COPYRIGHT EXEMPTION AND APPLICATION OF INFORMATION TECHNOLOGY AS FACTORS INFLUENCING TRANSCRIPTION OF READING MATERIALS FOR THE VISUALLY IMPAIRED IN NIGERIA

BY

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BEING A THESIS SUBMITTED TO THE DEPARTMENT OF LIBRARY, ARCHIVAL AND INFORMATION STUDIES, UNIVERSITY OF IBADAN IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY (PH. D) DEGREE OF THE UNIVERSITY OF IBADAN

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ABSTRACT

The transcription and distribution of reading materials to the visually impaired have remained grossly inadequate relative to their information need, and access. Studies have shown that the low transcription and distribution of reading materials for the visually impaired in Nigeria is as a result of poor funding, Braille literacy and reading interest. Unfortunately, copyright exemption and information technology for the visually impaired have been neglected. The study, therefore, investigated copyright exemption and the application of information technology as factors influencing the transcription of reading materials for the visually impaired in Nigeria.

The study adopted survey research design of the *ex-post facto* type. Total enumeration technique was used to select 470 personnel in libraries (24), secondary schools (347), tertiary institutions (41) and non-governmental organizations (58) concerned with transcription of reading materials into alternative format in Nigeria. This included nine institutions that served as participants in the interview. Four instruments (Knowledge of Exemption Scale (α= 0. 78), Information Technology Use Scale (α= 0. 74), Transcription of Reading Materials Scale (α= 0.76) and an interview schedule were used. Six research questions were answered and three null hypotheses were tested at 0.05 level of significance. Data were subjected to descriptive statistics, Pearson Product Moment Correlation, Multiple Regression and content analysis.

Transcribers, libraries and schools for the visually impaired had high knowledge of copyright exemption (70.8%); information technology application in transcription was low (7.4%) while information needs (66.8%) and curriculum specification (63.4%) were the major criteria for selection of material for transcription. Eighteen different types of equipment were used for transcription. Formal collaboration existed among transcribers and providers of alternative formats. Shortage of transcribers (87.5%), lack of software and equipment (81%) and high cost of production (77.6%) were the major problems of transcription of reading materials. There was a significant positive relationship between copyright exemption and transcription of information materials into alternative format ($r=0.741, p<0.05$). A significant positive relationship existed between application of information technology and transcription of information material ($r=0.62$: $p<0.05$). Copyright exemption and application of information technology had joint positive influence on transcription of reading material $F_{(2,469)} =416.7$; $p< 0.05$). The interview revealed a high knowledge of copyright exemption and low use of information technology among transcribers. It also showed that transcribers were of the opinion that IT tools were expensive to procure but crucial to improving transcription.

Copyright exemption and information technology application are crucial factors in effective transcription of reading materials into alternative formats and the provision of information services to the visually impaired. Enrichment programmes geared towards increased application of copyright exemption and information technology for all institutions involved in transcription were suggested.

Key words: Copyright exemption, Information technology, Transcription of reading Materials, Visually impaired, Alternative formats.

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CERTIFICTION

I certify that this research was carried out by Christopher NKIKO in the Department of Library, Archival and Information Studies, University of Ibadan, Nigeria.

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DEDICATION

This thesis is dedicated to the Almighty God for His unparalled grace, unending mercies and undeniable blessings upon my life. I am nothing without Him.

To my precious wife, Dr. (Mrs.) Mojisola Nkiko and our children, Tochukwu and Salvation Nkiko. We are for signs and wonders.

To the loving memory of my late parents: Mr. & Mrs. Michael Nkiko.

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INTRODUCTION

1.1 Background to the study

One of the primary missions of education is to extend the frontiers of human knowledge and equip all who seek such with requisite facilities that will satisfy this quest for knowledge. A general picture that emerges from this is that students who have physical impairments may underachieve in the educational setting when their unique needs are not met. A physical impairment may be congenital or acquired through accident or illness. World Health Organisation (2008) conceptualizes impairment as:

> any loss, abnormality or failure of psychological, physiological or anatomical structure functioning which results in restricted or lack of ability to perform an activity normally.

These categories of people are variously referred to as persons with special needs. The most common forms of impairment are usually manifested in mental retardation, speech or language impairments, orthopaedic impairments, visual impairments, autism, traumatic brain injury, serious emotional disturbance and multiple impairments (Time Almanac, 2010).

Eniola (1993) defined the visually impaired as comprising the totally blind, those with low vision and the partially sighted. He further defined the blind as having a "visual acuity" of 20|200 or less in the better eye even with correction; the partially sighted as having a visual acuity of 20|70 and those with low vision as having a visual acuity between these two points. Some people are totally blind; some can tell light from dark while others have a little residual vision which aids their mobility. People with impairments remain a marginalized and neglected group in most developing societies such as Nigeria. Since the social disadvantage of people with impairments is so obvious when statistics are scrutinized, it is imperative that they should be empowered to obtain the necessities of everyday life such as housing, education, employment, entertainment, sporting, leisure activities, and library facilities in addition to specialised services that will adequately address their

impairment. Like their counterparts without impairments, these categories of individuals who are impaired in one way or the other should be able to take advantage of facilities and services that relate to their individual abilities. A notable observation is that individuals who suffer impairment in Nigeria are very much neglected as far as the provision of appropriate reading materials is concerned.

The personal, vocational and social development of an individual depends on the amount, quality and accessibility of information available to him. Without access to information, a citizen may find it difficult to have the full range of opportunities and services available in the area of knowledge acquisition and consequently participate fully in societal activities (Green, 1986). Along the same line of thought, Kantumoya (1992) noted that people will not get their dues as citizens of present day society unless they have continuous access to relevant information which will guide them into effective action. Print disability is a major challenge confronting the visually impaired that represents the target group of this study. As such, they can only access information through alternative formats such as Braille, large prints, audio or talking books. Since reading provides great opportunities that open the door to culture, knowledge and independence, the visually impaired should have equivalent access to books and information as sighted people. A range of innovative alternative formats should therefore be provided to meet these needs. Based on this, a number of alternative formats can be employed in meeting the needs of the visually impaired individuals in the Nigerian educational context. This can only be made possible through transcription.

Transcription service is focused on delivering inclusive dissemination of information through high quality alternative formats. The most common alternative formats include: Braille, audio cassette and compact disc, large print, electronic files. These ensure that the recipients access preferred format with the same content and quality as the original document. COTIS (2001) observed that transcription to alternative formats has expanded in scope and content particularly as a result of the 2005 Disability Discrimination Act (DDA). It therefore advocated for the promotion of standards of information provision for the visually impaired. This gave impetus to the emergence of the Confederation of Transcribed Information Services in the United Kingdom, being an attempt to regulate and ensure qualitative transcription of text to Braille, large print, audio and electronic materials. Recently, the University of Nottingham (2007) reported that appropriate materials in Braille or other alternative

formats such as large prints, audio or electronic versions are usually provided for students who are identified as being visually impaired or have print learning difficulty. This service is said to be provided in compliance with the special educational needs and Disability Discrimination Act (DDA, 2005).

Transcribing materials into Braille is not like photocopying. Braille is a specialised communication medium and, like any other language, it needs to be translated in order for it to make sense. Various grades to which text can be transcribed abound, among these are:

- Grade 1 Braille - seldom used because it takes a lot of space and is comparatively slow to read and produce
- Grade 2 Braille - a more contracted version which therefore reduces the size of books and makes reading quicker
- Grade 3 Braille- Mathematics Braille (which requires some complex and specialised notations and Music Braille
- Diverse language Braille version

Apart from the aforementioned, diagrams, graphs and other pictorial information can also be transcribed in a format accessible to visually impaired people. Braille notations can be added and such tactile materials are often accompanied by a Braille explanation. Dote-Kwan and Senge (1998) have noted that traditionally, one of the biggest challenges facing Braille readers in postsecondary education has been untimely access to instructional materials in Braille. For many visually impaired students in secondary schools and universities, getting course materials transcribed into Braille can be a herculean or even an impossible task. Where the materials are available, it takes an excessive amount of time to get them transcribed into Braille.

In response to the prevalent need for timely access to instructional materials in Braille, the Braille Transcription Centre (BTC) was established in 1995 at California State University, Fullerton. Students, faculty or staff located in a participating institution could send the instructional materials to be transcribed to the BTC (Dote-Kwan and Senge, 2005). BTC acts also as technical support and training platform to institutions that already have on-the-site Braille production equipment. By adopting a regional approach to Braille transcription, the BTC has been able to bring together a highly qualified team of specialists, all focused on producing Braille quickly and accurately. This innovative measure to Braille transcription has enabled the visually

impaired students in Southern California to have access to instructional materials in Braille at the same time as print-reading students.

Hill and Shown (2012) have observed the Nigerian situational context, that the visually impaired students in Nigeria encountered a lot of problems in both internal and public examinations due to transcription challenges. They contended that the cases of insufficient Braille materials, time lag in transcription, unnecessary mistakes or poor transcriptions hamper the performance of the candidates. Sanders (2005) averred that less than five percent of printed materials are available in alternative formats. This position was corroborated by Atinmo (2007) that only 1449 books in Braille, 231 talking books and 80 large prints exist in Nigeria for the visually impaired. She attributed this to scarcity of personnel associated with Braille transcription. There is indeed dearth of alternative formats not only in Nigeria but in most developing countries (Tucker, 2007; World Blind Union, 2010). The insufficient transcription and distribution of reading materials in alternative formats pose a big challenge to the education of the visually impaired in Nigeria and require urgent solution to avoid technical exclusion of this group from society. One of the key factors that may directly or indirectly affect transcription activities is copyright.

Copyright is the exclusive right accorded by law to the creator of a literary work, composer or artist with regard to the use, reproduction, and exploitation of his created works for economic or commercial purposes. Copyright encourages creative activity and provides society economically and speedily with the results of such creativity (REPRONIG, 2004; Bainbridge, 2010).

Copyright is part of what is generally regarded as intellectual property. Intellectual property refers broadly to such areas as copyright, trademarks, patents and industrial designs, while copyright is specifically concerned with the expression of ideas in literary, artistic, musical, cinematograph films, sound recordings, other works of arts and the legal protection accorded the expression against unauthorised exploitation and use (REPRONIG, 2004). In Nigeria, the applicable law is the Copyright Act (68), 1988 as amended in 2004. Under this Act, there is no formality required for a work to be protected by copyright. As such, no form of registration is required. According to Sodipo (2008) it is like a floating privilege that crystallizes and clutches a work upon the creation once the work satisfies the conditions for eligibility under the Act. Copyright exists from the moment that a work is fixed in a tangible medium of expression, such as on paper, a computer disc or a videotape. It is

advisable although not mandatory, to place a copyright notice usually a "C" in a circle – with the date of first publication and the name of the copyright holder (Sodipo, 2008).

Copyright, like other kinds of intellectual property rights, is basically limited in time, scope as well as exercise. The primary reason behind such limitations is the need to protect the public interest for citizens to be supplied with information and knowledge, thereby encouraging both learning and progress of science. This need must be carefully balanced with the need to reward creators for their works, and to stimulate them to continue producing new creative materials. In terms of time limits, the period or duration of copyright begins from the moment the work is created, or, under some national laws, when it has been expressed in a tangible form and continues until sometime after the death of the author. At international level, the duration of copyright is, as a general rule, the lifetime of the author and not less than 50 years after the author's death. There are also periods of protection for works in respect of which the duration cannot be based on the lifetime of a single human author, but on the moment of publication. At the expiration of copyright, the subsisting work is said to have fallen into public domain (Lung, 2004).

According to Bainbridge (2010), ownership of the copyright in a work will often remain with the author of the work, the author being the person who created it or made the arrangements necessary for its creation, depending on the nature of the work. However, if a literary, dramatic, musical or artistic work is created by an employee working during the course of employment, his employer will own the copyright subject to agreement to the contrary. Additionally, copyright like other forms of property, can be assigned. It may pass under a will or operation of law, and licences may be granted in respect of it.

Ogunmoyela (1995) contended that copyright exists to protect the intellectual property and thus economic livelihood of creators and publishers of all literary, dramatic, artistic, musical and audio-visual work. The main purpose is thus to ensure that an author receives adequate monetary compensation and/or prestige from those who exploit his original intellectual work and be encouraged for further creativity.

There has always been a broad consensus that the exclusive rights of copyright holders in their works are by no means unlimited. A set of exemptions is deemed necessary to safeguard fundamental rights and freedoms of users, to promote the dissemination of information and to alleviate the symptoms of market failure

(Guibault, 2002). Copyright exemption therefore ensures that specified persons under the law exploit copyrighted works without recourse to the authors and/or publishers for permission.

Copyright exemption for the visually impaired, like other exemptions for the benefit of those with other impairment types, is enshrined in international instruments, in particular the United Nations Universal Declaration on Human Rights and the United Nations Standard Rules on the Equalization of Opportunity for Disabled people. These exemptions are aimed at securing the right of the visually impaired people to access information and knowledge. From a copyright viewpoint, any exemption for the visually impaired must pass the three-step test as outlined in the Berne Convention (Story, 2003). The first step applies to certain special cases limited to specified groups of users. The second is to ensure that the exemption does not have the potential to conflict with a normal exploitation of the work. The third step relates with the question of unreasonable prejudice to be considered in order to determine if the exemption should be subject to a requirement to pay equitable remuneration, or qualify as a free use.

A number of national copyright laws today provide exemptions to copyright exploitation in respect of the visually impaired and other persons so described as impaired persons. WIPO (2011) noted that fewer than sixty countries have exemption clauses written in their copyright laws for the provision of reading materials for the visually impaired. It observed that further these exemptions usually do not cover the import or export of works transcribed into alternative formats. This is a costly practice that severely limits access to information by the visually impaired.

In almost half of the countries with exemption, there does not appear to be restriction on who may undertake the permitted activity under the exemption clause. In Japan, the republic of Korea and Nigeria, the lack of restriction only applies to where Braille copies are made. Only bodies or organisations which are specifically authorised or designated are able to make sound recordings in Japan and Nigeria (Sullivan, 2006).

Many countries seem to restrict all activities under the exemptions to bodies that have been officially recognized to be catering for the visually impaired in particular France, Ireland, and New Zealand. By contrast, Canada, Denmark and the United Kingdom appear to positively permit a wide range of bodies, as well as

visually impaired persons themselves, to undertake transcription under the exemptions (Sullivan, 2006).

The exemption provisions are based on the same fundamental principle, the scope of the exemption varying from one country to another. In some laws, the exemption is restricted to certain types of works. In some cases, it is extended to governmental organisations, authorized entities or individuals acting on behalf of the visually impaired (Lung, 2004). Some laws provide that copies in an alternative format may not be produced if such versions already exist and are commercially available or stipulate that copyright is not infringed when the alternative format is produced on a non-commercial basis for the visually impaired. Furthermore, some laws permit that agencies charge for the sale of alternative formats provided that the price does not exceed the cost of production. The Braille system is the format that is most commonly allowed for free. Certain countries appear to extend this exemption to other formats, such as audio, large print and electronic formats (Asein, 1994; McKenna, 1995; Porter, 1997; & Lung, 2004).

It is to be noted, however, that these divergences between copyright exemptions for the visually impaired in national laws stem from the differences in the particular social and economic conditions and needs as these have developed in each nation. However, according to McKenna (1995) in Australia, the statutory licenses allow educational institutions, institutions assisting people with print disabilities, people with intellectual disability and government to make copies for certain purposes. She noted further that copies cannot be made under the statutory licence if there are copies available in the format required, within a reasonable time, and at an ordinary commercial price. For example, you cannot make a Braille copy of a book already available in Braille. Copyright therefore becomes a sine qua non variable when considering effective and meaningful provision of reading materials in alternative format.

Okwilagwe (2001) citing section 5 of the Nigerian Copyright Act (1988) posited that it is the exclusive right of the copyright owner to (a) produce and reproduce the work in any material format (b) publish or prepare derivative works (new versions), (c) to distribute copies for commercial purposes publicly, (d) perform the work publicly, (e) display the work publicly. However, Asein (1994) averred that section 28(a) (c) (d) of the Nigerian Copyright Act provides exemptions to the rule by the introduction of ‘fair use’ clause. This allows reproduction without permission

from, or payment to, the copyright owner where the use is reasonable and not harmful to the rights. It is difficult to define what constitutes fair use, the law qualifies such purposes as criticism, review, news reporting, teaching, private study and research, provided there is an acknowledgement of the title and its authorship and reproduction is not for commercial purpose.

Exemptions to copyright are usually uses that do not infringe copyright, either by describing an activity and/or by reference to carrying out one or more of the acts restricted by copyright. The Nigerian Copyright Act (2004) clearly stated in its second schedule that the right conferred in respect of copyrighted work under section 5 of the Act does not include the right to control: reproduction of published work in Braille for exclusive use of the blind and sound recordings made by institutions or other establishment approved by the Government for the promotion of the welfare of other disabled persons for the exclusive use of such blind or disabled persons.

It is worth noting that this clause does not seem to deal with the issue of digital protection of copyrighted materials which act to subtly negate the provision. However Nigerian Copyright Act has not yet provided any protection for right holders against devices and services used to circumvent digital protection. Until that type of provision is included in the Copyright Act, transcribers wishing to undertake activity permitted by an exemption are not acting contrary to any law by circumventing any digital protection.

The international treaties and conventions relating to intellectual property permit exemption for the benefit of visually impaired persons (Sullivan, 2006). Nigeria is a signatory to such treaties as World Intellectual Property Organisation (2006), Berne Convention (1989), UNESCO (2003), Universal Copyright Convention, World Blind Union (2010) and has attempted to domesticate part of the exemption clauses as evidenced by the second schedule, sub-section 5 of the Nigerian Copyright Act.

Mere awareness of the existence of the exemption clause by institutions providing alternative format for the visually impaired does not guarantee corresponding action. It is knowledge that empowers and engenders action. Knowledge presupposes familiarity with sufficient and necessary conditions and characteristics of a phenomenon. Wong, *et al* (2009) posited that knowledge is one of the predictors of participation and performance. Therefore, understanding the elements associated with copyright exemption for the visually impaired is crucial for

transcription. Okiy (2005) and Omoba (2009) indicated that most users of copyrighted works in Nigeria have good knowledge of copyright law but hardly adhere to the provisions. On the contrary, Agulu, Agulu and Potiskum. (2000) noted that many people in Nigeria were ignorant of the specific provisions of the Nigerian Copyright law and its exemption clauses. They asserted that public enlightenment was required to stem the high tide of copyright abuse in the country.

The question is how knowledgeable are the providers of alternative format about exemption clauses. The lack of knowledge may be contributory to insufficient transcription. Education, communication and reassurance are required to overcome such barrier. It is pertinent to say, at this juncture, that copyright exemption clauses should serve as a veritable instrument for the purpose of transcription of information materials into alternative format for the visually impaired. Another critical element in the transcription of reading materials into alternative format is information technology.

Information Technology (IT) is a broad subject which deals with the use of electronic computers and relevant software to convert, store, protect, process, transmit and retrieve information (Lackie, 2007). Over the past twenty years, its prevalence has dramatically increased such that it is now a part of nearly every aspect of daily life. Information technology as a social system is recognised worldwide as a tool that accelerates economic and social integration. It is used as a medium for collaborative learning and for overcoming barriers to learning and performance (Gusen, 1998). Computers with synthetic speech (Duxbury word processor) can help in pronouncing texts for a blind person. The computer can tell the blind user other descriptive information that is displayed on the screen. Computer Braille printer can print text for the blind in Braille and *vice versa*. Some computer Braille printers can print in regular text between the lines of Braille. Teachers can also use the computer to type in standard orthography and have assignments and other documents transcribed in Braille for those who require it (Hill, 1990; Apple, 1992; Gusen, 1998; Banes, 2009).

