

Interactive Electronic Books as an Educational Tool for Children

A PROJECT REPORT

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A THESIS SUBMITTED TO THE
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ABSTRACT

Electronic Publication is an area of publishing yet to be tapped into by the Ghanaian publishing industry. One of the growing and very vibrant areas of electronic publishing is scholarly publication. In all areas of human activity including teaching, the amount of information increases rapidly. The use of new computer technologies will allow education automation. So called “interactive books” are the modern information technologies ensuring the process of education.

Interactive books are one of many Electronic Publishing materials that can be used to enhance the learning process. However, the publishing industry of Ghana since its inception in the early 1900s has seen very little in these innovations.

The research examined the various types of electronic publications and the best ways of producing and making them effective in educating children. This work also documented the importance of producing interactive books and identified the factors that contribute to unsatisfactory finish of some electronic publications.

The researcher used qualitative instruments like observations, interviews and check-lists to acquire data and evaluate result of findings made during the research period.

The researcher completes the project by implementing a prototype and makes very vital recommendations like how imperative the incorporation of eBooks are to the education sector.

The research therefore recommends that the Publishing Department should embrace new and innovative methods in the introduction and development of eBooks into the Ghanaian Publishing Industry.

DECLARATION

I hereby declare that this submission is my own work towards the MA Publishing Studies and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of Kwame Nkrumah University except where due acknowledgement has been made in the text.

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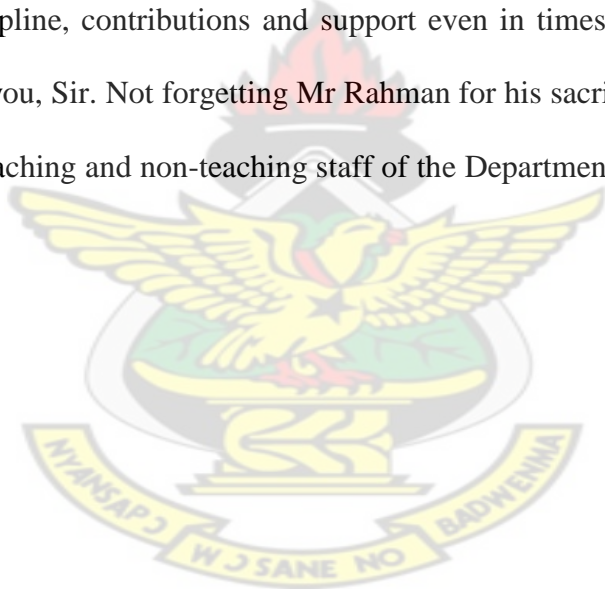
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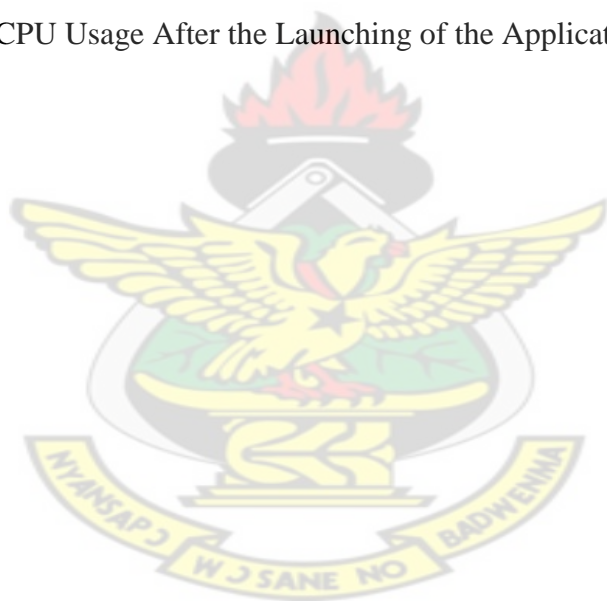


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INTRODUCTION

The Publisher in his work informs, educates, and entertains his audience, forging linking among people as well as people and ideas, places, products and services. Every sector of Ghana's economy requires the services of the publisher. The work of the publisher is indeed manifest in every institution or organization. For example, tourist attractions, cultural and historic events are captured in pictures and literature and published to showcase ones heritage and archived for posterity. The agriculturist uses manuals published for extensive activities. Educational literature, study aids, textbooks among others are the very output of the publishing industry.

