should not be left behind.

3. Internet facilities should be installed in all nursery and primary school classrooms or libraries, and adequate numbers of computers and educational software provided.

4. Nursery and primary school teachers should endeavor to participate in evaluating online educational materials for use in classroom instruction. Arrangements and provisions should be made for all teachers to participate in the ongoing professional development on literacy and technology for public schools.

5. Curriculum planning and delivery: Another important step in implementation of technological instruction and training in nursery and primary schools is curriculum planning and delivery. To begin, we recommend that teachers have a basic understanding of the technological resources and a commitment to make the curriculum and learning accessible for all learners. Through an effective training by
the educational authorities, such knowledge skill would be useful in designing effective lessons in the classroom. Thus, the use of technology for instruction must be embedded in the general school curriculum, and teachers mandated to acquire the knowledge and teach accordingly.

6. Parent education and involvement: Parents are another valuable resource for teachers building a technology resource curriculum and delivery. There are at least two important ways that parents can be a resource: as advocates and as volunteers. Some of the parents have computers and other technological devices at home. The may need to undertake training where needed so that they can support their children with their homework. By educating parents about the technology activities going on in the classroom, teachers can develop a support system of informed individuals who can assist with and advocate for technology instruction. Teachers should think about ways to inform parents about their children’s classroom activities. Notes sent home, parent-teacher conferences and presentations, and school board meetings are all excellent opportunities to engage parents and have them even donate assistive technology resource materials, volunteer in the classroom and provide support at home. A few possibilities are helping to prepare materials, monitoring kids during lessons, helping with technology, donating equipment, and supporting homework assignments (Hall, Strangman, and Meyer, 2009)

Conclusion

This is concerned about the awareness and existence of technological resources that promote children’s literacy instruction among public nursery and primary school teachers. In order to put these resources into effective and appropriate use is probably not known to these teachers, though on few selected items assessed, the public nursery school teachers showed more awareness of instructional technology devices than the public primary school teachers. In this regard, the authors want to reemphasize that teacher education training institutions have an obligation to consider ways that technology could support and enhance the knowledge and practices of novice teachers in the nursery and primary schools.

Given that children or young people today gather information and access knowledge in a much different way than people of past generations (Prensky, 2005); failure to integrate technology and to consider critical ways that novice teachers use and learn from technological resources, such as the Internet, could be considered irresponsible. Furthermore, we are living in a digital age where the use of technological tools for communication is vital.

Students now attending colleges and universities could be considered digital natives, or children who have been born and raised with the language of computers, video games, and the Internet, and who are native speakers of technology (Prensky, 2001). Nigerian government and stakeholders in education should, therefore, consider updating and upgrading the national curriculum with educational technology, for the development of our students in this digital age.
REFERENCES


Panel on Educational Technology. (1997). Summary of findings and recommendations from report to the president on the use of technology to strengthen K-12 education