Information technology has overwhelming influence on efficient and sustainable production of any sort. Industrialised nations have used technology tremendously to enhance the quality of life of the persons with impairment generally and the visually impaired in particular. Atinmo (2000) reported that technology has advanced so much in the area of library and information services that there are now a

variety of computer based devices that translate printed materials into raised letter, synthesised speech or enlarged formats for the visually impaired.

The above assertion was corroborated by Gallimore (1999), who noted that access to technologies has greatly assisted the provision of information in recent years. According to him, the most radical change came with the widespread use of computers, whereby the visually impaired could easily convert print into electronic text and read it from the screen with either transitory Braille or through synthetic speech. He further observed that it is also possible to link different converters such as scanners, reading machines, embossers and tape recorders, so that a converted text can be permanently recorded in the desired format. The internet has made it possible for the visually impaired to access information at the same time as sighted users, and has dramatically improved equality of access, bringing independence and choice - two of the fundamentals of freedom (Porter, 1997).

There exists now a technology called Braille 2000. It is a bold new tool for producing Braille. Braille 2000 is said to be fully internet compatible, making it as simple as a mouse click to send a document to a Braille production centre, to a school, to a blind student or a fellow transcriber. Braille 2000 is fully compatible with EDIT Personal Computer and is able to read and write Braille XML (Extended Machine Language) files as well as translate XML print text into Braille.

The application of information technology devices and tools such as computers, braille embossers, dolphin pen, jaws, duxbury braille translators, converters, synthetic speech software etc are vital for modern transcription. Contrary to this, Gusen, Amv, and Milaham (2010) observed that the commonest tools for transcription in Nigeria are perkins braille, slate, stylus, tape recorders, talking calculators and embossers. The position was furthered confirmed by Atinmo (2005) who posited that Braille production is mostly manual – driven as only 12 out of 75 institutions surveyed use computer Braille facilities. However, Lang and Upah (2008), Fuandai, (2010) Omede (2011) and Babalola and Haliso (2011) argued that transcription in Nigeria is mostly inhibited by insufficient funding, unskilled manpower, inadequate assistive technology, policy deficiencies, high cost of production and over reliance on foreign donation. The intensive application of information technology in the transcription of reading materials for visually impaired in Nigeria becomes imperative if appreciable progress must be made.

1.2 Statement of the Problem

Access to appropriate reading materials is a crucial factor in the success of the educational pursuit of the visually impaired. It is also an indispensable pathway for the achievement of the Millennium Development Goal of Universal Primary Education by 2015 as well as UNESCO's "Inclusive Education in Action." The 2006 United Nations Convention on the Rights of Persons with Disabilities and 2009 WIPO Visually Impaired Persons Initiative provide copyright exemption to transcription of reading materials for the visually impaired. Studies (Craven, 2002; Owen, 2004; IFLA, 2007) have shown that copyright exemption for printed and electronic resources as well as the deployment of information technology have boosted tremendously the transcription of reading materials for the visually impaired in both Europe and the United States.

Nigeria has domesticated copyright exemption for the visually impaired in the second schedule of its Copyright Act. In spite of copyright exemption and availability of information technology devices in the global market for transcription, it has been observed (Atinmo, 2007; Adetoro, 2009) that there is scarcity of transcribed reading materials for the visually impaired in Nigeria. Could this trend be as a result of gap in the knowledge of copyright exemption among transcribers and providers of alternative formats or inadequate application of information technology? However, literature search revealed a dearth of studies on the influence of copyright exemption and information technology on transcription of reading materials for the visually impaired in Nigeria. It is against this background that the study investigated the copyright exemption and application of information technology as factors influencing transcription of reading materials for the visually impaired in Nigeria.

1.3 Objectives of the Study

The study essentially sought to establish the influence of copyright exemption and information technology application on the transcription of reading materials for the visually impaired in Nigeria. The specific objectives are to:

1. determine the knowledge of copyright exemption among transcribers and providers of alternative formats to the visually impaired in Nigeria
2. investigate the extent of information technology (IT) application in the transcription of reading materials into alternative formats for the visually impaired in Nigeria

3. find out the criteria used for selection of reading materials for transcription into alternative formats for the visually impaired in Nigeria
4. find out the equipment used in the transcription of reading materials into alternative formats for the visually impaired in Nigeria
5. assess the areas of formal collaboration between transcribers and providers of alternative formats for the visually impaired in Nigeria
6. investigate the problems associated with the transcription of reading materials into alternative formats for the visually impaired in Nigeria
7. investigate the relationship between copyright exemption and transcription of reading materials into alternative formats for the visually impaired in Nigeria
8. find out the relationship between application information technology and transcription of reading materials into alternative formats for the visually impaired in Nigeria
9. investigate whether copyright exemption and information technology application when combined will not significantly influence the transcription of reading materials for the visually impaired in Nigeria.

1.4 Research Questions

The following research questions were answered in the study:

1. What is the copyright exemption knowledge among transcribers and providers of reading materials into alternative format in Nigeria
2. How is information technology applied in the transcription of reading materials into alternative format for the visually impaired in Nigeria?
3. What are the criteria used for selecting reading materials for transcription into alternative formats for the visually impaired in Nigeria?
4. What are the equipment used in the transcription of reading materials into alternative formats for the visually impaired in Nigeria?
5. What are areas of formal collaborations among transcribers and providers of alternative formats for the visually impaired in Nigeria?
6. What are the problems associated with the transcription of reading materials into alternative format for the visually impaired in Nigeria?

1.5 Hypotheses

The study tested the following hypotheses at 0.05 level of significance.

Ho_1 There will be no significant relationship between copyright exemption and transcription of reading materials into alternative formats for the visually impaired in Nigeria.

Ho_2 There will be no significant relationship between application information technology and transcription of reading materials into alternative formats for the visually impaired in Nigeria.

Ho_3 Copyright exemption and information technology when taken together will not have significant influence on transcription of reading materials into alternative formats for the visually impaired in Nigeria.

1.6 Scope of the Study

The study focused on transcription of reading materials into alternative formats for the visually impaired in Nigeria. The study therefore, covered knowledge of copyright exemption, application of information technology, criteria for selection of reading materials, equipment used, collaboration among transcribers and providers, problems associated with transcription, relationship between copyright exemption and transcription, relationship between information technology and transcription and the influence of copyright exemption and information technology on transcription of reading materials into alternative formats. It is delimited to institutions that facilitate and/or engage in the actual transcription of reading materials for the visually impaired into alternative formats. The alternative formats include Braille, talking books, large print, and electronic resources. The institutions include NGOs, State Public Library Board, Universities and Secondary Schools that cater for the visually impaired in Nigeria.

1.7 Significance of the Study

The study was an enquiry into the upgrading of the existing learning resource base of the visually impaired in Nigeria. It sought to find further means of empowering the visually impaired in order for them to be more integrated into the larger society through increased access to information leading to increased literacy, culture and self confidence of the target group.

The findings of this study would help policy-makers and stakeholders who are involved in the provision of reading materials for the visually impaired to understand the influence of copyright exemption and application of information technology on transcription. This would enable them design and adopt more appropriate policies and intervention strategies that will enhance better education and information access for the visually impaired.

The result of the study would stimulate transcribers, libraries, schools for the visually impaired, voluntary organisations as well all levels of government to best practices and the need to leverage their output to international standards. This is expected to provoke them to the deployment of information technology to transcription.

The outcome of this study would sensitize the schools for the visually impaired, libraries, transcribers and voluntary organisation on the need to forge stronger collaborations for improved transcription and effective dissemination of alternative formats to the visually impaired.

The findings of the study would provide relevant blueprint, framework of action and impetus for multi-national corporations and other donor agencies who are interested in investing in the education for the visually impaired.

The study would eventually enrich the body of literature in Library and Information Science and Special Education bearing in mind its interdisciplinary outlook. This will no doubt be of immense benefit to researchers in the field of Library Services to the visually impaired in Nigeria.

1.8 Operational Definition of Terms

For the purpose of clarity and precision, the following terms are operationally defined to indicate their meanings in the context of this study:

Alternative format: This refers to reading materials which have been transcribed or converted into accessible formats for those with print disabilities. They include Braille, large prints, tape recordings or talking books and electronic versions of the Braille.

Copyright: This is the protection or exclusive right conferred by law to the creator of a literary, artistic, musical or other creative work with regard to the use, reproduction and exploitation.

Copyright exemption: This refers to legal clauses or provisions in copyright law which allow transcription of copyrighted works for the visually impaired without prior permission or licence from the copyright holders.

Fair use: It is a judicial doctrine that allows specified persons to use copyrighted materials without prior permission from the author or publisher.

Selection criteria: The basis for determining the choice of titles to be transcribed and to which specific format of reading materials.

Transcription of reading materials: The act of adapting or converting text, sound, graphics and electronic files into accessible format for the visually impaired.

Visually impaired/persons with visual impairment: This is used to describe the totality of persons with print disabilities, visual dysfunctions and vision loss. People with visual disorders which cannot be rectified by refractive correction, medication or surgery. They include the blind, partially sighted and the low vision.

Print disability: Persons whose sight are severely impaired and as a result cannot read ordinary printed materials without assistive aids.

Information technology: This refers to specialised computer devices, tools and software used to transcribe printed materials into Braille, synthesized speech and enlarged formats.

Knowledge of copyright exemption: Familiarity with specific attributes and content of the Nigerian Copyright exemption clause as it relates to the visually impaired as well as sufficient conditions for its application.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter reviews literature relevant to this study. The related literature is reviewed under the following sub-headings:

2.2 Visual Impairment

2.3 Behavioural Characteristics of the Visually Impaired

2.4 Alternative Reading Formats and Provision of Information for the Visually Impaired

2.5 Information Needs and the Visually Impaired Persons

2.6 Equity of Information Access and the Visually Impaired Persons

2.7 Copyright Exemption and Transcription of Reading Materials for the Visually Impaired

2.8 International Treaties and Copyright Protection

2.9 Information Technology and Transcription of Reading Materials for the Visually Impaired

2.10 Transcription Equipment and Alternative Formats for the Visually Impaired

2.11 Selection Policy and Transcription of Reading Materials into Alternative Format

2.12 Formal Collaboration between Transcribers and Providers of Alternative Format

2.13 Library Services for the Visually Impaired in Developed Countries

2.14 Problems Associated with Transcription

2.15 Theoretical Framework

2.16 Conceptual Framework

2.17 Appraisal of Literature Review

2.2 Visual Impairment

CILIP (2006) averred that visually impaired is a term used to describe all those who have visual acuity that exceed the corrective capacity of spectacles. It includes people who are blind or partially sighted, or who have difficulty reading an ordinary print. According to them, most visually impaired people have useful residual sight; only four percent cannot distinguish between light and darkness. Some, particularly in the older age groups, have no central vision and will therefore not be

able to read standard print. Others have no peripheral vision, but although this may affect their mobility they may continue to read standard print until well into their middle age. Some visually impaired people see everything as blur; others see patchwork with blank spots.

Osuorji (2001) suggested that diverse impairments are caused by malnutrition, famine, communicable diseases, poor quality healthcare, armed aggression, accidents and war. According to him, many persons with impairments are often denied the rights to lead meaningful lives within their families and society. They are usually denied equal opportunity for education, work and socials. Their rights and human dignity are often trampled by deprivation. It is therefore incumbent on the society to make adequate provisions for services that will enhance self actualisation of such persons. Ayoku (1997) observed that sight is crucial to the development of concept which, in turn aids language development. He contended that though learning is mediated by senses, sight seems to be the most dominant and that it is both the tester and verifier of other senses. The absence of sight limits the ability for incidental learning. Vision is fundamental to the learning process and is the primary basis upon which most traditional education strategies are based. Visually impaired students are most likely to succeed in educational systems where information is provided in alternative formats.

Museums, Libraries and Archives Council (2006) reported that it is estimated that there are about 2 million people with a severe visual impairment in the United Kingdom. Tiamiu (2003) maintained that between 2 to 3 million people are estimated to be visually impaired in Nigeria. Some of the people are born blind or lose their sight through accidents or diseases but the majority of the visually impaired lose sight with ageing (MLA, 2006). Lewin Group (2005) posited that when low vision is more broadly defined to include visual problems that hamper the performance and enjoyment of everyday activities, almost 14 million Americans are estimated to have low vision. The group further noted that the leading causes of visual impairment are diabetic retinopathy, cataract, glaucoma and age-related macular degeneration (AMD). According to them, there is a significant concentration of vision impairment in the adult population; more than two-thirds of visually impaired adults are aged 65 years or older.

Consequently, there is a range of needs which have to be met by an array of alternative reading formats appropriate for the individual. Visually impaired people

therefore, require access to one or more of the following depending on their individual circumstances: large print, Braille, audio tapes, electronic books and assistive technology.

2.3 Behavioural Characteristics of the Visually Impaired Persons

Visually impaired persons exhibit peculiar emotional, psychological and other attitudinal dispositions which stem from their unique experiences rooted also in their coping mechanisms and perception of the world around them. The visually impaired as a group are not homogeneous. Some were born blind; others lost their sight at a very young age while some became blind due to old age. Eniola (1993) identified physical, social and psychological dispositions characteristic of the visually impaired as:

Isolation: Blindness isolates the victims from the sighted world. It may affect the social development of the person concerned. It deprives them of enjoying and gaining experiences with their eyes. In essence, they are left in a world of their own. This may make such persons develop a withdrawal tendency.

Acquisition of experience: The visually impaired having been deprived of the possibility of gaining experience through the eyes, find other means of acquiring experience. This predisposes them to depend on others more frequently.

Dependency: A blind adult suffers temporarily the loss of earning power. Blindness tampers with the possibility of continuing his job. He needs to adjust and be rehabilitated before settling down for other employment. This places him in a dependent position in the family and society generally. He has to be overtly grateful for whatever aid he receives. A dependent person thinks, behaves and talks as the source of his aid dictates.

Loss of physical integrity: Loss of sight distorts the self image which is part of the body image and this in turn leads to the loss of physical integrity.

Psychological development and functioning ability: A visually impaired person is prone to developing a sense of negativism to self and the society. He may feel rejected and thus develop a sense of low self concept. These psychological problems may eventually make him to be socially maladjusted in the society, thus leading to isolation or withdrawal attitude.

Mobility: A child who is congenitally blind will have problems in developing motor skills and this will have a great influence on his general development. He has

restricted movement, thus sits or stands in one place till he is led to another place. He develops poor orientation of his immediate environment, unless he has acquired mobility and orientation training. Such a child will be afraid of moving about for fear of being injured and also limited in the extent of involvement in physical exercise.

American Foundation for the Blind (2005) summarised peculiar characteristics of visually impaired students as follows:

- Vision loss can result in delayed concept development without which effective intervention severely impacts the student's social, emotional, academic, and vocational development.
- Students with visual impairment often must learn through alternative mediums, using their other senses.
- Students with visual impairment often require specialised instruction since group instruction for learning specialized skills may not be provided in a meaningful manner.
- Students with visual impairment often require specialised skills as well as specialized books, materials and equipment for learning through alternative modes.
- Students with visual impairment are limited in acquiring information through incidental learning since they are often unaware of subtle activities in their environment.
- Curriculum areas that require unique strategies or adaptations for students with visual impairment include concept development, academic functioning, communication skills, sensory/motor skills, social/emotional skills, orientation and mobility, daily living skills, career/vocational skills and utilization of low vision.

Runsewe (2004) observed out that many people with visual impairment require 50 to 100 percent more light than those with unimpaired vision (although in some cases, more subdued lighting is preferred). Visually impaired students often need to get very close to the light source while working and so cool wall lamps are often recommended to reduce the risk of burn. These lamps incorporate fluorescent tubes. History is replete with visual impaired persons who have excelled in their various endeavours. All that is required is a creation of most enabling environment which stimulates and provides opportunity for competence, self-worth and

independence. This category of persons can indeed actualize their full potentials and add value to society. They do not require pity and alms but integration based on conscious and consistent planning by all stakeholders.

2.4 Alternative Reading Formats and Provision of Information for the Visually Impaired Persons

One of the hallmarks of a civilized society is its commitment to ensuring that all of its citizens can play a full part in its life, and that none is excluded by reason of birth, belief, aptitude or circumstance (Craven and Brophy, 2003). Exclusion takes different forms. When the visually impaired who are print
disabled are not provided with alternative formats to access information just like the sighted, exclusion of a sort is perpetuated. Atinmo (2000) identified the following as constituting valid alternative formats for the visually impaired persons:

Braille

This is a system of writing and reading (using raised dots) for blind people to read by touch (Oxford English Dictionary, 1991). It was developed by a French blind man, named Louis Braille. It has become a universal system of communication by the blind using the finger tips. Braille is produced manually using Perkins Braille typewriter to produce a master copy from which reproductions can be made using the thermoform process. But Braille can now be produced by computer, and this is far more economical than the manual method (Obi, 2003). The blind who wants to read Braille has to learn it; therefore, it is not all visually impaired persons that can read Braille. It is much more difficult to learn to read Braille than learning to read print. Also reading Braille relies on memory to a great extent, and the reader cannot perceive a number of words at once, as can sighted person reading print hence Braille readers read slowly (Atinmo, 2000).

Large prints

These are books printed in larger size type. They are in short supply as many books are not published in large type. Besides, magnifying devices such glasses, hand held lenses and closed circuit television scanners can be used to enlarge the normal types.

Tape recordings (Talking books)

The major advantage of using recordings rather than Braille or large print is that the individual can cover the same material much more quickly. However,

listening to tapes requires a great deal of concentration. Any momentary lapse in attention will cause the student to miss what is being said. Besides, the student needs to buy empty tapes continually and must own a recorder. Constant power outage may discourage some visually impaired students from using this medium.

Electronic and assistive resources

Technology now provides the means for the visually impaired to overcome barriers such as the need to read print, use a computer, take notes and communicate both on paper and electronically. Video magnifiers, speech output systems and electronic Braille devices all have a part in guaranteeing access to relevant information. The Internet is already proving an invaluable and powerful tool which for the first time can enable them to directly access the growing range of information and services available via the web for everything from advanced research to banking, job-searching, shopping and leisure activities, as well as a large number of online books, magazines and newspapers, hardly any of which would be available in Braille or on tape (Cain, 2001; Morley, 2001).

2.5 Information Needs and the Visually Impaired Persons

A useful starting point is to recognize that visually impaired people need all the information that fully sighted people require. They need to be sufficiently well informed to be able to participate fully as citizens, they need to know about their rights and entitlements, they need information that will enable them to make rational choices, to support them in their work, learning and leisure. The thing that differentiates visually impaired is the fact that they may need to receive all these information in alternative formats. In addition to the information needs that they share with everyone else, Cox (1999) opined that visually impaired people need information that relates to their peculiar position and status. This includes information about their condition, aids, equipment and services available as well as self-help or non-governmental organisations interested in them.

Nelson (1999) has observed that the need for someone to explain things is particularly acute for blind or severely impaired people who find it difficult to make notes or to store the information received in written or other forms so that they can refer to it later or keep returning to it to check that their interpretation is correct. Based on this, the ability to consult someone who can explain things is critical.

In many cases, family and friends perform this service, advising visually impaired people on how best to proceed (Manthorp, 1996, Lloyd and Thornton, 1998). The effectiveness of this approach depends on the extent to which the family and friends themselves are well-informed and, clearly, they often are not. Even professional counsellors and support groups need comprehensive information if they are to provide the kind of advice that people need (Kerrigan and Gooding, 1995).