1.1 PROBLEM STATEMENT

Many educational institutions all around the world are currently at “a threshold in computer technology,” where publishing and “conversion of books on paper and other media to digital format have been widely recognized as an effective way to access and preserve knowledge”.

“It is often said that digital information is transforming the way we learn, the way we communicate, even the way we think. It is also changing the way that libraries and archives not only work, but, more fundamentally, the very work that they do.” (Abby Smith, Why Digitize? 1999)

However, the publishing industry in Ghana, since its inception in the early 1900s, has seen very little in these innovations.

This research therefore seeks to examine the various types of electronic publications and the best ways of producing and making it effective in educating children.

1.2 OBJECTIVES

1. Identify the factors that contribute to unsatisfactory finish of some electronic publications for children.
2. Produce an interactive book on road safety and examine its impact in the study of the subject.
3. To document the importance of producing interactive eBooks for Ghana.

1.4 SCOPE OF STUDY

This report is limited to interactive books and their uses. Whereas interactive books integrate, most forms of media (sound, graphics and videos); this study will be limited to a larger extent, the development of the interactive book. Songs and games will be co-opted from other related projects. Due to time and logistics constraints.



1.5 RESEARCH METHODOLOGY

Descriptive study under Qualitative Research is going to be employed by the researcher in this project.

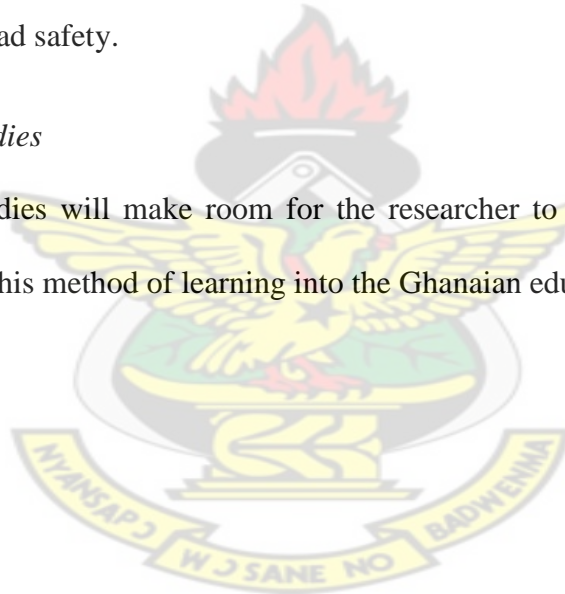
Descriptive study will assist the researcher to examine and chronicle the various fragmented data on e-publishing and help him paint a clear picture of the state of situations currently prevailing in the electronic publishing industry.

Quasi Experimental

This will assist the researcher to effectively evaluate the dependent and independent variables that may arise as a result of the introduction of computer aided learning into the subject of road safety.

Intervention studies

Intervention studies will make room for the researcher to screen the impact of the introduction of this method of learning into the Ghanaian education system.



REVIEW OF RELATED LITERATURE

2.1 OVERVIEW

Esperet (1996) and Narayanan and Hegarty (1998) observed that much of the literature available on interactive books has focused on how to apply technology to create interactive electronic books rather than how to create interactive books based on sound design frameworks or design criteria. *Rouet and Levonen (1996)* stated that research on interactive electronic books has focused on development of applications and content in a “non-theoretical, technology driven way”. *Dillon (1996)* stated that the literature on interactive books is lacking in validated guidelines and frameworks that help developers create usable interactive books.

The purpose of this chapter is to review the existing literature relevant to electronic based publication design, with the aim of deriving general principles and specific applications useful to the other electronic publishers and designers of e-books. The review was specifically carried out to derive generic principles for instruction media designers, as opposed to presenting multiple models based on various learner, content, and outcome variables. It is the researcher’s view that such a focus can serve an important function as a starting point, and as a foundation during this early phase of research and theory applicable to electronic based instruction and training.

Others have also espoused this view. For example, *Bannen & Milhelm (1997)* suggest that “...there is also a significant need to describe these Web-based courses in terms of their over-all instructional design characteristics, rather than defining each course only by the specific content it provides”. However, the researcher certainly recognize

the fact that no one set of design principles will be satisfactory for all conditions (*Smith, Newman, & Parks, 1997*). Further it is important that the reader know that the Desktop Applications Training CDs, Videos, like all instructional and training media, is simply a means for providing effective instruction, not an end in itself (*Reeves & Reeves, 1997*).

2.2 CONTEMPORARY PUBLISHING

2.2.1 OVERVIEW

Traditionally, the selection, preparation, and distribution of printed matter—including books, newspapers, magazines, and pamphlets.

Contemporary publishing includes the production of materials in digital formats such as CD-ROMs, as well as materials created or adapted for electronic distribution. Publishing has evolved from small, ancient, and law- or religion-bound origins into a vast industry that disseminates every kind of information imaginable. In the modern sense of a copying industry supplying a lay readership, publishing began in Hellenistic Greece, in Rome, and in China. After paper reached the West from China in the 11th century, the central innovation in Western publishing was Johannes Gutenberg's invention of movable type. In the 19th and 20th centuries, technological advances, the rise of literacy and leisure, and ever-increasing information needs contributed to an unprecedented expansion of publishing. Contemporary challenges in publishing include attempts at censorship, copyright laws and plagiarism, royalties for authors and commissions for literary agents, competitive marketing techniques, pressures from advertisers affecting editorial independence, acquisition of independent publishing concerns by conglomerates, and the loss of readers to other media such as television and the Internet.

2.2.2 HISTORY OF ELECTRONIC PUBLISHING

The history of electronic publishing (e-publishing) is very short if compared with traditional forms of publishing, but full of important events. The very first e-publication came in the 1980s in the form of plain text e-mails. They were sent to the subscriber via a mailing list.

Of course plain text was a rather poor style of presentation and no figures or pictures were available. Also tables and formulas were rather complicated and very difficult to handle in a proper way. In addition, users (read mainly libraries) were committed to archiving the issues locally, thus multiplying the efforts on all sites.

This distribution path was abandoned as soon as new tools became available in the late 1980s and early 1990s. Later CD-ROMs appeared to be a much more effective medium for e-publishing. Excellent quality, pictures, figures, low-cost support, and long life. This kind of publication was rather successful for a number of years and, for particular publications (encyclopaedias, dictionaries, atlases, handbooks,), is still in use. The CD-ROM has a high reliability allowing the use of many different formats.

However, CD-ROMs soon became unmanageable for libraries when each CD-ROM required the installation of a special client (software to read the CD-ROM) for each publication. Libraries invented various tools (CD-ROM LANs) to multiply the access and to avoid the huge maintenance work involved in installing, maintaining up-to-date, and de-installing the clients.

2.3 ALTERNATIVE MEDIA (E-BOOKS AND AUDIOBOOKS)

2.3.1 E-Books

From the acquisition of the manuscript through the editing and the formation of text to the packaging of the final work; an e-book is distributed and read in the electronic format. Instead of walking into a bookstore, to buy a book in an e-book format, you visit a Web site and purchase and download the digital file. You can then read the book on a computerized device such as a Palm Pilot, Pocket PC, laptop computer, or other device. There are many types of e-books available today (including popular fiction and nonfiction, textbooks, reference books, and most other genres), and they can be stored in a virtual library on your reading device—which can certainly make it easier to carry a lot of books on vacation or to school.

2.3.2 AUDIOBOOKS

As the name implies, audiobooks are books presented in recorded audio format. Generally, audiobooks are recorded onto cassette tapes, CDs, or other digital files such as MP3s. The Audio Publishers Association defines audiobooks as “any audio recording that is primarily spoken word rather than music.” Audiobooks are available in a myriad of categories, from novels to self-help books to language instruction. Some publishing houses have internal audiobook departments whereas other companies publish only audiobooks.

The Audio Publishers Association (APA) released the results of the 2007 APA Sales Survey, conducted to gather data and measure the growth of the audiobook industry. Independent research firm Lewis & Clark Research surveyed audiobook publishers during the summer of 2007, analyzing reported consumer sales data from 2006 and comparing current statistics against the previous year’s findings. This year’s survey

showed a 6 percent increase over 2005 with audiobook sales now estimated at \$923 million.