A strong need for social information to talk to other people, to discuss their problems and at the most basic level, to have some personal contact with another individual is highly necessary for the visually impaired (Manthorp, 1996, Cox, 1999, and Nelson, 1999). This is rooted also in the need for love, affection and a sense of belonging. Kerrigan and Gooding (1995) have also pointed out that nations are still far from being in a position where visually impaired people are well informed about the world around them due to insufficient provision of information in accessible formats. This lack of awareness can lead to a failure to obtain services or benefits to which visually impaired are entitled.

2.6 Equity of Information Access and the Visually Impaired Persons

Andrewes (1997) pointed out the role of the Canadian National Institute for the Blind (CNIB) in its advocacy for parity of access to information for those who have been forever sidelined because of their print disabilities. She maintained that CNIB is constantly seeking partnerships with other libraries and information providers; cooperation with publishers and all levels of government; and the application of a multitude of technological tools to build a national information infrastructure. The primary focus of this endeavour is access equity, emphasising the delivery of quality and timely information in Braille, tactile, large print, audio and electronic formats in order to bridge information gap for the visually impaired. As citizens, visually impaired people should have equal rights and equitable provision from publicly funded library services but this is not the case in Nigeria where public and academic libraries hardly have collections in alternative formats.

American Foundation for the Blind (2005) averred that providing equal access to the visually impaired is the key element in inclusion. According to them, the relationship of access and inclusion may not be obvious to individuals who are not familiar with the educational and social impact of a vision loss. Placing a student with a visual impairment in the same school as the sighted does not necessarily mean

inclusion. Students with visual impairment will not be included unless their unique educational needs are addressed and equal access provided to information in alternative formats and appropriate assistive equipment.

CILIP (2005) contended that equality of access should embrace removal of physical barriers in mainstreamed public or academic libraries. This means that any hazards, such as steps, trolleys, rubbish bins, plants and multi-storey buildings must be avoided in libraries that purport to serve the interest of the visually impaired. It is also important that library staff be specifically trained in understanding visual impairment as well as be conversant with equipment that give visually impaired people access to information. The current discriminatory library services which are insensitive to the needs of the visually impaired should be eliminated and conscious plan for balanced provision of alternative formats be entrenched as a matter of practice.

Atinmo (2000) reported that educational opportunities are not being equalised in Nigeria in a practical sense. This is because alternative reading materials are in short supply for the visually impaired at all levels. She contended further that the libraries are better suited to bridge the gap between 'the information rich' and 'the information poor'. Thus, it is through such avenues that the visually impaired may be properly integrated into the information world.

Atinmo and Dawha (1997) observed that the lukewarm attitude by the Nigerian Government and society generally, towards adequate provision and equal access to information to the visually impaired stems from two major misconceptions. One, that there are not enough visually impaired students to justify huge expenditure for adaptive equipment, ergonomic furniture and information resources in alternative formats. The second is that the sighted persons have not yet been adequately catered for, much less those with impairments. It is important to note that the visually impaired are human beings and legitimate citizens with inalienable right of access to information. The right to know is also a fundamental citizenship issue in all democratic societies. It is tantamount to deprivation, hardship, oppression, marginalisation, neglect and inhuman treatment if they are denied these rights through lack of access to information.

The National Policy on Education (Special Education) (2009) has succinctly articulated the equity position as being: to equalise education opportunities for all children, their physical, mental, emotional disabilities notwithstanding, provide

adequate education for all handicapped children and adults that they may fully play their roles in the development of the nation.

Kamisau (1993) noted that about 40,000 books and 100,000 periodicals are published in the United States each year. Only 8 per cent of these are provided in formats that the visually impaired can use. In Nigeria, although, the number of books and periodicals published annually may not be that many, only an infinitesimal proportion is produced in formats suitable for the visually impaired. This therefore constitutes the fundamental problem of access to information. In order for the reading and information needs of the visually impaired to be met, there is the need for concerted efforts that are backed up by legislation to provide Braille and other recorded materials in sufficient quantities.

2.7 Copyright Exemption and Transcription of Reading Materials for the Visually Impaired Persons

The Scottish Government publication (2007) drew attention to current copyright law and exemption, as related to the United Kingdom and how these apply to the transcription and distribution of reading materials for students in Scotland and the United Kingdom. It averred that copyright exemption under the Copyright (Visually Impaired Persons) Act 2002 applies to a subset of print-disabled people: people who are visually impaired, who have difficulty holding or turning the pages of a book or who have a physical difficulty focusing or tracking. Copyright exemption allows accessible versions of books to be created and shared without needing to obtain permission from the publisher or rights holder. This is aimed at improving availability of alternative format materials for students with visual impairments. The Disability Discrimination Act 2005 requires local authorities to ensure that any information that is important to enable students to learn or be able to participate in school activities can be provided in an alternative format if the students may have difficulty reading information provided in standard print form (Scottish Executive, 2005).

Nisbet and Aitken (2007) have suggested that difficulties accessing and reading books and other learning materials have a huge impact on visually impaired students and other disadvantaged groups' opportunities to become successful learners, confident individuals, responsible citizens and effective contributors to society. They are of the view that copyright exemption for the visually impaired represents a

reasonable step in reducing discrimination and thus empowering a group that hitherto was often socially and economically excluded.

Information in digital formats provides the opportunity for people who are visually impaired to have access to and use information at the same time and in the same manner as all users of that information. However, the American Foundation for the Blind (2006) noted that technological measures to control access to copyright works have been developed and deployed in ways that prevent access to and fair use of these materials by people who are visually impaired. It contended that publishers and authors should recognise the need for people who are visually impaired to use their synthetic speech and screen magnification software, as well as Braille devices to read electronic books and other similar texts. It suggests the use of standard well known technologies that can both protect works from piracy and allow visually impaired persons access to digital information.

2.8 International Treaties and Copyright Protection

In the beginning, international copyright protection was an exception rather than the rule. National copyright laws tended to deny protection to works originating from other countries, and such exceptions as existed were derived from bilateral treaties negotiated between particular countries on the basis of strict reciprocity (Akande, 1985). The Association Litteraire Artistique Internationale (ALAI) spearheaded the establishment of Berne Convention in 1886. The Convention provided specific minimum requirements with respect to the protection of certain exclusive rights, most notably the moral rights of the author. Any country that wants to join the Berne Union must obligate itself to grant a very high level of copyright protection.

The Berne Convention required its signatories to recognise the copyright works of authors from other signatory countries in the same way as it recognizes the copyright of its own nationals. Copyright under the Berne Convention must be automatic, requiring no formal registration. (WIPO, 2011). The United States initially refused to become a party to the Convention, since that would have required major changes in its copyright law, particularly with regards to moral rights, removal of the general requirement for registration of copyright works. This led to the Universal Copyright Convention in 1952 to accommodate the wishes of the United States and the complains of developing nations. But on March 1, 1989, the United States Berne

Convention implementation Act of 1988 came into force and the United States became a party to the Berne Convention, making the Universal Convention obsolete.

The World Intellectual Property Organisation Copyright treaty was adopted in 1996 to address the issues raised by emerging information technology and the Internet, which were not addressed by the Berne Convention. Since almost all nations are members of World Trade Organisation, the agreement on trade-related aspects of Intellectual Property Right requires non-members to accept almost all of the conditions of the Berne Convention. As at 2011, there are 164 countries that are signatories to the Convention including Nigeria (WIPO, 2012).

2.9 Information Technology and Transcription of Reading Materials for Visually Impaired Persons

Information Technology has revolutionalized and expanded both accessibility and availability of various formats into which reading materials for the visually impaired could be transcribed. Evans (2000) described access to technologies such as the Kurzweil Reading Machine and Closed Circuit Television (CCTV) as having greatly assisted in the provision of information to the visually impaired in recent times. The most radical innovation came with the widespread use of computers where visually impaired people could easily convert print into electronic text and read it from the screen with either transitory Braille or through synthetic speech. It is also possible to link different converters such as scanners, reading machines, embossers and tape recorders, so that a converter text can be permanently recorded in the desired format (Long, 1993; Gallimore, 1999).

Pollitt (2003) reported the designing of a web interface which offers the best opportunity to make the catalogue of libraries accessible to people with print disabilities. Visually impaired users may change the appearance of the web page using accessibility options of their browser software or use screen enlargements software to control the magnification of the web page. Screen readers' software can then be used to interpret the coding of the web page and interact with the browser to output the content as synthetic speech or to a refreshable Braille display (Craven, 2000).

Horten and Horten (1995) have observed that Braille books were traditionally produced by typing the printed book in Braille on a Perkins Brailler but that this has changed in the last decades. They noted that at first, the books were typed on a

personal computer and the text transformed to Braille by Braille conversion software. Another stage was that printed books were scanned on a scanner with an optical character recognition programme, which photographed and translated the printed letters into text. The text was then transformed to Braille by the Braille conversion software. They also asserted that in Norway, a new option known as 'Data Technology' is used by authors, publishers and printing houses to retrieve text directly as a basis for the transcription into Braille and talking books. This provides a platform to give the visually impaired more books to read by making the transcription of Braille books more efficient as well as permit the production in varied formats like CD-ROMs.

Kuniansky (2001) stated that an Electronic-Braille system now exists that allows a librarian using a web-based mechanism to go to a website where he can quickly and easily transcribe an information requested by blind person into Braille, before delivering the electronic Braille to visually impaired users with a refreshable Braille display of their own Braille embosser. With E-Braille, documents could be received, transcribed to Braille, embossed and shipped. An initiative to enable visually impaired persons in Vietnam to have access to newspaper and magazines was established in 2001. According to Nguyen (2005), visually impaired persons can dial into a central location where natural voice recordings are stored in a computer. These are accessed by the reader using the keypad of the touch phone or by calling different phone numbers for different sections of the newspaper or magazine which are then converted into Braille format. With this method, it is possible for a whole recorded newspaper to be made available in Braille and users can select particular sections of each newspaper either by using different phone numbers or with their phone keypads using numerical codes (Vappu and Leanor, 1995). Telephone accessible systems for Braille materials are available in a number of countries including Australia, Canada and the United States of America (Craddock, 1996).

Verhoeven (2005) reported the existence of a portable USB pen device known as 'Dolphin Pen' used for transcription to alternative formats. Dolphin Pen has a complete range of capabilities to allow the conversion of all text-based reading materials into large print, audio MP3, Braille or DAISY digital talking book formats. Through dolphin pen, the visually impaired are able to access internet or web-based resources. Academic libraries and Internet cybercafés can deploy this device to their computers and thus provide automatic transcription mechanisms for the visually

impaired. This ensures equity of access to information. It also offers total freedom and independence to blind and low vision computer users.

2.10 Transcription Equipment and Alternative Formats for the Visually Impaired

Transcription of reading materials into alternative format requires basic equipment, modern tools, software and devices for accurate, efficient and effective productivity. Seymour-Ford (2002) noted that Perkins Braille machine has continued to play vital role in converting materials to accessible formats for the visually impaired in developing nations. Evans (2000), Kuniansky (2001), Pollitt (2003), Nguyen (2005) and Verhoeven have observed increased application of computerized and mechanical Braille transcription machines such as Duxbury, Embossers, Scanners and other electronic Braille related facilities. Quality Braille transcription entails scanning of the source documents, or the reformatting of existing electronic files. Using the Duxbury Braille Translator, the file is translated into Braille. This translated file is sent to a Braille Embosser where a Braille proof copy is produced (Jordaan, 2011). Equipment used to produce Braille, especially Braille Embossers and Duxbury are extremely expensive. Nigerian transcribers still use outdated and poor maintained equipment (Bashorun, 2000, Adetoro, 2011). Availability and application of current Braille transcription equipment and translation software are non-negotiable minimum standards in modern transcription.

2.11 Selection Policy and Transcription of Reading Materials into Alternative Format

Owino (1995) has suggested that the guiding principle in the provision of reading materials into alternative format whether through transcription or outright purchase is the information need of the user. Materials are provided according to the individual institution's financial ability and the objectives of the organisation. Providers of alternative reading formats for the visually impaired need to have some kind of written policy that guides their selection of materials for transcription. Provision at random results in misappropriation of meagre financial resources and transcription of irrelevant titles that do not satisfy the information needs of the target group.

Provision of reading materials for the sighted is proactive and systematic; if the visually impaired are to enjoy equivalent services as the sighted and move in tandem with them, lopsidedness in transcription of titles must be avoided. The institutions involved in transcription and provision of alternative formats must have a written, elaborate and clear policy to facilitate transcription of relevant and comprehensive coverage of titles that meet the needs of the visually impaired.

The University of Bolton (2007) in its annual report underscored the fact that the University has a duty to provide all materials in a variety of different formats. This includes large prints, electronic, Braille and audio. It is also reported that all departments, both academic and support have a duty to ensure that their materials are available in electronic format so that they can be transcribed into alternative formats. These requirements are encapsulated in a policy on alternative formats.

Blind Citizens Australia (2006) contended that any meaningful policy on selection of materials for transcription must provide opportunities for the visually impaired users to contribute to the choice of titles that meet their needs. Arguing along the same line, the organisation maintained that users should be able to sense and perceive all aspects of library services and all desired materials in library collections. Reading materials and the corresponding information on the reading materials should be available in the users' preferred format, such as large print, hard copy Braille, audio or digital formats.

2.12 Formal collaboration between transcribers and providers of alternative format

The intricate and multifaceted nature of providing alternative formats for the visually impaired demand the formal collaboration of all stakeholders for effective service delivery. London (2012) described collaboration as a process of joint decision making among key stakeholders of a problem about the dynamics of resolving same. In the same vein, Chrislip and Larson (2011) defined it as a mutually beneficial relationship between two or more parties who work towards common goals by sharing responsibility, authority and accountability for achieving results. It is seen as a mechanism whereby different groups or organisations with a vested interest depend on each other in some way. Collaboration occurs over time as organisations interact formally through repetitive sequences of negotiation, development of commitments and execution of those commitments (Thomson and Perry, 2006). The need for

resources and risk sharing as well as tasks requiring high level of interdependence, scarcity of resources, situation in which each partner needs concerted efforts to act as pressure group have been attributed as factors necessitating collaboration (Chen and Graddy, 2005).

The sensitization about the importance of satisfying the educational need of the visually impaired and the global standardization of transcription practices have given birth to several collaborations. Burke (2012) reported of the Irish National Braille and Alternative Format Association (INAF); an umbrella body for transcribers and providers of alternative formats. It exists to provide seamless interaction among transcribers, educational establishments providing alternative formats and readers of alternative formats in Ireland. The body also advises on emerging new formats as well as the implementation of the Unified English Braille code.

In Nigeria, there exists Braille Advancement Association of Nigeria (BRAAN). Obi (2012) observed that this body has had a very healthy and positive impact on the transcription and use of Braille in Nigeria. She noted that despite many difficulties, BRAAN has organized annual general meetings, international outreaches, international collaboration, assisted its member organisations and engaged in joint projects. The body has also been instrumental in the implementation of the Unified English Braille code in Nigeria. Carew (2003) also noted that there exist plethora of such collaborations such as the Braille Authority of North America (BANA), Canadian National Institute for the Blind (CNIB), Royal National Institute of Blind people (RNIB), UK, Braille Council of Ghana, Blind SA (South Africa), Atinmo (2007) reported that several Braille producing centres in Nigeria have worked out modalities for the operation of networking or resource sharing. Obi (2003) corroborated the fact and noted that Niger wives, ANWAB, Gindiri, the Vocational Training Centre, Oshodi, the Department of Special Education, University of Jos, and the Federal College of Education (Special) Oyo have identical Braille translation equipment and could share master copies and exchange lists of Brailled materials and other formats.

2.13 Library Services for the Visually Impaired in Developed Countries

IFLA (2007) in its report on library and information services for the visually impaired people, surveyed practices in Australia, Canada, Croatia, Denmark, Japan, Korea, Netherlands, South Africa, Sweden, United Kingdom and United States of

America and summarized their findings as follows: International comparability remains limited by a lack of constraint or comparable quantitative evidence of performance and varying definitions of user groups served.

Legal frameworks in Canada and Denmark allow specialised library and information services to serve a much wider range of print impaired people than visually impaired people. Copyright restrictions are the most frequently cited barriers, along funding levels. Most respondents favour a system which is delivered as much as is possible via mainstream physical and digital channels worldwide; and with clearly defined responsibilities, whether these are fulfilled by private, voluntary or public bodies. Regular government funding is considered to produce the best outcomes for users and most respondents consider that relying mainly or purely on voluntary sector funding is inadequate to meet the needs of the visually impaired. Changes in technology and in society could leave people who are unable to read conventional print worse off.

Over the past decades, an international awareness has developed, in particular among organisations of the visually impaired people and institutions catering for them that access to reading materials remains highly restricted and reduces their life chances both in terms of education, personal development, leisure and employment. It is a clarion call to all such organisations to heighten the sensitisation of national and international stakeholders in order to shape the future provision of rendering materials in alternative formats. Craven (2002) has noted widespread and concerted attention of developed countries to library services for the visually impaired and noted that there is need for libraries to increase their collections of non-fiction and reference books and that these collections need to be provided in different formats. Electronic formats in particular are needed and should include web-based electronic text documents. Secondly, it should include links to other digital resources on the internet such that libraries would not have the need to acquire all these content themselves, but would build links via their website to content that is held elsewhere.

The National Library of Australia (2007) revealed that academic libraries measure their success by the proportion of visually impaired people reached by their services, the range and depth of materials available as well as the speed of supplying them. The organisation further maintained that text or screen reading software, such as JAWS, Kurzweil, text aloud or read and write gold are usually provided by libraries and used by students to read directly from electronic files.

Cornaway (2001), Kerscher (2001), Stung (2001), and Owen (2004), have all agreed that the experience of library and information services in many developed countries is far more encouraging. They noted that the libraries are meeting the educational needs of the visually impaired. However, they called for a more inclusive, and equity of access as well as the conscious development of partnerships between government agencies and non-profit organisations in advancing the cause of the Visually Impaired.

Developing nations must learn from these and envisage a better future for the visually impaired. There is the need for a change in some of their fundamental attitudes regarding the visually impaired. Many visually impaired persons around the globe have succeeded in life, often with their local libraries being the main support mechanism. With particular regard to Nigeria, libraries should be measured by the degree of services that are available for the handicapped.

2.14 Problems associated with transcription

The need to promote and facilitate greater transcription and utilization of alternative formats is of paramount importance to the various institutions concerned with the education and provision of reading materials for the visually impaired. Despite the high demand for alternative formats, Gusen (2003) attributed low volume of transcription in Nigeria to extremely high cost of procuring equipment such as synthetic speech devices, special devices that produce Braille, large print or tactile print. Lack of access to publishers' files in an accessible format and staff training are the two biggest challenges for insufficient transcription in the United Kingdom (Duffy, 2007). He observed further that the process of transcription by scanning the documents and later converting to Braille through a translation software is time consuming compared to direct access to publishers' digital files.

The former often results in the visually impaired not getting access to reading materials at the same time as their sighted peers. Epp (2005) noted that many producers of alternative formats do not catalogue their titles or send same for inclusion in the national database. Cataloguing and inclusion of alternative formats in the database will greatly enhance the access of the visually impaired to such materials. It will also reduce the unnecessary need for expensive duplication of transcription efforts. The improvements in technology have not necessarily translated to equivalent output in transcription as a result numerous other factors. These include: inadequate

funding, irregular power supply, lack of requisite skills, unavailability of appropriate tools and spare-parts, lack of maintenance culture, difficulty in replacement of consumables like Braille papers (Yakwal and Tashi, 2004; Duru and Onwuama, 2006).

2.15 Theoretical Framework

The study relied on Social Contract theory, Social Model of Disability theory and Technology Acceptable Model to explain the intricacies of provision of reading materials for the visually impaired in Nigeria. Locke's Social Contract theory posits that in order to live above the state of nature, man gave up their natural rights and subjected themselves to the authority of the state. It is in an expectation that the state is organised to achieve the greatest happiness for all and create conducive atmosphere for individual as well as group actualization and fulfilment.