2.5 ELECTRONIC PUBLISHING

2.5.1 OVERVIEW

Over the past few years it has become increasingly apparent that, in order to provide a comprehensive, modern and efficient service to readers, academic libraries must explore appropriate ways to exploit the growing availability of electronic books and journals.

Before one can delve into specifics about electronic publishing, it is important to note exactly what an eBook is and what purpose an eBook serves. Simply put, the term "electronic book" is self-explanatory: an eBook can be a novel, collection of stories and/or poetry, self-help manual, a treatise, or any document of book length. eBooks may be as short as five thousand words or well over a hundred thousand. Some eBooks may have illustrations and charts embedded within the pages, and others may prove to be more interactive and feature audio and/or video capability.

Some eBooks are registered with Books in Print and made available as downloadable files or on CD-ROMs. Some eBook publishers assign ISBN numbers to their titles, while others may register the works with a Copyright Office.

Reference books have been the most favoured types of book to be made available electronically for the UK market and are a successful and popular product. Academic libraries are generally keen that more textbooks aimed at the UK market are made available to ease difficulties of mass provision.

Publishers, however, are concerned about the possible impact on sales. The discussion about what exactly constitutes an eBook is likely to develop further as providers produce more inventive products while maintaining the traditional online version of the print copy for some titles. The electronic format is here to stay. However, the eBook has some basic factor affecting its pre-production stage through the production stage to the post- production stage. One of these factors which if not the main, is technology. The technical aspect of the design or production of these *sweet* new “toys” is has effects that can be termed advantageous or disadvantageous.

2.5.2 BACKGROUND HISTORY

eBooks find its origins back in 1971. Michael Hart was the creator of this innovation and the founder of the Project Gutenberg of Illinois University, a public library of digital books, which enjoys a collection of more than 2,000 books.

In 1981 the first electronic book with commercial aims was launched on the market: a dictionary by Random House.

In 1998 the first e-Book Fair took place in Gaithersburg, Maryland in the US. At this event, the Norm Open eBook, a series of regulations to standardize the format of electronic publications, was presented. A year later the specification Open eBook Publication Structure was established, which set HTML and XML as the standard platforms for this type of books.

The eBooks boom started when *Riding the Bullet*, a Stephen King’s well-known novel, was launched exclusively on the Internet in 2001. This digital work was a resounding success, with a great amount of copies sold in only 2 days at a very

affordable cost-\$2.50. Later, the president of Russia, Vladimir Putin, had his memories published in the same format.

From this moment on, many electronic publishers and virtual book shops with digital texts catalogues have appeared. Today, the Internet provides not only a great variety of books on sale, but also free ones, which allows great advancement of cultural dissemination.

Because of the advantages that this type of publication provides, eBooks business is expected to continue to grow in the foreseeable future.

2.5.3 HARDWARE BASED READERS

At present, delivery of eBooks through CD-ROM and the Internet is the most popular mode. In 1998 another type of eBook medium was introduced to the public: dedicated readers or hand-held devices and/or slates.

Initially the companies only targeted professionals who require access to lots of reference material. Now, they are targeting a more general mass market such as students, academics and individuals. These machines are produced purposely for reading downloaded electronic contents. They are lightweight devices aimed at duplicating the familiar experience of reading a paper book, yet contain electronic-age features to further enhance convenience and enjoyment.

O'Donnell (1998) stated that all these devices have one common function in that they are dedicated to reading eBooks only, and are not as sophisticated as handheld computers or personal digital assistants (PDAs). This statement no longer holds, however, as since 2000 hybrid devices (Wilson 2001) that contain address books, diary, calculator and PDA-associated functions have also been used to read eBooks.

Additionally, these devices can be used for emailing, Internet surfing, word processing and playing MP3s. An example is the Franklin eBookMan.

Another approach, demonstrated by the EInk project, is a flexible paper-like electronic display on thin sheets of plastic. The basic idea behind electronic paper is that it is a reusable display device, allowing storage of visual content on a 'page' of plastic paper. This technology is in its very early stages, but EInk has expressed the desire to create the technology to allow the development of electronic devices that work like paper books.



Plate 2.1: E-Ink technology based Readers

Nuvomedia, SoftBook Press and EveryBook were the pioneers in terms of introducing reading devices (Manes 1999). They have a number of advantages and disadvantages. Some of the advantages over traditional paper books include:

- they can store tens to hundreds of titles, making them ideal for convenient, portable access to reading material from virtually any location (Thomson Multimedia 2000);

- they incorporate features such as interactive dictionaries, bookmarking, instant searching, note taking and cross referencing;
- the back-lit display and font size can be adjusted to improve readability (Selvidge and Phillips 2000).

Although they have a number of advantages over paper books, reading from these devices are reported to cause more eye strain and glare. Display quality is poor (because of low resolution) compared with paper, and the devices are still too expensive for the average person to buy.





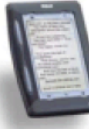





Device	Example Image	e-book Format	Weight	Size	Screen
Sony Reader		BBeB Book / Adobe® PDF / JPEG / MP3	8.8 oz.	6.9" x 4.9" x 0.5"	6" "electronic paper" display SVGA 800x600
Franklin e-bookMan		Mobipocket	6.5 oz.	5.17" x 3.39" x 0.67"	240 x 200 pixel LCD
Gemstar e-book		<u>Gemstar e-book</u>	17 oz.	largish	4.75" x 3" Monochrome Back lit Touch screen
Handheld PC		Palm Reader Mobipocket	1.1 lbs	7.44" x 3.74" x 1.34"	6.5 in color LCD display 640 x 240 px on screen
Handspring Visor		Palm Reader Mobipocket	5.4-6.9 oz.	smallish	about 3"x4", some color, some not
hie-book		hie-book	8.8 oz.	115.4 x 146 x 17 mm	Back lit 480 X 320 px touch screen LCD display
Palm		Palm Reader Mobipocket	4-6 oz.	4.82" x 3.1" x .87"	Advanced LCD with backlight
Pocket PC		Microsoft Reader Mobipocket	6-16 oz.	Depends on device	Reflective or Transflective LCD, 16+ colors

Table 2.1: Some Hardware eBook Readers

2.5.4 ADVANTAGES AND DISADVANTAGES OF HARDWARE READERS

In the age of computers and the internet electronic publications has been made available to mankind. But reading these electronic publications on the computer is not easy. It caused strain on the eyes to read from these computer screens, but with the invention of e-ink it's possible to display user friendly text on the screen. The e-ink made it possible for readers to use electronic text which is very much similar to a printed page. And eBook devices are loaded with this e-ink which will make eBook reading much more comfortable as compared to Software Readers.

With the growing popularity of EBooks, eBook users need a device which will store the eBooks and which will be convenient to use. Again it isn't easy to carry around a laptop eBook reading purposes. There was a definite need of a more portable storage device. To feel up this need, an eBook reader was introduced to make the carrying of the electronic publications easier.

Using portable eBook reader means that you don't have to carry those heavy piles of books with you. But still the user will have access to an immense collection of books on the eBook device all the time. By getting yourself a portable eBook device you can read eBooks wherever and whenever he or she want to. These devices are much more portable and smaller than the laptops and the text format is easy on the eyes.

Having a eBook device also means that you don't have to spend huge amount of money buying those expensive books. eBooks are comparatively lower in price because cost production is less than producing a printed book and you can easily download them on your computers and then transfer it to the eBook device and in many cases you can download it directly on you eBook reader. You don't have worry about losing a page from your books and also preserving those books.

The availability of the device on the market is one of the problems associated with eBook readers. The cost of the eBook reader is also another problems.

Unlike Software based readers, The hardware eBook reader also makes use of batteries, this batteries have a life cycles and a lifespan.

Above all eBooks are also environment friendly. If traditional books can be replaced by eBooks in school, colleges and library then it will help in minimizing the carbon footprints by each individual. Publishing of paper books involves production, transportation, storage and even disposal. But none of those activities are involved in publishing eBooks. So you can play a useful role in saving the environment by buying yourself a eBook reader this holiday season.