Locke's social contract theory exerts a considerable influence on the philosophy of leadership in the western world. The governments in those countries accept responsibility in meeting the needs of the visually impaired hence enormous resources are usually allocated to cater for the wellbeing of this category of citizens. Countries that lack a sense of contract to its citizens pay lip service and little attention to their fulfilment. The visually impaired in Nigeria are presently neglected as far as adequate provision of reading materials is concerned because various governments have not considered it obligatory to do so. Such services largely remain predominantly in the hands of Non-governmental Organisations as charity outfits. Examples of these are:

1. Gindiri Material Centre for the Blind (Plateau State).
2. Anglo - Nigerian Welfare Association for the Blind Library, Lagos.
3. Inlak Library for the Visually Handicapped, Lagos.
4. Ikeja Farm Craft Centre for the Blind, Lagos.
5. Niger Wives Braille Production Centre, Lagos.
6. Pacelli School for the Blind, Lagos.
7. Orji River Rehabilitation Centre for the Blind, Enugu.
8. Bola Ige Information Technology Centre, Abuja, (Braille Unit).
9. Hope for the Blind, Zaria.

Social Model of Disability theory as propounded by thinkers like Finkelstein (1980), Oliver (1990), Barnes (1991), Barton (1996) and Barnes,

Oliver and Barton (2002) proposed that barriers and prejudices and exclusion by society (purposely or inadvertently) are the ultimate factors defining who is disabled and who is not within a particular society. The Social Model of Disability theory recognizes that impairment does not necessarily lead to disability unless society fails to accommodate and integrate them in the scheme of normal life.

The Social Model of Disability theory is often based on a distinction between the term "impairment" and "disability". Impairment is used to refer to the actual attributes (or loss of attributes) of a person, whether in terms of sight, limbs or other organs. Disability is used to refer to the restrictions caused by society when it does not give equivalent attention and accommodation to the needs of individuals with impairments. It is rooted in the understanding that disability resides principally in the socio-structural barriers that render service to disadvantage and exclude people with impairments. In other words, people can be considered to be disabled by a lack of meaningful access to relevant resources designed to meet their needs. This in turn, has a negative impact on their self- actualisation and fulfilment.

Venkatesh (2000) and Venkatesh et al (2003) averred that Technology Acceptance Model is a theoretical model used in different contexts to understand and explain the application of information technologies in the performance of any given task. The elements of TAM include: perceived usefulness, perceived ease of use and intention of use. It therefore suggests that attitude would be a direct predictor of the intention to apply information technology which in turn predict the actual application. This presupposes that transcribers would be encouraged and are more likely to use information technology in the transcription of reading materials for the visually impaired once there is clear understanding of the accruing benefits and assurance of relative availability of skills and technical support. Attitudinal disposition of transcribers towards modern technology and innovation would influence the application of information technology to transcription. Positive attitude to technology as an important component for fulfilling the goal of meeting the reading need of the visually impaired is a critical requirement.

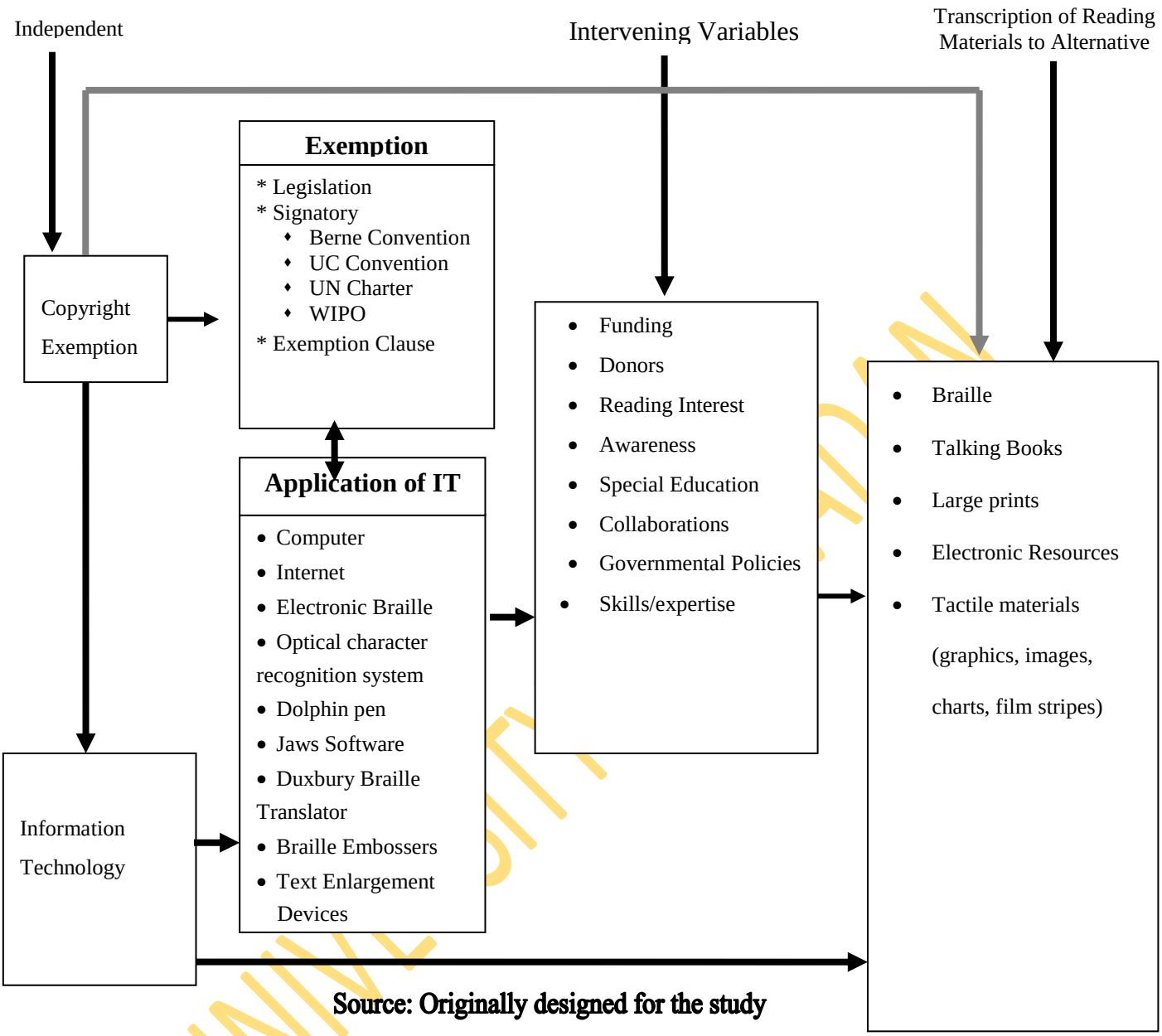
The policies, laws, attitudes and general disposition of any society towards the visually impaired would determine the nature of transcription of reading materials into alternative formats. A society that believes in the potential of the visually impaired to contribute to society and add economic value to it, would create a most enabling environment through copyright exemption, Disability Discrimination Act

and intensive application of information technology to give empowerment and equal opportunity to live life to the fullest. On the contrary, where there is under-estimation of the latent value of the visually impaired, lip service would be paid to transcription of reading materials as opposed to pragmatic involvement.

2.16 Conceptual Framework

From the literature review and theoretical framework, the relevant background to construct a conceptual framework that views transcription of information materials to alternative reading format from social disability perspective has been provided. The diagrammatic representation of the influence of copyright exemption and information technology on transcription of alternative reading materials for the visually impaired is also provided. See figure 1.

Fig. 1 - ALTERNATIVE FORMAT TRANSCRIPTION MODEL



Source: Originally designed for the study

Copyright exemption guarantees the transcription of reading materials for the visually impaired without permission from publishers or right holders. The Exemption could be achieved through legislation or a country's signatory to an existing international treaty such as Berne convention; WIPO, UN Charter etc. The signatory provides a justification to appropriate the legal provision exempting the visually impaired persons from copyright laws. The aforementioned will directly influence transcription of reading materials into alternative formats such as Braille, Talking books, large prints and electronic resources. However, certain intervening factors such as funding, reading interest of the visually impaired, the level of awareness of exemption clause by transcribers and providers can mitigate against the direct influence of copyright exemption on the transcription of reading materials into alternative format. The model clearly indicates that copyright exemption directly influences transcription of reading materials into alternative format.

Achieving equitable access to information for visually impaired can only be possible through the application of information technology (IT). The application of special IT devices and tools which include computers, Braille Embossers, Dolphin pen, Jaws, Text enlargement devices, Duxbury Braille Translator etc are crucial in the conversion of text, sound and graphics to accessible formats for the visual impaired. Information technology will therefore directly influence the transcription of reading materials into alternative formats. The intervening variables also could enhance or limit the influence of Information Technology on transcription into alternative formats.

The third interaction considers the combination of the two independent variables (Copyright Exemption and Information Technology) and its influence on the dependent variable (transcription of reading materials into alternative format). These interactions as shown in the model like the other two interaction will have direct effect on transcription.

This model is based on the premise that transcription of reading materials into alternative format is an interplay of the forces of copyright policies and application of information technology. A system whose copyright laws do not exempt the visually impaired tacitly limits transcription of such materials. However, where full or partial exemption is entrenched; transcription to alternative formats will be encouraged. The same goes for intensive or absence of IT application in the production of the materials. When the whole issue of exemption of alternative format from copyright is

tacitly seen as an act of charity, the positive influence will be minimal. However a policy that mandates all publishers to provide alternative format version for the visually impaired as well as deploy latest technology in the transcription of reading materials into alternative format will automatically address the lopsidedness and make equality of access to information a reality.

2.17 Appraisal of Literature Review

The literature reviewed has shown that there are inadequate reading materials for the visually impaired in Nigeria as only an infinitesimal proportion of books published are transcribed into alternative formats. The identified constraints to transcription include inadequate funding, unavailability of modern tools and spare parts, high cost of procuring modern equipment, lack of requisite skills, irregular power supply, use of obsolete facilities, difficulty in replacement of consumables and lack of maintenance culture.

Previous studies carried out in Nigeria examined information needs, access and retrieval, availability of reading materials, computerized catalogue, reading interest, funding and utilization. (Atinmo and Dawha, 1995; Agbaje 1996; Atinmo, 2000; 2005; Adetoro, 2009; Babalola and Haliso, 2010; Adetoro, 2011). None of these studies investigated the influence of copyright exemption and application of information technology on transcription. Yet, these are crucial variables in determining reading materials for the visually impaired. This study therefore is expected to fill this gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods that were adopted in this study. These are discussed under the following sub-heading:

3.2 Research design

3.3 Population of the study

3.4 Sampling procedure

3.5 Data collection instruments

3.6 Validity and Reliability of the instruments,

3.7 Data collection procedure

3.8 Method of data analysis.

3.2 Research Design

This study adopted a descriptive survey design of *ex-post-facto* type. This is because the variables (copyright exemption, application of information technology and transcription of reading materials) under investigation had already occurred and inherently not manipulable. The design is justified on the premise that more powerful experimental design are not possible because the variables (copyright exemption, application of information technology and transcription of reading materials) of the study cannot be subjected to laboratory conditions to determine cause and influence relationships directly.

3.3 Population of the Study

The population consisted of schools that cater for visually impaired persons at secondary and tertiary levels and the Non-Governmental Organisations (NGOs) that are directly involved in the transcription of reading materials as well as libraries which provide transcribed reading materials into alternative format. They therefore include all the 513 personnel in these schools, NGOs and libraries involved in the transcription of materials and other personnel whose activities influence transcription of materials. The population was made up of 68 secondary schools, 6 tertiary institutions, 9 NGOS and 9 state library boards. The breakdown is as shown in Tables 3.1.

TABLE 3.1: NAMES OF INSTITUTIONS WHO FACILITATE TRANSCRIPTON OF READING MATERIALS INTO ALTERNATIVE FORMAT

S/N	Name of School	Total No. of Personnel	No. of Respondents
1	Kings' College, Lagos	7	7
2	Queen's College, Lagos	1	1
3	Federal Government College, Ijanikin	3	3
4	Eva Adelaja Girls' Secondary School, Bariga, Lagos	1	-
5	Iganmode Grammar School, Otta, Ogun State	5	5
6	Molusi College, Ijebu Ode, Ogun State	3	-
7	Adeola Odutola College, Ijebu Ode, Ogun State	2	2
8	Yewa College, Ilaro, Ogun State	4	4
9	Aperin Oniyere Commercial Grammar School, Ibadan, Oyo State	4	4
10	Adeniran Memorial Grammar School, Ogbomoso, Oyo State	10	10
11	Owo High School, Owo, Ondo State	6	6
12	Ekiti State Government College, Ikere, Ekiti State	2	2
13	Ihugbe College, Benin City, Edo State	2	2
14	Idia College, Benin City	3	3
15	Egbu Girls Secondary School, Owerri, Imo State	2	1
16	Holy Ghost College, Owerri, Imo State	2	-
17	Bishop Shannaham College, Orlu, Imo State	4	4
18	Orlu Girls' Secondary School, Imo State	1	-
19	Government Secondary School, Bosso, Minna, Niger State	6	6
20	Notre Dame Girls' Secondary School, Oro, Kwara State	1	-
21	Government High School, Ilorin, Kwara State	1	-
22	Kwali Grammar School, Abuja	2	2
23	Loyola Jesuit College, Abuja	2	2
24	Government College, Umudike, Umuahia, Abia State	4	4
25	Girls' Secondary School, Umuahia, Abia State	1	-
26	Ovom Girls' Secondary School, Aba, Abia State	1	1
27	Community Secondary School, Alabiri, Bayelsa State	1	-
28	Abdul Rasheed Special School (Secondary School Unit), Sokoto	10	10
29	Government Secondary School, Diriindaji, Kebbi State	4	4
30	Nagari College, Birni-Kebbi, Kebbi State	7	7
31	Christian Mission in Mary Land Special School, Iyale, Kogi State	20	20
32	Special Education Centre, Jada (Secondary Sch. Unit), Adamawa State	18	18
33	Government Secondary School, Maina-Lafia, Nasarawa State	1	-
34	Government Secondary School, Obi-Lafia, Nasarawa	2	2

	State		
35	St. Joseph Centre for the Visually Handicapped, Obudu, Cross River	15	15
36	Government Day Secondary School Kofar Yandskar, Katsina State	3	-
37	Special Education Secondary School, Tundun Maliki, Kano	6	6
38	Government Secondary School, Rano, Kano State	2	2
39	Government Secondary School, Otukpo, Benue State	2	-
40	St. Peters Secondary School, Vandeikya, Benue State	1	1
41	Mbapuum Grammar School, Zakibian, Benue State	1	1
42	Government Secondary School, Bawlbwag, Gindiri, Plateau State	2	-
43	United Faith Tabernacle College, Jarawankogi	1	-
44	Alhuhuda College, Zaria, Kaduna	2	2
45	Government Girls' College, Zonkwa, Kaduna State	1	-
46	Government Secondary School, Fadan Kache, Kaduna State	2	-
47	Government Secondary School, Toro, Bauchi State	1	-
48	Special Education Centre, Bauchi, Bauchi State	15	15
49	Girls' High School, Gindiri, Plateau State	7	7
50	Boys' High School, Gindiri, Plateau State	8	8
51	College of Immaculate Conception, Uwani, Enugu, Enugu State	1	1
52	Ngwo Girls' Secondary School, Ngwo, Enugu State	1	1
53	St. Theresa's College, Nsukka, Enugu, Enugu State	2	2
54	Federal Government College, Enugu, Enugu State	1	-
55	Christ the King College, Onitsha, Anambra State	1	1
56	Queen of Rosary College, Onitsha, Anambra State	4	2
57	Special Education Centre for the Blind, Moduganari, Maiduguri	13	11
58	Special Education Centre for the Blind, Afaraukwu, Umuahia, Abia	23	23
59	Special Education for the Blind, Kaduna	27	27
60	School for the Blind, Gindiri	16	14
61	Federal College of Education (Special), Oyo	9	9
62	Nnamdi Azikiwe University, Awka, Anambra State	2	1
63	University of Uyo	2	2
64	University of Ibadan	3	3
65	University of Jos (Special Education Department), Plateau State	27	27
66	Government Vocational training Centre, Zanwa, Pleateu	5	5
67	Vocational Training Centre for the Blind, Oshodi, Lagos	8	8
68	Ministry of Women Affairs & Social Development, Umuahia, Abia.	3	3
69	Gindiri Material Centre for the Blind, Plateau State	7	7
70	Anglo-Nigerian Welfare Association for the Blind	6	6

	Library, Lagos		
71	Inlak Library for the Visually Handicapped, Lagos	1	-
72	Ikeja Farm Craft Centre for the Blind, Lagos	9	9
73	Nigerwives Braille Production Centre, Lagos	7	7
74	Pacelli School for the Blind, Lagos	13	13
75	Oji River Rehabilitation Centre for the Blind, Enugu State (NGO)	3	3
76	Bola Ige Information Technology Centre, Abuja (Braille Unit) (NGO)	3	3
77	Hope for the Blind, Zaria (NGO)	10	10
78	St. Francis school for the deaf/Blind, Vandeikya	3	3
79	Kano Educational resource Department	1	1
80	Braille Resource Centre, Enugu	4	4
81	Special School for the Blind, Enugu	12	9
82	University of Calabar, C.River	4	2
83	Special Need Centre	3	3
84	Government Schools for the Blind, Katsina	11	10
85	Ministry for Social welfare, Sokoto	7	5
86	Ministry of Education, Awka, Anambra	1	1
87	Kebbi State Special School	4	4
88	Kwara State School for Special Needs	11	11
89	FCT for the Blind	3	3
90	School for the Handicapped, Osogbo, Osun	2	2
91	Special Schools for the Handicapped Children, Port Harcourt, Rivers	2	2
92	Oyo State Library Board	1	1
93	Kogi State Library Board	7	7
94	Plateau State Library Board	1	1
95	Ekiti State Library Board	3	3
96	Abia State Library Board	1	1
97	Ogun State Library Board	7	5
98	Abuja FCT Library Board	2	2
99	Ondo State Library Board	3	3
100	Kebbi Library Board	1	1
Total		**513**	**470**

Source: Ministries of Education - Field work 2010

3.4 Sampling and Sample Size

All the identified respondents were involved in the study. Total enumeration technique called census was used to capture a population of 513 respondents out of which 470 respondents responded to the survey. This comprised the heads of institutions, all staff directly involved in the transcription and other personnel whose daily activities influence the nature and processes of transcription into alternative format. Out of the 513 copies of questionnaire distributed/administered, 470 were retrieved and found usable and this represents the response rate of the study. The

response rate achieved constitutes 91.6% of the total estimated population of the study.

3.5 Research Instrument

Two instruments were used in this study. Copyright Exemption and Information Technology Application Questionnaire (CEITAQ) was constructed by the researcher and an Interview schedule was also drawn to collect data.

Copyright Exemption and Information Technology Application Questionnaire (CEITAQ)

This self-constructed questionnaire consists of biodata information and three subscales. Biodata information was contained in Section A which has 8 items to elicit information on the background of the respondents; name of institution, types of service offered etc. This section included all items discovered to be germane to the understanding of both bio-data of the participants and the characteristics that were shared and those which distinguished the participants based on the nature of services offered. The other subscales are; the knowledge of Copyright Exemption Subscale (KCES), Information Technology Rating Subscale (IUTARS) and the Transcription of Reading Materials into Alternative Format for the Visually Impaired Subscale (TRMAFVIS). Each of these subscales was described below:

The Knowledge of Copyright Exemption Subscale (KCES)

The knowledge of Copyright Exemption Subscale (KCES) was contained in section B. This section of the questionnaire gathered information on the respondents' knowledge of copyright exemptions. This section hinged on a premise that an individual's behaviour and performance depend both on the knowledge that has been acquired through learning, practice and experience. Since knowledge, itself, cannot be directly observed, it must be inferred from observing performance on a test, in this case 13 statements were designed to determine the familiarity of a person about copyright exemption attributes because knowledge has been conventionally defined as familiarity gained through experience that are true and are justified. These statements include exemptions that limit the rights of the copyright holder. The true/false rating option or binary choice was used because the study sought to find out if respondents could be able to identify which statements of fact about copyright exemption are accurate and which are not.