2.5.5 SOFTWARE BASED READER

In addition to eBook reading devices, general-purpose software book readers can be used on personal computers or laptops. These function in similar way to dedicated readers but no special hardware is required. Microsoft Reader, Adobe Acrobat Reader and Adobe Acrobat eBook Reader are three examples of such software. One advantage of software-based readers (Lynch 2001) is that in addition to offering the functions of dedicated readers, they offer extra facilities through a keyboard and larger screen size.

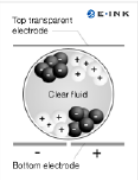










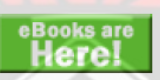







Format	Advantages	Reader Software	Navigation	Images	Platforms
	Reading experience similar to paper - high contrast/ resolution, viewable in direct sunlight, at a nearly 180° angle, requires no power to maintain image.	Sony E-Ink® technology enables access to: BBeB Book / Adobe® PDF / JPEG / MP3	Library, Table of contents, Chapter links, bookmarkable	Yes + MP3 music files	Sony CONNECT™ allows access to books from Windows or Macintosh platforms
	Cross-platform compatibility, printable, single or double page view		Library, Table of contents, Chapter links, bookmarkable	Yes	Windows PC, Macintosh, Palm
	Dedicated reader for e-books, carry titles with you		Library, Table of contents, bookmarks	Yes	Gemstar & Rocket e-book devices
	Dedicated reader for e-books, includes lots of other programs		Library, Table of contents, bookmarks	Yes	hie-book devices
	Easy to use, customizable, can be read on anything with a browser		Hypertext links	No	Windows PC, Macintosh, Linux, Unix, Palm, Pocket PC, e-bookMan
	No special reader software required (Internet Explorer), easy to use		Hypertext links	Yes	Windows PC
	ClearType Display, book-like reading environment, bookmarks and annotations		Library, Table of contents, Chapter links, bookmarkable	Yes	Windows PC, Pocket PC
	Familiar environment, printable, resize text		Hypertext links	Yes	Windows PC, Macintosh
	Can be used on any PDA		Library, Table of contents, Chapter links, bookmarkable	Yes	Palm, Pocket PC, e-bookMan, Windows PC
	Very simple and plain, can be read on just about anything, printable		None	No	Windows, Macintosh, Linux, Unix, Palm, Pocket PC, e-bookMan
	Great e-books for your PDA		Library, Table of contents, Chapter links, bookmarkable	No	Palm OS, Pocket PC, Handheld PC, Windows CE, Windows PC

Table 2.2: Some Software based eBook Readers

2.5.6 ADVANTAGES AND DISADVANTAGES OF SOFTWARE READERS

A distinguishing feature of the interactive book is extensive hyperlinking. The set of links created by an instructor permits a user to rapidly find definitions, concepts, equations, and related information.- Ray E. Desrosiers (Electronic Books as Teaching Supplements) this is a feature that the software based readers are better at doing because they have click functions.

Electronic books may not be suitable replacements for printed texts because the computer screen imposes an ergonomic limitation. Most viewers cannot tolerate discussions requiring more than a screenful or two of text. Thus the computer is not an appropriate place to pursue lengthy, detailed textual explanation of a concept. However, this limitation has the benefit of encouraging brevity and sharpening focus.

The interactive book can serve as an interactive solution manual. Sample problem statements and figures can be cut and pasted into a personal worksheet or report.

2.5.7 STANDARDS FOR ELECTRONIC PUBLICATIONS.

The electronic publication industry has no standards for the way a book should be published. But the vendors of interactive books adhere to the traditional publishing rules. Like the index, page numbering, ISBN, letter spacing and margins.

Because of the apparent ease of creating an Ebook (a person only needs word processing, a simple graphics tool and compiling software like Adobe Acrobat), voluntary Ebook Publishing Standards need to be identified so that consumer accepted EBooks are created all the time. Voluntary participation in Ebook standards should include: ISBN registration, Ebook format & content standards and Ebook marketing standards.

2.5.8 FUTURE OF ELECTRONIC PUBLISHING

The future place of eBooks is certain, but what will an eBook be in five or ten years with the coming developments in e-ink and e-paper and wireless technology. Will eBooks be subject to levels of control and restrictions that go beyond what we expect for print books? (Lynch) Will eBooks, freed from the constraints of the physical format of the printed book, evolve into something new? And what effect will this have on literature, communication of ideas, storytelling. For a glimpse into a possible future, there are eBooks on the Internet that have never appeared in print-some, experimental in form and content, relying on images and interactivity with the reader.

Given the ease of production and distribution, it is likely eBooks may become an important medium in the future. As technology evolves and reading devices become more sophisticated, sales of eBook fiction may increase in the years to come.

Handheld eBook readers have the advantage of being able to store several books at once, and offer backlighting for reading in dark places. Cost prohibition on devices and certain eBooks may be the only factor preventing a boom right now, but in time as prices become competitive that may change.

For authors, eBook publication represents the opportunity to polish writing skills and test readership. For entrepreneurs, interactive eBook publication offers a new avenue to product promotion and increasing sales. Whatever your plans for the interactive eBook are, it can be said that electronic books are here to stay.

2.5.9 CONCLUSION

Interactive books present several advantages for the reader, the author of the e-book and the publisher. This is why the digital publication market continues to grow.

Technology has both positive and negative effects on the Design and production of eBooks. A self-publisher needs to learn a new technology to be able to publish. A low cost publisher will publish any author. A book distributor will distribute a wider array of subject. A library will stock its database with more books. A student can have all his/her textbooks on a single device; all by the help of technology.

2.6 INTERACTIVE ELECTRONIC BOOKS IN EDUCATION

2.6.1 OVERVIEW

According to *Tony Jeffs* and *Mark K. Smith* (2005) Education is for the future - it is about development and growth even when we are studying the past. The aspect of thinking is the focus when learning.

Educating children, specifically children in the lower primary had been successful through the use of hands on materials such as toys. Toys can play an important role in a child's education and development. "Most of the toys geared at children aged nine are based on an educational theory known as **constructivism**," says *R. Keith Sawyer*. He goes on to explain "Constructivism is the idea that children create their own knowledge by actively participating in the learning process."

When computers were first proposed for young children's learning, most educators reacted with great concern. In due time, software was created, research began and the controversy became more thoughtful and balanced.

Key to this development, software must be developmentally appropriated by promoting problem solving, reasoning and thinking rather than skills and drills.

In today's computer world of technology, children must be brought up and trained from pre-school so they can fit very well in the computer age cycle. It must be noted

that there is definitely a role for young children and computers that is why the educational curriculum has been structured to embrace this new technology.

According to readings, children have an easier time manipulating objects on the computer than with the usual classroom manipulative materials which is a plus to the introduction of eBooks in the lower primary schools, but careful consideration must be done when choosing an equipment (computer) and what kind of educational games to install.

To make eBooks appealing to children, aspects of the curriculum has been included which has resulted in the development of educational games, nicknamed “edutainment”.

”Let me start with a contrarian point-of-view: I don’t like edutainment” asserts Resnick (2001); then continues: “The problem is with the way that creators of today’s edutainment products tend to think about learning and education. Too often, they view education as a bitter medicine that needs the sugar-coating of entertainment to become palatable”.

The word, “edutainment” doesn’t even exist, according to the Cambridge Advanced Learners Dictionary. The paragraph above aims to show that the field of educational games is not particularly well defined. It is challenging enough to design a computer game without having to include an educational aspect. Likewise, it can be very difficult to inspire individual learning.

This chapter concentrates on a theoretical model suitable for lower primary aged children, and how the interactive book can be incorporated into such a learning environment.

eBooks can enable daily, weekly, or monthly updates via the Internet, eliminating textbooks that are out-of-date. The adaptation of eBooks by some schools has increased over the past years. How is Ghana fairing in the race of technological upgrade?

2.6.2 ELECTRONIC BOOKS IN EDUCATION IN GHANA

The interactive book as a learning supplement has been in the public domain for quite a while. eToys and More is one of the solution providers in Ghana. Their products include eBooks, consoles and Audio Books. They sell toys and other electronic learning materials to children in primary schools and kindergartens. Their services and products are yet to be adopted by the government and integrated into the country's educational system.