Information Technology Application Rating Subscale (IUTARS)

Information Technology Application Rating Scale (IUTARS) focused on the application of information technology on the transcription of reading materials into alternative format as found on section C of the instrument. One of the items tested application of 16 identified IT tools used in transcription of reading materials into alternative format. The other two items measured other related issues.

Transcription of Reading Materials into Alternative Format for the Visually Impaired Subscale (TRMAFVIS)

The transcription of Reading materials into Alternative Format for the Visually Impaired Subscale (TRMAFVIS) was developed to measure the dependent variable. It comprised four sections D, E, F and G. Section D has 23 item Likert scales on the transcription of reading materials into alternative format.

Sections F, G and H are meant to elicit information on the criteria for selecting reading materials for transcription, areas of collaboration among transcribers, providers and producers of reading materials for the visually impaired and problems associated with transcription of reading materials into alternative format in Nigeria.

Interview Schedule

The interview schedule has the following three major parts: (1) the opening; (2) the body; (3) the closing. The opening was designed to make the respondents/interviewees feel welcome and relaxed and it clearly indicated the objectives of the interview and outlined the topics to be addressed. Some information to motivate the respondents to answer the questions were equally provided and expected length of the interview indicated. The body listed the specific issues to be probed for and potential questions which included knowledge of copyright exemption. The closing was brief but not abrupt and summarised the main issues discussed during the interview, as well as prospects of transcription in Nigeria.

Nine (9) interviews were conducted. One interview was conducted in each of the following organisations:

1. Gindiri Material Centre for the Blind (Plateau State).
2. Anglo – Nigerian Welfare Association for the Blind Library, Lagos.
3. Inlak Library for the Visually Handicapped, Lagos.
4. Ikeja farm Craft Centre for the Blind, Lagos.

5. Niger Wives Braille Production Centre, Lagos.
6. Pacelli School for the Blind, Lagos.
7. Orji River Rehabilitation Centre for the Blind, Enugu.
8. Bola Ige Information Technology Centre, Abuja., (Braille Unit).
9. Hope for the Blind, Zaria.

The target audience for the interview were Head of NGO's. These are organisations that are directly involved with the transcription of reading materials into alternative formats for the visually impaired people.

3.6 Validity and Reliability of the Instrument

The validity of knowledge of Copyright Exemption Subscale (KCES) relies first and foremost on reliability. If the questionnaire cannot be shown to be reliable, there is no discussion of validity. The reliability refers to how consistent a measuring device is. The reliability of KCES was assessed using the slit half method. This involves splitting a test into two and having the same participant doing both halves of the test. The result yielded r=0.81 this result implies that the test has internal reliability. The researcher ensured that the data gathering matched the decisions to be made and data were gathered from all the people who were considered knowledgeable, even if they were hard to contact. The questionnaire subscale was given to experts of Library and Information Science, Special Education and transcribers to ascertain face and content validity. This resulted in useful criticisms, corrections and modifications. The instrument was thus enriched by the superior input of these experts. In order to ensure the appropriateness of the instruments to eliminate ambiguity, the subscale was pilot tested at Gateway Braille Press, using ten (38) respondents. Through pre-test, the reliability of the instruments was determined through the use of Cronbach Alpha reliability test yielded 0.78.

Information Technology Application Rating Scale (IUTARS) focused on the application of information technology on the transcription of reading materials into alternative format as found on section C of the instrument. The reliability and validity of this subscale followed the same process described above. However, the reliability index revealed 0.82 and Cronbach Alpha of 0.74 with 38 respondents during pilot testing.

The transcription of Reading Materials into Alternative Format for the Visually Impaired Subscale (TRMAFVIS) was developed to measure the dependent

variable. The process described above was followed and the realiability of 0.80 was found and Cronbach Alpha of 0.76 with 38 respondents during pilot testing.

The nature of the questions asked is critical to the reliability and validity of the interview schedule. This researcher ensured that the questions were related to both independent and dependent variables, the questions used were consistent among interviewees, the interrater coefficient of 0.86 was found and the process used to ensure reliability and validity of questionnaire was also used for the interview schedule.

3.7 Data Collection Procedure:

Prior to data collection, responding institutions were contacted through telephone soliciting for their permission and cooperation. The researcher with the help of five trained assistants visited each institution where relevant data were gathered through questionnaire. This was to forestall unnecessary errors in the administration of the instrument and be able to explain knotty areas in the questionnaire whenever the need arises. Some copies of the questionnaire were administered and retrieved the same day while other respondents insisted they needed time to ponder over the questions in order to give honest and detailed answers.

The administration of the questionnaire lasted six months and four days. The personal visit to the institutions obviously helped to increase the response rate. The researcher and the research assistants solicited for an interview with nine NGOs engaged in transcription activities. The interview schedule was used to elicit information from the participants (respondents). The questions address all the issues itemized under the research questions. Each session was recorded on tape, thereafter, the tapes were transcribed verbatim.

3.8 Method of Data Analysis:

Descriptive statistics, using frequency count and percentages, mean and standard deviation were used to answer the research questions, while Pearson Product Moment Correlation was used to test Hypotheses 1 and 2. Multiple Regressions was applied on Hypothesis 3. Content analysis was used to analyse the interview responses.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the findings of the data analysed and the interpretation of results. However, it begins with a general examination of the respondent institutions in terms of their spatial distribution in Nigeria, their year of establishment, nature of the services provided, ownership structure, sources of funding, among other characteristics.

4.2 General Characteristics of the Responding Institutions

In this section, the study first of all examined the spatial distribution of the institutions providing the information and educational needs of the visually impaired in Nigeria. This distribution is important in the context of equity and access to reading materials by the visually impaired. The concentration of the institutions in few states in Nigeria will deprive and jeopardize access of the visually impaired to reading materials in such less represented locations.

Table 4.1 : Responding Institutions Distributed by State of Location

State of Location	Frequency	Percent
Abia	30	6.4
Adamawa	22	4.7
Akwa Ibom	2	0.4
Anambra	4	0.9
Bauchi	15	3.2
Benue	2	0.4
Borno	11	2.3
Cross River	21	4.5
Edo	7	1.5
Ekiti	5	1.1
Enugu	16	3.4
Imo	8	1.7
Kaduna	37	7.9
Kano	7	1.5
Katsina	11	2.3
Kebbi	9	1.9
Kogi	24	5.1
Kwara	11	2.3
Lagos	54	11.5
Niger	4	0.9
Ogun	30	6.4
Ondo	7	1.5
Osun	2	0.4
Oyo	26	5.5
Plateau	77	16.4
Rivers	2	0.4
Sokoto	14	3.0
Abuja	12	2.6
Total	**470**	**100.0**

Table 4.1 shows that the responding institutions are not uniformly distributed. It reveals that 77 representing 16.4% of the institutions are located in Plateau State, 11.5% institutions in Lagos State, while 7.9%, (6.4%) and (6.4%) are located in Kaduna, Abia and Ogun States. Other states with high percentage of the responding institutions include Oyo state (5.5%), Kogi state (5.1%), Adamawa state (4.7%), and Cross River state (4.5%). States with low responding institutions include Rivers (0.4%), Osun (0.4%), Benue (0.4%), Akwa Ibom (0.4%), Niger (0.9%), and Anambra (0.9%) among others. The implication of the above spatial distribution is that some

visually impaired individuals may be denied access to reading materials due to the absence of this institution in their state. Table 4.2 also shows their year of establishment.

Table 4.2 Responding Institutions Distributed by Year of Establishment

Year of Establishment	Frequency	Percent
Before 1960	93	19.8
1960 – 1979	201	42.8
1980 – 1999	159	33.8
2000 – 2010	17	3.6
Total	*470*	*100.0*

Table 4.2 shows that majority (42.8%) of the institutions were established between 1960 and 1979, while 33.8% were established between 1980 and 1999 and 19.8% before 1960. However, only 3.6% of the institutions were established between 2000 and 2010.

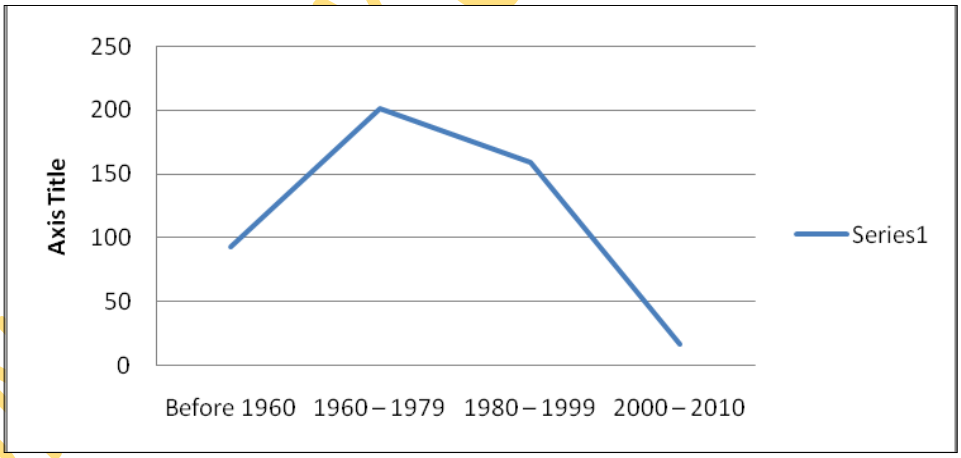


Fig. 4.1 Year of Establishment of Institutions

Figure 4.1 presents the values in Table 4.2 and it indicates a declining trend in the establishment of the institutions in recent times. This situation portends danger for some states especially those with low number of the institutions in their jurisdiction. Table 4.3 shows responding institutions distribution by type of services rendered and ownership structure.

Table 4.3 Distribution of Respondents according to Nature of Services and Ownership of Institution

		Frequency	Percent
Nature of Services:	Transcription	114	24.3
	School for the Visually Impaired	308	65.5
	Library Services for the Visually Impaired	48	10.2
	Total	470	100.0
Type of Ownership:	Private	37	7.9
	Government	339	72.1
	Mission	94	20.0
	Total	470	100.0

Table 4.3 reveals that the majority (65.5%) of the institutions are schools for the visually impaired, while 10.2% are involved in providing library services. However, only 24.3% of the respondents are engaged in actual transcription services. Transcription services involve the delivering and dissemination of information in alternative formats to the visually impaired. In this regard, without transcription services, it is difficult for schools for the visually impaired and other institutions engaged in library services for this group to effectively render services in their respective domain. The above scenario justifies the importance of establishing more institutions to be engaged in transcription services. The low percentage of institutions engaged in transcription services has serious implications for availability of reading materials for the visually impaired in Nigeria. Table 4.3 also reveals that majority (72%) of the institutions are owned by government.

The concentration of ownership of the institutions in the hands of State and Federal governments makes them vulnerable to the challenges of poor maintenance and inadequate funding which is characteristic of public utilities in Nigeria. On the contrary, private institutions may not afford the required capital outlay and infrastructures for such venture. The need for public-private partnership would be most desirable for promoting and fostering a more robust and sustainable transcribing institutions with widespread adoption of latest technologies.

Table 4.4: Distribution of Respondents according to Sources of Funding

Funding Sources	Participants Responses			
	Yes		No	
	N	%	N	%
Foreign Donors	75	16	395	84
Internally Generated	93	19.8	377	80.2
Subsidy/Subvention from Government	339	72	131	27.9
Donations from good spirited individuals/corporate bodies	188	40	282	60
Others Sources	13	2.8	457	87.2

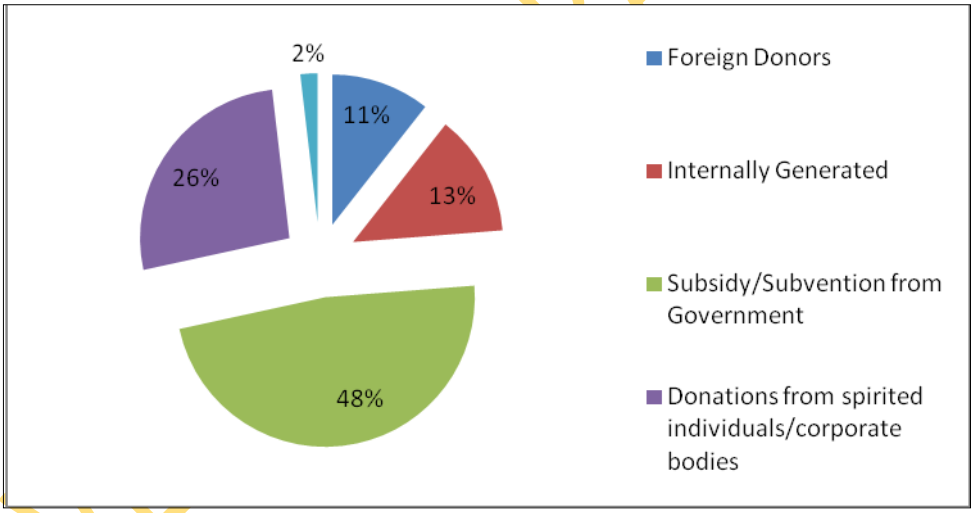


Fig 4.2: Sources of Funding

Table 4.4 shows the respondents' distribution by their sources of funding.

Participants were asked to indicate their sources of funding. Table 4.4 reveals the respondents' responses. The highest expected source of funding would be from government subsidy/subvention representing 72%. This was followed by donations from good spirited individuals/corporate bodies which represented 40%. The internally generated fund was the next in hierarchy of sources of funding and this accounted for roughly 19.8%. However, it is important to note that foreign donors are the lowest contributors. Figure 4.2 graphically shows the distribution.

Figure 4.2 shows that almost half of the sources of funding is from government subvention. This implies that the effectiveness of transcription depends

solely on the benevolence of the government. If the personality at the helm of affairs does not show interest in the visually impaired, provision for their reading materials will suffer. Interestingly, a quarter or the half of other sources was from donations which may be highly erratic.

Table 4.5: Respondents Distributed by type of Services Provided to the Visually Impaired

Services Provided to the Visually Impaired	Responses	
	N	%
Online Access	53	11.2
Training in Braille	410	87.5
Training in Other Alternative Format and Assistive Technology	105	21.7
Training in Use of Computers	119	24.8
Transcription Services	82	17.2
Loan of Specialised Equipment for Visually Impaired	88	18.6

Table 4.5 shows the various services provided by the respondents. Six categories appeared in the analysis these were online access, training in Braille, training in other alternative format and assistive technology, training in use of computers, transcription services and loan of specialized equipment for visually impaired. However, training in Braille accounted for the highest service provided, representing 87.5%, training in use of computers accounted for 24.8%, training in other alternative format and assistive technology accounted for 21.7%, transcription services for visually impaired accounted for 17.2%, online access accounted for 11.2%, training in Braille was the highest and commonest service provided and online access as the lowest.

4.3 Response to Research Questions

In this section of the study, the research questions raised for the study are answered using both quantitative and qualitative data. This begins with research question one.

Research Question One

What is the copyright exemption knowledge among transcribers and providers of reading materials into alternative format in Nigeria?

As noted earlier on, copyright exemption for the visually impaired is enshrined in international instruments such as the United Nations Universal Declaration on Human Rights (1948) and the United Nations Standard Rules on the Equalisation of Opportunity for Disabled People (1993). The aim of this is to secure the right of the visually impaired people to access information and knowledge. However, this can only be achieved if transcribers and providers of reading materials into alternative format have adequate knowledge of copyright exemptions. Thus, Table 4.6 shows the copyright exemption knowledge among transcribers and providers of reading materials into alternative format in Nigeria. This question was answered in two ways. The summary of the participant responses and analysis are based on each item.

Table 4.6: Respondents Knowledge of Copyright Exemption in Relation to Transcription into Alternative Formats

S/N	Knowledge of Copyright Exemption	Responses			
		True		False	
		N	%	N	%
1	Copyright Exemption allows alternative format of reading materials to be created and shared without the permission of publishers or right holders	289	61.5	181	38.5
2	Copyright Exemption ensures availability of alternative format for the visually impaired	372	79.1	98	20.9
3	Copyright is not infringed when alternative format of reading materials are produced on a non-commercial basis for the visually impaired persons	367	78.1	103	21.9
4	Copyright Exemption is enshrined in the UN Universal Declaration on Human Rights and UN's Standard Rules on the Equalization of Opportunity for Disabled people	340	72.3	130	27.7
5	Copyright Exemption for the visually impaired in Nigeria covers Braille, large prints, talking book and electronic resources	375	79.8	95	20.2
6	Technological devices deployed to protect copyrighted materials negate copyright exemption for the visually impaired	285	60.6	185	39.4
7	Only not more than 30% of copyrighted materials can be reproduced under fair use clause	252	53.6	218	46.4
8	Copyright Exemption enhances speedy transcription as the usual delay in contacting authors/publishers is totally eliminated	339	72.1	131	27.9
9	It connotes a legal backing to produce alternative versions for the visually impaired without permission from the copyright holder	319	68.0	151	32
10	Copyright Exemption supports the freedom of the visually impaired to circumvent protection devices to reproduce digital copyrighted materials into alternative format	355	75.5	115	24.5
11	Copyright Exemption guarantees reproduction and distribution of copyrighted materials for purposes of teaching, research, criticism by the visually impaired or their teachers under the fair use clause	369	78.5	101	21.5

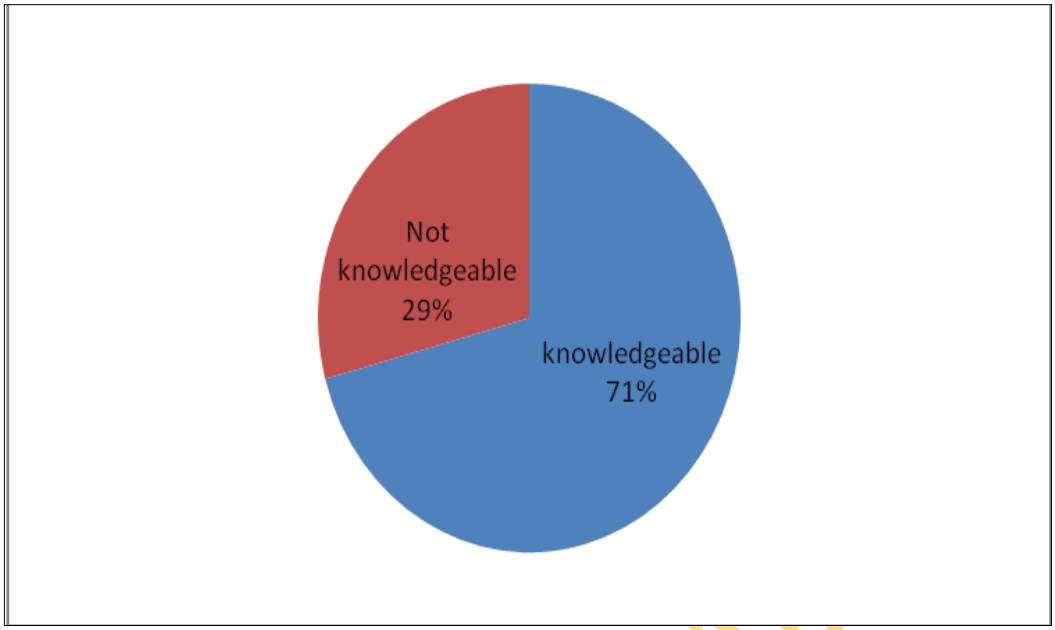


Figure 4.3 Percentage of Respondents that know/do not know about Copyright Exemption

Table 4.6 shows the respondents knowledge of copyright exemption. Eleven positive statements were raised and responses to these statements were analysed in order to answer the first research question. These statements were stated positively and revealed characteristics of copyright exemption. Knowledge of copyright exemption was determined by affirmation to these statements. In analysing the responses it was revealed that 79.8% of the participants understood that copyright exemption for the visually impaired in Nigeria covers Braille, large prints, talking book and electronic resources, while 79.1% understood that copyright exemption ensures availability of alternative format for the visually impaired, 78.5% understood that copyright exemption guarantees reproduction and distribution of copyrighted materials for purposes of teaching, research, criticism by the visually impaired or their teachers under the fair use clause 78.1% understood that copyright is not infringed when alternative format of reading materials are produced on a non-commercial basis for the visually impaired persons, 75.5% understood that copyright exemption supports the freedom of the visually impaired to circumvent protection devices to reproduce digital copyrighted materials into alternative format, 72.3% understood that copyright exemption is enshrined in the UN Universal Declaration on Human Rights and UN's Standard Rules on the Equalisation of Opportunity for Disabled people.

On the average 70.8% were knowledgeable about copyright exemption, while 29.2% of the participants were not knowledgeable about the copyright exemption.

From the interview session conducted on heads of institutions surveyed regarding transcribers knowledgeable of copyright exemption, it was discovered that transcribers are aware of the copyright exemption. The interviewees claimed that transcribers understand the copyright law that exempts anybody or organisation that transcribe reading materials to alternative format. In spite of the foregoing, few presented a picture of ignorance of the law and claimed that they had never seen the document. It was also revealed that most transcribers have never sought permission from authors or publishers before transcribing materials into alternative format; since the transcription is for educational use of visually impaired persons.

The fact that there is high knowledge of copyright exemption among the transcribers is an indicator that a solid basis for transcription is firmly in place. According to Wong et.al. (2009) knowledge is one of the predictors of performance and action. Understanding the elements associated with copyright exemption is a necessary condition for availability of publications for transcription. It is important to stress that knowledge has to be combined with other relevant factors like appropriate technology and skills to provide a desired result.

Table 4.7: Knowledge of Impediment to the principle of Copyright Exemption on the Internet

Question	Responses		
Are you aware that there exists technological protection mechanism that preclude visually impaired persons and transcribers from accessing internet resources?	Options	N	%
	Yes	238	50.6
	No	232	49.4
	Total	470	100

The participants were asked if they were aware of the existence of technological protection mechanism that precludes visually impaired persons and transcribers from accessing Internet resources. The responses of the participants revealed that 50.6% were aware while 49.4% were not. Internet sources provide readily available rich content for transcription of reading materials into alternative formats. The development of technological protection mechanisms against unauthorized exploitation impedes transcribers' access to materials for transcription.

Web applications and all forms of encryption should take into account the need for copyright exemption for digital resources.

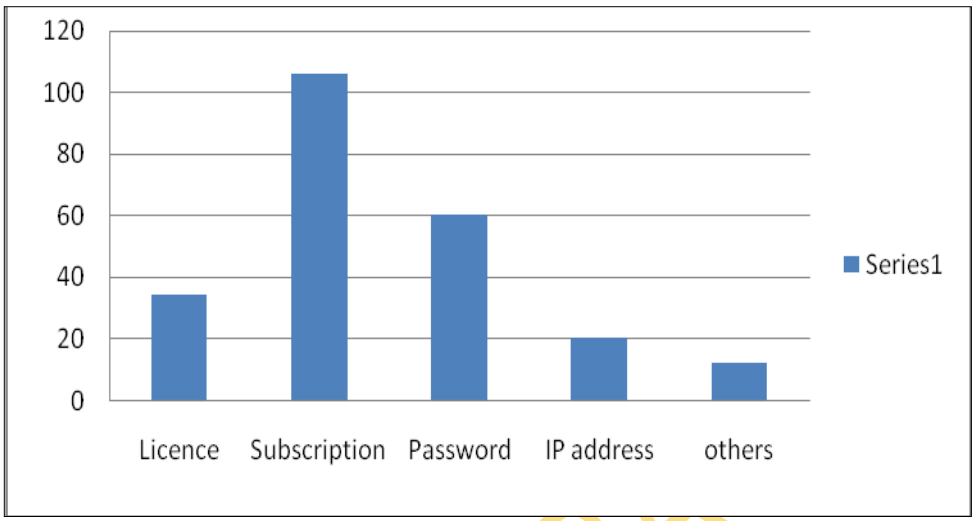


Fig. 4.4 Ways of Coping with the Impediment

The participants that reported awareness of the existence of technological protection mechanism that preclude visually impaired persons and transcribers from accessing internet resources indicated ways of coping with the impediment. They applied for licence, subscription, use password, get IP address or employed other means. This process is counter-productive to copyright exemption and does not facilitate easy transcription. A total removal of technological barriers would be complementary and of tremendous advantage to the provision of alternative formats.

Research Question Two

How is information technology applied in the transcription of reading materials into alternative format for the visually impaired in Nigeria?

Table 4.8: IT Tools Applied for the Transcription of Reading Materials

S/N	Information Technology Facilities	N	%	Mean	Standard Deviation
1	Embossers	279	59.3	4.0	1.4
2	Tape Recorders	274	58.2	4.0	1.6
3	Talking Calculators	137	29.2	3.1	1.2
4	Scanners	136	28.8	3.0	1.6
5	Computer with Brailling Software (Duxbury)	108	22.9	2.9	1.1
6	Handheld Magnifier	94	20.0	2.5	0.9
7	Jaws Computer	88	18.6	2.4	1.1
8	Dolphin Pen	63	13.2	2.4	1.6
8	Electronic Braille System	54	11.4	2.3	1.3
9	Optical Character Recognition System	43	9.2	2.3	1.2
10	Synthetic Speech Software	43	9.2	2.2	0.8
11	Kurwzeil Reading Machine	40	8.5	2.2	0.8
12	Data Technology	35	7.4	2.0	0.9
13	Braille 2000	35	7.4	2.0	0.9
14	Closed Circuit Television (CCTV))	28	6.0	2.0	0.7
16	Converters	25	5.4	2.0	0.7

Table 4.8 reveals that the most commonly applied IT tool applied by transcribers is Embossers with 59.3% ($\bar{x}$ = 4.0, SD = 1.4) while core IT tools like Duxbury is 22.9% (x=2.9, SD = 1.1), Jaws Computer 18.6% ($\bar{x}$ = 2.4, SD = 1.1),and Braille 2000 is 7.4%($\bar{x}$ = 2.0, SD 0.9). The trend as seen from the table is that the more sophisticated the IT device, the lower the percentage of use. This means that the application of information technology to transcription in Nigeria is low.

For the application of information technology in the transcription of reading materials into alternative format, the interview revealed that transcribers know that information technology will make their work faster and easier. They understood how

crucial computers and other relevant technology are to improving transcription of reading materials. Many of the institutions still transcribe using manual techniques, only few such as Inlak Library for the visually impaired, Nigerwives and ANWAB claimed that information technology was applied to the transcription of reading materials in their various institutions.

The interview also revealed that respondents are of the opinion that IT tools are expensive and spare-parts are not locally available. However, they affirmed that technological application to transcription represents most effective and global standards. Information technology must be embraced if appreciable progress is to be made in the transcription of reading materials in Nigeria.

Research Question Three

What are the criteria used for selecting reading materials for transcription into alternative formats for the visually impaired in Nigeria?

Table 4.9 Criteria for Selecting Reading Materials for Transcription

Criteria	Proportion of Respondents	
	N	%
Meeting the general information needs of the visually impaired	314	66.8
To meet spiritual needs of the users	130	27.7
Format preference of users (Braille/large prints)	214	45.5
Affordability & cost of the alternative format edition	170	36.2
The need to meet the curriculum requirement of Visually Impaired Students	298	63.4
Whether the material is already available in alternative formats for purchase	66	14.0
Whether the material is already available in alternative formats for loan	64	13.6
Other Unspecified Criteria	5	1.1

Table 4.9 shows the result of the criteria used for selecting reading materials for transcription into alternative format for the visually impaired in Nigeria.

What is obvious from Table 4.9 is that transcribers used multiple criteria in selecting reading materials for transcription into alternative format. Table 4.9 revealed that 66.8% of the respondents maintained that the major criteria used for selecting reading materials for transcription is based on meeting the general information needs of the visually impaired. This implies that reading materials that are not relevant to the information needs of the visually impaired are not considered for transcription. Another major criteria used is the need to meet the curriculum requirement of visually impaired students. 63.4% of the respondents identified this criterion. Every educational system has its own curriculum. Curriculum defines the educational foundations and contents, their sequencing in relation to the amount of time available for the learning experiences of the students. Not all reading materials are relevant to the curriculum of the visually impaired and this informs the utilisation of these criteria as a basis for the selection of reading materials into alternative format. Also, 45.5% of the respondents identified format preference of users (Braille/large prints) as another criterion used in selecting reading material for transcription. Other criteria identified by the respondents include affordability and cost of the alternative format edition (36.2%), meeting the spiritual needs of users (27.7%), and whether the material is already available in alternative formats for purchase (14.0%).

The interview sessions revealed that two important criteria are usually considered before selecting reading materials for transcription. The most important consideration according to the heads of institutions is that the selected materials must be recommended for use by appropriate authorities based on the need of the users. The materials transcribed are usually a product of the need of the users through request. Materials are also transcribed when individual users make request for them.

Research Question Four

What are the equipment used in the transcription of reading materials into alternative formats for the visually impaired in Nigeria?

Table 4.10: Equipment Used for Transcription

S/N	Facilities	N	%	Mean	SD
1	Perkins Braille Machine	415	88.3	4.8	1.2
2	Stylus	376	80.1	4.5	0.9
3	Embossers	279	59.3	4.4	1.4
4	Tape Recorders	274	58.2	4.2	1.4
5	Talking Calculators	137	29.2	4.0	1.4
6	Scanners	136	28.8	3.9	1.6
7	Computer with Brailling Software (Duxbury)	108	22.9	3.8	1.1
8	Handheld Magnifier	94	20.0	3.7	0.9
9	Jaws Computer	88	18.6	3.4	1.1
10	Dolphin Pen	63	13.2	3.2	1.6
11	Electronic Braille System	54	11.4	3.0	1.3
12	Optical Character Recognition System	43	9.2	2.9	1.2
13	Synthetic Speech Software	43	9.2	2.8	0.8
14	Kurwzeil Reading Machine	40	8.5	2.7	0.8
15	Data Technology	35	7.4	2.5	0.9
16	Braille 2000	35	7.4	2.4	0.9
17	Closed Circuit Television (CCTV))	28	6.0	2.2	0.7
18	Converters	25	5.4	2.0	0.7

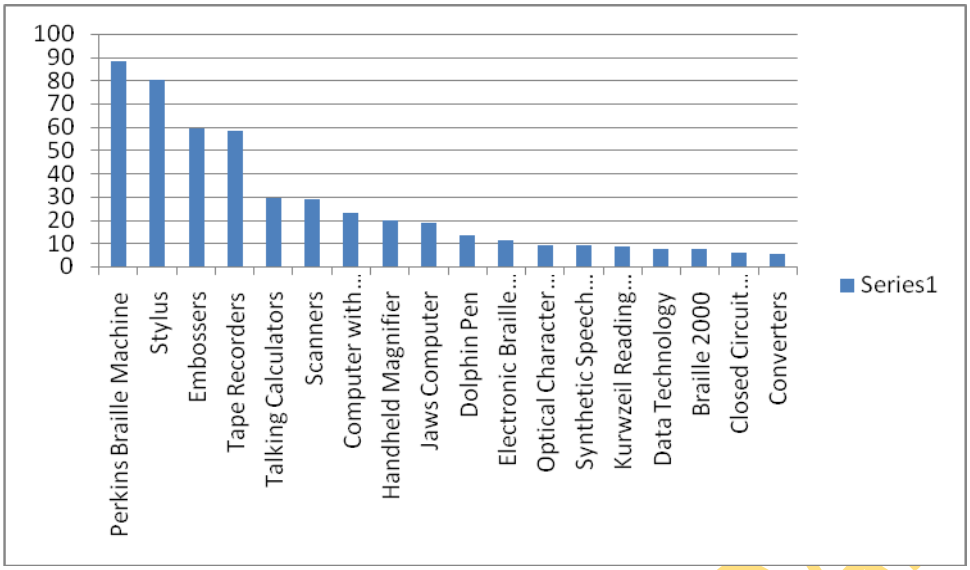


Figure 4.5: Equipment Used in Transcription

All the equipment used for transcription are presented. Some of them are IT tools while others are not. Table 4.10 shows that a total of eighteen types of different equipment are being applied by respondents in the transcription of reading materials into alternative formats for the visually impaired in Nigeria. Thus, the result presented in Table 4.10 and Figure 4.5 comprise various equipment used in the transcription of reading materials. Specifically, 88.3% of the respondents use Perkins Braille Machine. The analysis also showed that 80.1% of the respondents use stylus, 59.3% use embossers, and 58.2% use tape recorder. Other equipment employed in the transcription of reading materials for the visually impaired includes talking calculator 29.2%, scanners 28.8%, computer with brailling software 22.9%, handheld magnifier 20.0%, jaws software 18.6%, dolphin pen 13.2%, electronic Braille system 11.4% optical character recognition system 9.2%, synthetic speech software (9.2%) among other technologies.

Research Question Five

What are areas of formal collaborations among transcribers and providers of alternative formats for the visually impaired in Nigeria?

Table 4.11: Existing Areas of Formal Collaboration among Producers and Providers of Reading Materials in Alternative Formats

Areas of Formal Collaborations	N	%	Ratings
An umbrella body that provides membership & a discussion forum for all	298	63.3	4th
An arrangement where master copies could be borrowed for reproduction	276	58.8	5th
An understanding where certain centres are recognised as specializing in transcription	338	72.0	1st
Computerized production centres and recognized distribution networks	258	54.8	7th
A common capacity building platform for all engaging in the services towards V I Persons	284	60.4	3rd
Regular workshops seminars involving the different segments	324	68.9	2nd
Cooperation in attracting funding and other donations	264	56.2	6th
Acting as a pressure group to influence government policies	239	50.8	8th
Others Unspecified Areas	13	2.7	9th

Table 4.11 shows the area of formal collaborations among transcribers and service providers of reading materials in alternative formats. Table 4.11 indicated that there is high level of collaborations among transcribers, service providers of reading materials. It revealed that 63.3% of respondents have formal collaborations in the areas of an umbrella body that provides membership and discussion forum. Also, it shows that 58.8% of institutions rendering transcription service have formal collaborations in the area of arrangement where master copies could be borrowed for reproduction. Other areas of formal collaboration include computerized production centres and recognized distribution networks. 54.8% of transcription providers have formal collaborations in this regard. They also have formal collaborations in the area

of a common platform for capacity building for all institutions engaged in the services towards the visually impaired. The percentage distribution of this is 60.4%. Other areas of collaborations are organising regular workshops, seminars, workshops. This represent 68.9% while involving the different segments, cooperation in attracting funding, donations represents 56.2%. Collaborations to act as a pressure group to influence government policies represent 50.8%. From the analysis in Table 4.12, it can be inferred that there is high level of collaborations among transcribers and service providers of reading material into alternative formats.

The interview sessions on the areas of collaboration among institutions revealed that the transcribing institutions indeed have mutual areas of collaboration. Organisation of trainings and seminars, assistance in the printing of materials and provision of solutions to common difficulties are the identified areas of collaboration among the institutions.

At this juncture, it is important to identify the common problems associated with the transcription of reading materials into alternative format in Nigeria.

Research Question Six

What are the problems associated with the transcription of reading materials into alternative format for the visually impaired in Nigeria?

Table 4.12: Problems Associated With transcription Into Alternative Formats

Statements	N	%	Ratings
There is acute shortage of trained transcribers with required experience	411	87.5	1st
Pirated books which are often available may not be clear enough for scanning	304	64.7	6th
Lack of up to-date software/equipment	381	81.0	2nd
Cost of production is still very high because of materials & process involved	365	77.6	3rd
Funding is greatly dependent on free donors	324	68.9	6th
Irregular supply of electricity	356	75.8	4th
Negative attitude of the society towards the Visually Impaired	336	71.4	5th
Others Unspecified Areas	6	1.3	7th

Table 4.12 revealed that the various institutions seem to have a common problem. First on the list is acute shortage of trained transcribers with required experience and 87.5% of institutions providing transcription service identified this

problem. Another major problem identified is the fact that pirated books which are often available are not clear enough for scanning. 64.7% of institutions providing transcription also identified this problem. Lack of up-to-date software/equipment is another problem associated with transcription into alternative formats. 81% of participants identified this problem. Another major problem associated with transcription into alternative formats as identified by 77% of respondents is the high cost of production. Irregular supply of electricity also negatively affects transcription into alternative formats. 77.6% of participants cited this problem. The negative attitude of the society also constitutes a threat to transcription into alternative format. 71.4% of participants identified this as a problem.

4.4 Test of Hypotheses

Three null hypotheses were raised for this study and were tested using correlation coefficient and multiple regression analyses. The summary of these are presented as follows:

To test these hypotheses, Pearson Product Moment Correlation was run. Table 4.14 presents correlation coefficient of the independent variable and the dependent variable.

Hypothesis One

There will be no significant relationship between copyright exemption and transcription of reading materials into alternative formats for the visually impaired in Nigeria.

Table 4.13 Correlation of copyright exemption and transcription of reading materials into alternative formats for the Visually Impaired in Nigeria

Variations	N	Mean	Std. Deviation	r-observed	Sig.
Knowledge of copyright exemption	470	14.8489	5.73923	.741**	<0.05
Transcription of reading materials into alternative formats impaired	470	60.8574	2.76879		

** Correlation is significant at the 0.01 level (2-tailed).

The Table 4.13 presented correlation coefficient of independent variable (application of copyright exemption) and dependent variable (transcription of reading

materials into alternative formats for the Visually Impaired in Nigeria). In testing the first hypothesis however the correlation coefficient statistical tool was applied. The result revealed a significant positive relationship between application of copyright exemption and transcription of reading materials into alternative formats for the visually impaired in Nigeria at r=0.74: p<0.05. This implied that the first null hypothesis that stated that "there will be no significant relationship between application of copyright exemption and transcription of reading materials into alternative formats for the Visually Impaired in Nigeria was rejected. This means that knowledge of copyright exemption is proportionately related to transcription activities provided the effect of knowledge is not vitiated by the absence of other necessary conditions as discussed under 4.5.10 (influence of copyright exemption and information technology in transcription).

Hypothesis Two

There will be no significant relationship between application of information technology and transcription of reading materials into alternative format for the Visually Impaired in Nigeria.

To test this hypothesis, Pearson Product Moment Correlation was run. Table 4.15 presents correlation coefficient of the independent variable and the dependent variable.

Table 4.14 Correlation of application of information technology and transcription of reading materials into alternative formats for the Visually Impaired in Nigeria

Variations	N	Mean	Std. Deviation	r-observed	Sig.
Application of Information Technology	470	23.00	19.3851	0.622**	<0.05
Transcription of reading materials into alternative formats impaired	470	60.8574	2.76879		

** Correlation is significant at the 0.01 level (2-tailed).

The Table 4.14 presents correlation coefficient of independent variable (application of information technology) and dependent variable (transcription of

reading materials into alternative formats for the Visually Impaired in Nigeria). The result revealed a significant positive relationship between application of information technology and transcription of reading materials into alternative formats for the visually impaired in Nigeria at r=0.62:p<0.05. This implies that the second null hypothesis that stated that "There will be no significant relationship between information technology and transcription of reading materials into alternative format for the visually impaired in Nigeria' is therefore rejected.

Application of information technology will increase transcription output. Institutions providing Braille or large print in advanced countries now routinely do so scanning the original material into a computer, subjecting it to translation software and produced through a braille embosser or a laser printer. In the process, an intermediate electronic copy is produced. Technology therefore makes for mass productivity, easier transcription, efficiency and conformity to global standards.

Hypothesis Three

Copyright exemption and information technology when taken together will not have significant influence on transcription of reading materials into alternative formats for the visually impaired in Nigeria.

Table 4.15: Model Summary Showing Relationship among Copyright Exemption Information Technology and Transcription of Reading Materials

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.801(a)	.641	.639	1.66274

a Predictors: (Constant), Copyright Exemption, IT Application

The model summary table 4.15 reveal that 64.1% of the variation in transcription of reading materials into alternative format for the Visually Impaired in Nigeria accounted for by the combination of copyright exemption and information technology.

Table 4.16: ANOVA Showing the Influence of Copyright Exemption and Information Technology on Transcription of Reading Materials

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2304.330	2	1152.165	416.740	.000(a)
	Residual	1291.119	467	2.765		
	Total	3595.449	469			

a Predictors: (Constant), Copyright Exemption, IT Application

b Dependent Variable: transcription

The combined influence of copyright exemption and information technology on transcription of reading materials into alternative format for the Visually Impaired in Nigeria was determined using multiple regression equation. The third Hypothesis which stated that 'copyright exemption and information technology when taken together will not have significant influence on transcription of reading materials into alternative format for the Visually Impaired in Nigeria' was rejected at $F_{(1, 469)} = 416.740$; $p<.05$. This implies that copyright exemption and information technology when taken together would have significant influence on transcription of reading materials into alternative format for the visually impaired in Nigeria.

Table 4.17: Relative Contribution of Copyright Exemption and Information Technology

Model		Unstandardized Coefficients		Unstandardized Coefficients	**t**	**Sig.**
1		B	Std. Error	**Beta**		
	(Constant)	52.737	.334		157.988	.000
	IT Application	.207	.019	.346	10.947	.000
	Copyright Exemption	.277	.015	.574	18.154	.000

a Dependent Variable: transcription

The summary table revealed that the two predictor variables copyright exemption and information technology jointly influenced transcription of reading materials into alternative format for the Visually Impaired in Nigeria at β =.346; t=10.947; p<0.05 for copyright exemption and information technology at β= 0.574; t=18.154; p<0.05.

4.5. Discussion of Results

4.5.1 Demographic Characteristics of the Respondents

The study showed that the responding institutions are not uniformly distributed across the states of the federation. It revealed that the highest percentage of responding institutions are located in Plateau State (16.2%), Lagos State (11.5%), while 7.9%, 6.4% are located in Kaduna, Abia and Ogun States respectively. States with low percentage of the institutions are Rivers (0.2%), Osun (4.0%), Benue (0.4%), Akwa Ibom (0.4%), Niger (0.9%), Anambra (0.9%) and others. The spatial distribution of these institutions implies that some visually impaired persons may be denied access to reading materials due to the absence of the institutions in their state. This lopsided situation calls for immediate action on the part of the government and voluntary organisations to provide such institutions where they are lacking.

The study also indicated that many of the institutions were established between 1960 and 1999. The last decade has witnessed the establishment of few of the institutions in various states. Specifically only 2.8% of the institutions were established in the last ten years. If this trend continues, especially with the rapidly increasing Nigerian population, most visually impaired persons stand the risk of information deficiency in the next decade to come.

The study revealed that the main service provided by the various institutions for the visually impaired persons in Nigeria is training in Braille. Only few of the institutions are involved in transcription activities as indicated in Table 4.4. This scenario also has serious implication for the availability of reading materials for the visually impaired in Nigeria. This finding agrees with Atinmo (2000) when she reported that educational opportunities are not being equalized in Nigeria; a situation she attributed to the non-availability of reading materials in alternative formats for the visually impaired in Nigeria. The finding is also supported by Atimo and Dawha (1997). The study further shows that all responding institutions obtain their highest funding from subsidy/subvention from government. Beyond subsidy and subvention,

it is important that these institutions look for extra sources of funding. This has become necessary, given the dwindling resources of government in recent times.

4.5.2 Copyright Exemption Knowledge among Transcribers and Providers of Reading Materials into Alternative Format in Nigeria.

The study found that transcribers and providers of alternative format for the visually impaired in Nigeria have high knowledge of copyright exemption. This much was attested to by some of the interviewees:

> Copyright exemption has really helped us because it gives us the opportunity to get a wide access to all materials that we need to transcribe for our student without seeking permission. Also it helped us to get materials in various subjects to teach our students (Inlak Library).

The finding is in agreement with Okiy (2005) and Omoba (2001) who claimed that most users of copyrighted works for the visually impaired in Nigeria have good knowledge of copyright provision. It is at variance with Agulu, Agulu and Potiskum. (2000) who noted that many people in Nigeria were ignorant of the specific provision of the Nigerian Copyright Law and its exemption clauses. Meanwhile, interviews conducted with some NGOs that are involved in transcription showed that most transcribers have never sought any permission from authors in order to transcribe materials into Braille for the visually impaired students and the reason was that the Braille was not for commercial purpose but to aid the students in their education. On the contrary, few transcribers submitted that they have always requested for the authors/publishers permission before transcription. The high knowledge of Copyright Exemption among the respondents is not surprising because it is expected that those who engage in such specialised assignment would ordinarily want to understand the legal framework peculiar to the activities.

Access to publications is essential to the transcription of reading materials, and copyright exemption plays a pivotal role in making this possible. In the absence of relevant exemption clause, each act of transcription into alternative format requires the explicit permission of the rights holder. Permission can be refused, and if granted, is often delayed.

The use of personal computers and relatively inexpensive peripherals has made braille transcription open not only to the large organisations but also to the

smaller entities. Consequently, publishers would face administration overload if exemptions are not entrenched. Copyright exemption therefore is an empowering legal backing for unfettered transcription.

4.5.3 Information Technology Application and Transcription of Reading Materials into Alternative Format

The study further showed that the various institutions for the visually impaired employ multifarious information technological tools in the transcription of reading materials but on the average there is low level of application of information technology in the transcription of reading materials for the visually impaired in Nigeria. However, Perkins Braille and Stylus which are traditional tools remained the predominant methods for transcription. Findings from the interviews corroborated this, with particular reference to Perkins Braille Machine, Embossers, Tape Recorders, Stylus and Scanners being the most widely used. These quotes from the respondents tend to capture these view points.

> The major tool among most transcribers is Perkin Braille and stylus, however, computer-based brailling is on the increase". "They ask for the Braille books more because they can only read with their fingers and not their eyes. I think the talking book is more expensive because we have to get the gadget as we need to get the embosser also. So both of them have their own problems which boil down to funds". [Pacelli School for the Blind]. We have a Braille center here in Lagos that transcribes, using Perkins, Embosser and some computers". [Farm craft]

The finding is consistent with Gusen et al (2010) and Atinmo (2005) who asserted that transcription in Nigeria is mostly manual driven as only few institutions use computer Braille facilities. However, the respondents are not entirely satisfied with the present level of information technology application in the transcription of reading materials into alternative formats in Nigeria. They are aware that they could still avail themselves of some other modern transcribing equipment such as Duxbury software and other sophisticated devices which are currently not available to them.

The ubiquitous information technology is reputed for facilitating mass transcription of quality alternative formats. It provides a departure from the hitherto laborious, time-consuming, manual techniques resulting in increased output. The application of information technology to transcription provides platform for networking of transcribers and resource sharing. This helps transcribers to access

alternative format databases, thus, avoiding duplication of effort and resources. A centralized brailling system capable of producing computerized tactile diagrams, braille e-books, and text-to-speech audio support is made possible. Digital documents and publisher's file could be accessed and transcribed online through braille translator software by mere click of the mouse.

Information Technology promotes efficiency and outsourcing of transcription. Institutions can leverage on foreign skills to address their peculiar deficiencies in brailling special subject notations since the barrier of space and time has been eliminated. Common mistakes prevalent in manual brailling are automatically avoided in a computer-aided brailling system. Modern technologies help transcribing institutions across the globe to adhere and conform to international codes and standards thus maintaining uniformity.

4.5.4 Criteria used for Selection of Reading Materials for Transcription into Alternative Format in Nigeria

The study also indicated that transcribers use multiple criteria in selecting reading materials for transcription into alternative format and showed that the major criteria used for selecting reading materials for transcription is based on meeting the general information needs of the visually impaired. This means that reading materials that are not relevant to the information needs of the visually impaired are not considered for transcription. This finding is in conformity with Owino (1995) who opined that the guiding principle in the provision of reading materials into alternative format whether through transcription or outright purchase is the information need of the user. Another criterion used is the curriculum requirements. Thus, only materials that are relevant are transcribed. The interviewees also lend credence to these findings as evidenced by the following quotes:

> First of all we asked for their school curriculum and recommended books and handouts, also we pass request forms to ask which type of books the readers want transcribed, and when we go through their request, the ones with highest frequency are favoured". [Inlak Library] "We run the same curriculum with any other school out there, so it is this same book that they use that we also transcribe. For the secondary schools and university institutions, they collect materials their colleagues use and bring them and we put it into Braille for them". [Pacelli Schools for the Blind]

Beyond transcription to meet basic academic and curriculum requirements, selection criteria should include materials that address informal learning, personal development, recreation and entertainment needs. This is in line with Blind Citizens Australia (2006) which contended that selection of materials for transcription must provide opportunities for the visually impaired users to contribute to the choice of titles that meet their needs.

4.5.5. Equipment used in the Transcription of Reading Materials into Alternative Format

The study also identified eighteen different types of equipment used in the transcription of reading materials into alternative formats for the visually impaired in Nigeria. The preponderance of opinion as revealed by the study is that conventional tools such as Perkins Braille and Stylus are commonly and frequently in use. The finding is at variance with Evans (2000), Kuniansky (2001), Pollitt (2003), Nguyen (2005) and Verhoeven (2005) who noted that information technology is increasingly applied to the transcription of reading materials for the visually impaired. This method is quite laborious and detracts from the advantages of transcription based on information technology devices and software. Print to Braille transcription using software can yield accuracy level that approaches 100%. It is possible for a person who does not know Braille to produce decent, usable and useful Braille. This is particularly critical in educational settings, where students need Braille in a timely manner in order to keep current with their studies. Automatic transcription is an invaluable tool and resource, but it does not eliminate the need for skilled intervention from a knowledgeable person when quality Braille is the desired outcome.

4.5.6. Formal Collaborations among transcribers and Providers of Alternative Format for the Visually Impaired in Nigeria

The study indicated that there is high level of collaboration among transcribers and service providers of reading materials in Nigeria. The areas of collaboration include an umbrella body that provides membership and discussion forum, in the area of arrangement where master copies could be borrowed for reproduction and computerized production centres and recognized distribution networks. The extent of collaboration was further confirmed by some of the interviewees thus:

> There is a collaboration, there was a time we wrote a letter to the people producing braille and that was about 8 years ago and we came together and we had a meeting and then suggested that we can produce a catalogue of books that we needed them to transcribe so that there won't be duplication of jobs, if two people print a job that result to duplication and it won't make any sense so we came up with this idea of catalogue and where to find transcribed materials". [Nigerwives] "Like AMWAB at Alaago meji, when we did not have embosser they help us print our books and embossed for us at cheap rate". "We have a National Braille Association of Nigeria and it brings together end users, professional…" (Gindiri Centre for the Blind).

The finding is in line with Dote-kwam & Senge (1995) which reported the establishment of regional collaboration to enhance transcription in the United States. Formal collaboration provides integrated transcription structure guaranteeing economy of scale for all stakeholders, greater flexibility and convenience of placing transcription orders as well as ensuring perfect awareness of transcribed materials, skills and funding opportunities available for the institutions catering for the visually impaired in the country. It would provide platform to build awareness on the use and exposure to modern technologies as well as facilitate understanding among partners.

4.5.7. Problems Associated with the Transcription of Reading Materials into Alternative Formation

The problems associated with the transcription of reading materials into alternative formats for the visually impaired include acute shortage of trained transcribers with required experience, pirated books are often not clear enough for scanning, lack of up to date software/equipment is another problem associated with transcription into alternative formats and high cost of production. The following quotes from the interviews further accentuated the submissions about the problems relating to alternative formats:

> It is not just asking someone to produce braille, the person has to be computer literate and also we use special software to produce it and even if you are computer literate you have to go for training on how to use this special software and on this line we are just very few." [Inlak Library] "The money is the issue, for the past 2 years, we have not been producing books, we just started about 2 weeks ago because the embossing machine that has been there for about 10 years, the two of them just

> broke down and after much repairs they packed up and these things are not here. [Pacelli Schools for the Blind]" "They are not enough; it is because we don't have braille centers where the book can be transcribed for the blind. [Farm craft]" "In the developed world, they can access the publisher file to use but here the publisher don't allow their file to be accessed because of the issue of piracy, so the issue of money is a major obstacle of assessing this method". [Orji River Rehabilitation Centre for the Blind].

The finding is in agreement with Lang & Upah (2008), Fundai (2010), Omede (2011) and Babalola & Haliso. (2011) who argued that transcription in Nigeria is mostly inhibited by insufficient funding, unskilled manpower, inadequate assistive technology, policy deficiencies, high cost of production and over reliance on donation. These problems act as counter- productive forces against copyright exemption and application of appropriate information technology tools to transaction in Nigeria. Only practical solutions to these myriad of problems will guarantee appreciable improvement in the availability of reading materials for the visually impaired in Nigeria.

4.5.8. Relationship between Copyright Exemption and Transcription

The study revealed that copyright exemption had a positive relationship with transcription of reading materials into alternative format. This implies that copyright exemption makes possible the availability of more reading materials in alternative formats for the visually impaired in Nigeria. This finding is greatly supported by Scottish Executive (2005) and Nisbet and Aitken (2007) when they noted that copyright exemption for the visually impaired represents a reasonable step in reducing discrimination and thus empowering a group that hitherto were often socially and economically excluded.

Copyright exemption enhances speedy transcription as the usual delay in contacting authors and publishers is totally eliminated. Barriers naturally posed by copyright to transcribers are undermined without breaching the rights of the owners of such intellectual property. This guarantees unlimited access to diverse publications for transcription. In countries where copyright exemption is not provided for, transcription is not only slowed down but cumbersome.

Without exemptions, the transcription into alternative formats for visually impaired people in systematic and general manner is only likely to be possible where

licences have been granted by right holders. Following Locke's contract theory, copyright exemption might just be an obligation rather than policy option. A removal of legal and technical barriers to information for the visually would provide knowledge readily available through transcription. Copyright exemption therefore represents a more acceptable global standard for civilised nations. In meeting the information need of the visually impaired.

The current finding indicates that copyright exemption laws in Nigeria influence transcription of reading materials into alternative formats. Copyright exemption advocates a system that allows visually impaired persons to access information at approximately the same rate as sighted individuals.

To a large extent, the solution to overall access to information materials in alternative format reflects policy decision by individual states within the global community, charitable organisation, and individual rights holders.

4.5.9 Relationship between Information Technology and Transcription

The study indicated that there is a positive linear correlation between the application of IT and the transcription of reading materials into alternative format. The implication of this is that as the application of IT increases, the transcription of reading materials into alternative format for the visually impaired also increases in the same direction. This means that IT applications have significant influence on transcription of reading materials into alternative format for the visually impaired in Nigeria. Thus, the null hypothesis (H_o) which states that information technology applications have no significant relationship with transcription of reading materials into alternative format for the visually impaired in Nigeria was rejected while the alternative hypothesis (H_1) was accepted. This finding is in agreement with Porter, (1997), Gallimore (1999), Evans (2000), and Pollitt (2003) who separately noted the influence of information technology in the provision of reading materials in alternative formats for the visually impaired.

Information technology has opened enormous doors for transcription of alternative formats. Transcribers and providers of information for the visually impaired now have a wide range of platforms for digital transcription. Texts and graphics can be converted to Braille through scanning devices, optical character recognition (OCR) systems and Braille translator software.

Technology has also made it possible for libraries and schools for the visually impaired to engage in transcription services to assist their students. Educational institutions hitherto depended solely on voluntary organisations specialising in transcription. It therefore provides greater attraction to spur more institutions into providing alternative formats. Information technology has given birth to the DAISY format created to standardize digital talking books.

4.5.10 Influence of Copyright Exemption and Information Technology on Transcription

The findings revealed significant joint influence of copyright exemption and information technology on transcription of reading materials into alternative format for the visually impaired. The result supports the studies by Pollit (2003) Kumiansky (2001). Nguyen (2005), Verhoeven (2005), Evans (2000), Atinmo (2000) which reported that information technology is increasingly applied to the transcription of reading materials for the visually impaired. It is also in agreement with Nisbet and Aitken (2007) that viewed copyright exemption as representing reasonable step in reducing discrimination and empowering the visually impaired. The Scottish Government (2007) also averred that copyright exemption allows accessible version of books to be created and shared without needing to obtain permission from the publisher or right holder. Providing books and other printed materials in a format accessible to visually impaired students requires copyright exemption. In addition, transcribers have the option of scanning materials into a computer and converting them to accessible formats via optical character recognition technology.

The wide gap between the actual transcription and the predicted may be attributable to other inhibiting factors such as lack of modern tools and software, absence of requisite skills, inadequate funding and societal attitude towards the visually impaired. The mere availability of appropriate technologies may not automatically translate to increased transcription. Technology Acceptance Model (TAM) predicts that the actual application of technology to tasks is predicated on attitudinal disposition of the proposed users. Transcribers' relative skills and availability of technical support are likely factors that could impact on the actual and predicted variations in output.

It is also noteworthy that the copyright exemption clause in Nigeria seems to apply only to works that have been lawfully published. In countries like United States

and United Kingdom with Disability Discrimination Act, it is an offence for schools to issue instructions and notices without providing an alternative formats once there is a visually impaired student in the institution. This practice is a step higher than copyright exemption. Such complementary legislation gives greater effect to copyright exemption.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The visually impaired represents a sizeable number of Nigerian population and is expected to increase with further rise in the Nigerian population. Despite this, the production and distribution of Braille materials to them are quite low thereby undermining their information needs and access. The recent growth in information technology (IT) and the granting of copyright exemption for the transcription of reading materials for the visually impaired have been predicted to improve information access for the visually impaired in Nigeria. Thus, this study investigated the influence of copyright exemption and information technology on the transcription of reading materials into alternative formats for the visually impaired in Nigeria. This chapter presents the summary of findings. It provides the contribution of the study to knowledge as well as suggestion for further research.

5.2 Summary of Findings

The Findings of this study are as follows:

1. Transcribers and providers of alternative format to the visually impaired in Nigeria have high knowledge of copyright exemption. Private institutions have lesser knowledge of copyright exemption regulations than the government and mission institutions.
2. Application of information technology in the transcription of reading materials into alternative formats by the institutions is low. The most commonly applied technology for transcription is Embosser.
3. The criteria used for selection of reading materials for transcription into alternative formats are the information needs of the visually impaired users and curriculum specification of the visually impaired students in schools.
4. The study identified a total of eighteen different types of equipment for the transcription of reading materials for the Visually Impaired in Nigeria. The most frequently used are Perkins Braille, Sylus, Embosser, Tape recorders.
5. There are formal collaborations between transcribers and providers of reading materials in all almost the identified areas.

6. The problems associated with the transcription of reading materials in Nigeria include acute shortage of trained transcribers, lack of up-to-date software and equipment, high cost of production, irregular electricity supply, negative attitude of society, funding depends on donors and difficulty in scanning pirated materials.
7. Copyright exemption has significant positive relationship with transcription of reading materials into alternative format in the Institutions.
8. Application of information technology has significant positive relationship with the transcription of reading materials into alternative format.
9. Copyright exemption and application of information technology have significant positive influence on the transcription of reading materials into alternative format.

5.3 Implications of the Findings

The implications of the findings of this study are grouped into four- transcribers, library service, government and Non-governmental organisations.

Implications to Transcribers

1. The disconnect between copyright exemption knowledge of transcribers and providers of reading materials and the low transcription is attributable to other factors such as skill deficiency and the poor deployment of modern tools and techniques in transcription.
2. Since the basis for transcription of reading materials has been limited to the academic needs of the visual impaired; the clear inference from the aforementioned is that the providers and transcribers of reading materials for the visual impaired have deficiencies in their policy framework which are capable of unduly narrowing down the scope of alternative formats.
3. Obsolete and ineffective equipment for transcription as well as the current direction of collaboration among transcribers and providers will probably perpetuate the prevailing low transcription.
4. The socio-economic characteristics of Nigeria as a developing country appear to have played a significant role in the level of transcription activities discovered in this study.

5. Copyright exemption knowledge and IT application by transcribers and providers of reading materials should play a pivotal role in attaining increased transcription activities and availability of reading materials.

Implications for Government

1. Technology is crucial for transcription activities; therefore, governmental assistance in the area of funding and personnel is most desirable to empower transcribers and providers of reading materials for the visual impaired.
2. Government investment in infrastructure for its critical agencies is low and this has indirectly affected transcription of reading materials for the visual impaired in Nigeria.

Implications for the NGOs

1. Private organisations are the major players in the transcription of reading materials into alternative format. These organisations lack the infrastructure and support to adequately intervene in the sector.
2. The resource base of information service providers for the visually impaired is rather lean and therefore, reading materials may remain inadequate to meet the demands of users if the status quo persists.

Implications to the Libraries

1. The dearth of alternative format would hamper library services to the visually impaired. In the absence of robust reading materials, the visually impaired stand to be excluded as patrons in the Nigerian library system.
2. Nigerian libraries cannot lay claim to best practices as adequate provision for the visually impaired is one of the benchmarks for measuring world class libraries.

5.4 Conclusion

Sustainable and intensified transcription of reading materials into alternative formats are required to guarantee equity in access to educational opportunities for the visually impaired in Nigeria. The study has established that knowledge of copyright exemption among transcribers and providers of alternative formats is high while application of information technology is low. Copyright exemption and application of information technology jointly predicted positive influence on transcription of reading materials in Nigeria. The gap between the actual and predicted situation may be due

to other inhibiting factors such as lack of modern tools and software, absence of requisite skills, inadequate funding and lack of assistive technologies. The deployment of appropriate information technology for transcription represents a non-negotiable option for increasing output.

Information need for academics and curriculum specification were the major criteria for selecting titles to be transcribed for the visually impaired. This does not allow for comprehensive coverage of titles in transcription. Consequently the reading materials for personal development, entertainment, leisure and general life skills of the visually impaired may appear to be almost non-existent.

5.5 Recommendations

1. Knowledge of copyright exemption should translate into increased transcription activities. Therefore, there is the need for enlightenment programmes and initiatives by the stakeholders such that institutions with inadequate copyright exemption knowledge are so equipped.
2. All the institutions involved in transcription of reading materials into alternative format must overhaul their mechanism for transcription such that information technology will be adopted and applied fully for the transcription of reading materials.
3. There is the need for institutions to adopt comprehensive criteria for the transcription of reading materials into alternative format. Such criteria must not only emphasise users reading needs for academic and leisure purposes, they should be based on empirical evidence.
4. Institutions as a matter of concern, should fashion out ways to source funds to acquire modern equipment for transcription.
5. Collaboration among the institutions need to be re-appraised and made stronger. They must particularly focus on how to generate funds and the establishment of dynamic co-operative service delivery system.
6. The institutions should invest in the training of transcribers who will be conversant with relevant information technology tools, equipment and software for improved transcription activities. They should also lobby government for assistance in order to ameliorate the problems militating against transcription of reading materials into alternative format. Stakeholders should improve upon their knowledge of copyright exemption and other

relevant issues through workshops, seminars and periodic formal training for personnel in order to be able to increase and sustain an adequate level of transcription activities in the institutions.

7. Multi-National Corporations should be sensitised to extend their corporate social responsibility (CSR) activities to helping procure modern transcription equipment and software.
8. Publishers should be mandated by law to make available alternative format versions of their books to the National Library as legal deposit.

5.6 Contributions of the Study to knowledge

The study contributes to knowledge in the following ways:

i. It confirms that copyright exemption and application of information technology positively influence transcription of reading material for the visually impaired in Nigeria.
ii. It confirms that transcription of reading materials for the visually impaired in adequate quantity and quality is achievable with a good knowledge of copyright exemption and application of information technology.
iii. It establishes that transcription into alternative format is critical to the education of the visually in Nigeria.
iv. The study enriches the body of the literature in library science and special education considering its eclectic and interdisciplinary outlook.
v. It developed a conceptual model that explains the nexus of copyright exemption, information technology and transcription of reading materials into alternative formats in Nigeria.
vi. The study provides a comprehensive profile of institutions catering for the visually impaired in Nigeria which was hitherto not documented. This would be an invaluable asset for future research.

5.7 Suggestions for Further Research

The following are suggestions for further studies:

i. It would be desirable for the research to be extended to publishers' interest in transcription of reading materials for the visually impaired.

ii. Studies should be conducted to determine the level of expertise of transcribers as a factor influencing transcription of reading material for the visually impaired in Nigeria.

iii. It would be necessary to ascertain through research, the preferred format of accessing information by the visually impaired in Nigeria.

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APPENDIX 1

COPYRIGHT EXEMPTION AND INFORMATION TECHNOLOGY APPLICATION AS FACTORS INFLUENCING TRANSCRIPTION OF READING MATERIALS INTO ALTERNATIVE FORMAT FOR THE VISUALLY IMPAIRED IN NIGERIA

QUESTIONNAIRE FOR TRANSCRIBERS AND PROVIDERS OF READING MATERIALS FOR THE VISUALLY IMPAIRED

Dear Respondent,

This questionnaire is aimed at gathering information on the influence of Copyright Exemption and Information Technology Application on transcription of reading materials for the Visually Impaired in Nigeria. Kindly respond to the items as honestly as possible. Your responses will be treated with utmost confidentiality. The data is purely for academic purposes.

Thank you.

Yours sincerely,

Nkiko, Christopher

SECTION A

1. Name of Institution ……
2. Year of Establishment ……
3. Nature of services (a) transcription (b) school for the Visually Impaired (c) library services to the Visually Impaired.
4. Location of Institution (Town/State) ……..
5. Ownership of the organization: (a) private (b) Government (c) Mission
6. Source(s) of funding
   (a) Foreign donors ( )
   (b) Internally generated ( )
   (c) Subsidy/subvention from government ( )
   (d) Donation from spirited individuals/corporate bodies ( )
   (e) Others (please specify)
   ……..

7. What services do you provide to the Visually Impaired People?
   (a) Online access ( )
   (b) Training in Braille ( )
   (c) Training in use of other alternative format and assistive technologies ( )
   (d) Training in use of computers ( )
   (e) Loan of standard consumer equipment such as CD players and cassette players (please specify)

(f) Loan of specialized equipment for Visually Impaired Persons such as Braille readers. ( )

8. Do Visually Impaired people pay for any of the services?
Yes ( ) No ( )

SECTION B: KNOWLEDGE OF COPYRIGHT EXEMPTION

9. Kindly indicate true or false to the following statements about Copyright Exemption as it relates to the Visually Impaired in Nigeria.

S/No	Knowledge of Copyright Exemption	True	False
i	Copyright Exemption allows alternative format of reading materials to be created and shared without the permission of publishers or right holders		
ii	Copyright Exemption ensures availability of alternative format for the visually impaired persons		
iii	Copyright is not infringed when alternative format of reading materials are produced on a non-commercial basis for the visually impaired persons		
iv	Copyright Exemption is enshrined in the United Nations Universal Declaration on Human Rights and the United Nations Standard Rules on the Equalization of Opportunity for Disabled people.		
v	Copyright Exemption for the visually impaired persons in Nigeria covers Braille, large prints, talking books and electronic resources		
vi	Technological devices deployed to protect copyrighted materials negate copyright exemption for the visually impaired		
vii	Only not more than 30% of copyrighted materials can be reproduced under fair use clause		
viii	Copyright Exemption enhances speedy transcription as the usual delay in contacting authors/publishers is totally eliminated.		
ix	It connotes a legal backing to produce alternative versions for the visually without permission from the copyright holder		
x	Copyright Exemption supports the freedom of the visually impaired to circumvent protection devices to reproduce digital copyrighted materials into alternative format		
xi	Copyright Exemption guarantees reproduction and distribution copyrighted materials for purpose of teaching, research, criticism by the visually impaired or their teachers under the fair use clause		

10. Are you aware that there exists technological protection mechanisms that preclude visually impaired persons and other users from accessing internet resources thereby undermining the principle of Copyright Exemption?
(a) Yes ( ) (b) No ( )

11. If yes, how do you cope with accessing such works for transcription into alternative format?

(a) Application for Licence ( )
(b) Payment of Subscription ( )
(c) Explicit permission through customized password ( )
(d) Explicit permission through IP address to circumvent restriction. ( )
(e) Others (please specify) ……

12. Do you observe copyright regulations in the transcription of reading materials for the Visually Impaired in Nigeria (a) yes ( ) (b) no ( )

13. If no, why?
(a) Visually impaired reading materials are exempted from copyright in Nigeria. ( )
(b) The items are covered under 'fair use' clause which permits transcription of few copies for private use only. ( )
(c) Copyright is not enforceable in Nigeria ( )
(d) The transcriptions are done for charity and not for commercial reasons ( )
(e) We are not aware of the copyright exemption provisions ( )
(g) Others (please specify)

14. Please tick the following formats according to the degree of restriction imposed on its transcription by copyright in Nigeria. Using the scale below:

HR - Highly restricted - 5
R - Restricted - 4
NHR - Not highly restricted -3
NR - Not restricted - 2
UD - Undecided - 1

Format	HR 5	R 4	NHR 3	NR 2	UD 1
Braille materials					
Talking Books/tape recorded					
Large prints					
Electronic resources					

SECTION C: INFORMATION TECHNOLOGY APPLICATION FOR TRANSCRIPTION OF READING MATERIALS

15. Kindly indicate the extent of these ICT facilities application in the transcription of reading materials to alternative formats in your institution. Please use the rating scale below:

MRA - Most readily applied - 5
RA - Readily applied - 4
A - Applied - 3
NRA - Not readily applied - 2
NA - Not applied - 1

IT Facilities	MRA 5	RA 4	A 3	NRA 2	NA 1
• Perkins Braille machine					
• Kurwzeil reading machine					
• Computers with Brailling software (Duxbury)					
• Stylus					
• Scanners					
• Talking calculators					
• Handheld magnifiers					
• Optical Character Recognition System					
• Dolphin Pen					
• Tape Recorders					
• Embossers					
• Jaws Computer					
• Data Technology					
• Braille 2000					
• Synthetic Speech Software					
• Electronic Braille System					
• Converters					
• Closed Circuit Television (CCTV)					

16. How satisfied are you with existing ICT facilities for transcription of reading materials into alternative format in Nigeria?

Very satisfactory ☐

Satisfactory ☐

Not very satisfactory ☐

Not satisfactory ☐

Undecided ☐

17. Are there some ICT facilities that you would like to have available for use in transcription of alternative format that are presently not available in Nigeria?

If yes, what are these facilities?

……
……

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……

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……

SECTION D: TRANSCRIPTION OF READING MATERIALS INTO ALTERNATIVE FORMAT.

18. The statements below are reflections of issues involved in the transcription of reading materials into alternative format. Kindly indicate your response using the appropriate rating scale hereunder.

SA – Strongly agree A – Agree D – Disagree
SD – Strongly Disagree

Transcription of reading materials	**SA**	**A**	**D**	**SD**
The Braille system is a method that is widely used by the Visually Impaired to read and write				
Each Braille character or cell is made up of six dot positions arranged in a rectangle containing two columns of three dots each				
There are universally accepted standards of transcription				
Modern Braille transcription uses contractions to increase reading speed.				
Many Braille characters have different meanings based on their code context.				
Transcription is skilled work and transcribers need to pass certification tests				
To reduce space and increase reading speed, virtually all Braille books are transcribed in what is known as Grade 2 Braille				
Grade 2 Braille embodies a complex system of customs, styles and practices				
Some portions of the transcription rules are not fully codified and rely on the judgment of the transcriber				
Younger people prefer electronic texts on computers using assistive technologies				
Transcription of maps and charts requires special raised line drawing techniques				
There are general rules for brailing science notation				
Nigerian visually impaired depend more on the materials transcribed in the United Kingdom and United States of America				
There is a yawning gap to fill in the area of training of Braille transcribers				
The incorporation of information technology into transcription of reading materials for the visually impaired is bound to				

increase the volume of such resources available to them.				
The Braille printing process is done through Perkins Braille typewriters or manually using stencils.				
Duxbury and Winbraille software which are used for automatic transcription from text to Braille are too expensive for developing countries				
Braille printers (also called Braillers) have to be more powerful than the normal dot matrix printers to create embossments on the thick Braille papers.				
Braille keyboard is an electronic version of the Braille typewriter, with which the visually impaired are somewhat familiar				
Without specific training, an unskilled paraprofessional will not be able to produce appropriate tactile diagrams that must supplement the text.				
A highly trained and certified Braille transcriber is required for transcription or else the result will be product with errors and inappropriate formatting				
There is critical shortage of transcribers with the special expertise and certification to produce mathematics and high-level science books				
Some textbooks can take up to a year to produce in Braille				

SECTION E: CRITERIA FOR SELECTING READING MATERIALS FOR TRANSCRIPTION

19. Which of the following criteria are usually considered in the transcription of reading materials into alternative format?

(a) Meeting the general information needs of the visually impaired ( )
(b) To meet spiritual needs of the users ( )
(c) Format preference of users (Braille/large prints) ( )
(d) Affordability and cost of the alternative format edition ( )
(e) The need to meet the curriculum requirement of Visually Impaired Students ( )
(f) Whether the material is already available in alternative format for purchase ( )
(g) Whether the material is already available in alternative format for Loan ( )
(h) Others (please specify)
……

20. Which of these would you consider to be responsible for determining transcription of reading materials for the Visually Impaired Students?
Please **tick** as many as are applicable.

(a) The class teacher in consultation with the production centres. ( )
(b) Individual student's choice and personal arrangement. ( )

(c) Library Board and other information providers' prerogative ( )
(d) Legislation that all printed materials be transcribed into alternative format ( )
(e) Production Centres visit schools to compile list of recommended textbooks ( )
(f) Production Centres use their discretion to transcribe titles they feel would be relevant to the students ( )
(g) The Ministry of Education prescribes materials to be transcribed ( )

SECTION F: AREAS OF FORMAL COLLABORATION

21. Kindly indicate the areas of formal collaboration that exist among producers, service providers and distributors of reading materials in alternative format to the Visually Impaired in Nigeria. Please **tick** as many as are applicable.

(a) An umbrella body that provides membership and a discussion forum for all ( )
(b) An arrangement where master copies could be borrowed for reproduction. ( )
(c) An understanding where certain centres are recognized as specializing in the transcription of definite materials. ( )
(d) Centralized production centres and recognized distribution networks ( )
(e) A common capacity building platform for all engaging in the services towards visual impaired persons. ( )
(f) Regular workshops/seminars involving the different segments ( )
(g) Cooperation in attracting funding and other donations ( )
(h) Acting as a pressure group to influence government policies ( )
(i) Others (please specify)
……

SECTION G: PROBLEMS ASSOCIATED WITH TRANSCRIPTION INTO ALTERNATIVE FORMAT

22. Which of the following constitute problems to the transcription of reading materials to alternative format in Nigeria. Tick as many as possible.

(a) There is acute shortage of trained transcribers with requisite expertise. ( )
(b) Pirated books which are often available may not be clear enough for scanning. ( )
(c) Lack of up to-date software/equipment .( )
(d) Cost of production is still very high because of the materials and process Involved. ( )
(e) Funding is greatly dependent on free donors. ( )
(f) Irregular supply of electricity. ( )
(g) Negative attitude of the society towards the Visually Impaired ( )
(h) Others (Specify)
……..

23. Comment: Express freely your opinion about this topic.

……

……

……

……

APPENDIX 2

INTERVIEW SCHEDULE

Introduction

What is your impression about the availability of reading materials for the visually impaired in Nigeria? Would you say they are enough or not enough?

Transcription of Reading Materials

1. Which formats do your clients ask for transcription more often? (Probe for Braille, Talking Books, Large prints, Electronic Resources)? Why do they ask for his format?
2. What criteria do you consider in selecting reading materials for transcription into alternative format for the visually impaired?
3. What type of equipment do you use in transcription of reading materials into alternative format for the visually impaired? Why do you use this equipment?
4. There is a belief that the equipment used for transcription in Nigeria are obsolete, what's your reaction?
5. Which equipment for transcription of reading materials would be useful to you but which are not currently available in your organization? Why are you not currently using them? How do you think you can source them?
6. How do you rate the quality of Braille transcription in Nigeria? Why do you rate it this way?
7. Generally, what are the problems associated with the transcription of reading materials into alternative format in Nigeria?
8. How do you think the problem can be addressed?

Awareness of ICT Application in the Transcription of Reading Materials

9. Which ICT facilities that can be used for transcription of reading materials into alternative format do you know of?
10. Which IT facilities that can be used for transcription of reading materials to alternative format are available in your organization?
11. Has your organization been deploying ICT in the transcription of reading materials into alternative format? If yes, how long has ICT been used in the transcription of reading materials into alternative format? If no, why have you not applied ICT in the transcription of reading materials? Probe for hindering factors.

12. In what ways (If any) have ICT Application impacted on transcription of reading materials to alternative format in Nigeria?
13. Do you have access to Jaws Computer?
14. Do you have formal training in the use of computer for transcription?
15. Have you ever experienced any technological blockage to copyright works on the internet in the course of transcription to alternative format?
16. What are your reactions specifically?

Knowledge & Usage of Copyright Exemption

17. What do you know about Copyright Exemption in the transcription of reading materials to alternative formats for the visually impaired in Nigeria?
18. Which different forms of Copyright Exemption do you know of?
19. Have you ever sought permission for author/publishers in order to get your reading materials transcribed? How easy or difficult was this?
20. What would you consider as the benefits of Copyright Exemption?
21. In what ways (if any) have Copyright Exemption enhanced you transcription of reading materials to alternative formats?

Relationship with Transcribers & Providers (Schools & Libraries) of Alternative Format in Nigeria

22. Are there any formal collaboration among the transcribers and providers of alternative format for the visually impaired in Nigeria?
23. If yes, what are the areas of formal collaboration?
24. Has the collaboration been beneficial or nor beneficial? A lot or less beneficial? Why do you say so?
25. How can this collaboration be strengthened or improved upon?

Others

26. Apart from ICT &Copyright exemption, what other factors do you think will enhance transcription of reading materials for visually impaired in Nigeria?