These supplementary learning materials in the form of eBooks are also not based on Ghana Education's syllabus. Neither is it certified by the government nor the Ghana Education Service.

2.6.3 EDUCATION RESOURCES FOR CHILDREN

For nearly forty years, the keyboard and mouse have been the primary means to interact with computers. The Nintendo Wii in 2006 and the Apple iPhone in 2007 signaled the beginning of widespread consumer interest in — and acceptance of — interfaces based on natural human gestures. Now, new devices are appearing on the market that take advantage of motions that are easy and intuitive to make, allowing us an unprecedented level of control over the devices around us. Cameras and sensors pick up the movements of our bodies without the need of remotes or handheld tracking tools. The full realization of the potential of gesture-based computing is still

several years away, especially for education; but we are moving ever closer to a time when our gestures will speak for us, even to our machines.

One of the common recourse available on the Ghanaian market is Ping Pong; an electronic TV / gesture base Table Tennis Game that is played by holding an electronic tennis bat while standing in front of the television set swinging the bat in the direction of the tennis ball on screen. The speed of the swing also has effect on the speed of the set helping a lot of children in exercising whiles

2.6.4 THE MONTESSORI METHOD

There are several teaching and learning methods currently being put into practice in school environments. Montessori is one such method. A child learning by means of the Montessori is taught at his or her own pace, using environmental influences while the teacher assumes a supportive role in the whole process.

Dr Maria Montessori (1870-1952) was the first woman to become a physician in Italy. The most basic principle in Montessori's theory of education is that the learning capacity of a young child is fundamentally different from that of an adult, (Gettman, 1987). It is extremely important to the Montessori Method that a child can learn at its own pace. Gettman (1987) asserts that

“The adult in the Montessori environment can serve the child in three ways: as the main caretaker and guardian of the work space, its furnishings, and the materials; as a facilitator of the child's interaction with the materials; and as an observer of the child's work and development. You can be all three of these things at once, but never a teacher in the traditional sense, since in the Montessori environment the child learns through active discovery, rather than through passive reception”.

Could an eBooks be used to act as a “facilitator” and/or an observer? This question remains unanswered, Armstrong (1999) argues against the use of computers in the Montessori environment as they go against some of the most basic of Montessori’s principles. In contrast to Armstrong’s viewpoint the Modern School of Montessori (date unknown) asserts that “*a computer is a tremendous help to both teachers and pupils*” but does not mention the use of eBooks in any context.

While Maria Montessori “would no more have suggested that five year olds use a computer than drive a car on the motorway”(Gettman, 1987). “The traditional model of a computer, comprising a keyboard, mouse, and peripherals, has been firmly established in the Montessori environment” (Armstrong, 1999). While the use of an educational game would perhaps be classed as play, play constitutes a major part of a pupil’s life and is a valuable aspect of the child’s cognitive, social, and emotional growth, (Singer et al, 1978). “The most basic principle in Montessori’s theory of education is that the learning capacity of a young child is fundamentally different to that of an adult. To realize this, we need only think of one learning task attempted by both adults and young children: learning to speak a new language” (Gettman, 1987). Children are capable of learning certain things a lot more quicker than adults, this applies to computing also, though Haugland (2000), suggests that computers should not be used by children under the age of three, which implies that an application aimed at nine year olds (such as the eBooks and other interactive media), would be acceptable.

A child being taught through the Montessori Method is also allowed to explore topics such as art and music, the road safety education can also be introduced through this.

2.7 INSTRUCTIONAL DESIGN

Design is essentially a rational, logical, sequential process intended to solve problems or, as J.C. Jones put it: “initiate change in man-made things” (1970) “*Design Methods and Technology*”

2.7.1 WHAT IS INSTRUCTIONAL DESIGN?

Instructional Design is the systematic development of instructional specifications using learning and instructional theory to ensure the quality of instruction. It is the entire process of analysis of learning needs and goals and the development of a delivery system to meet those needs. It includes development of instructional materials and activities; and tryout and evaluation of all instruction and learner activities.

Carl Berger describes instructional system in his article *Educational Software Design and Authoring* as “an arrangement of resources and procedures to promote learning”. Instructional design is the systematic process of developing instructional systems and instructional development is the process of implementing the system or plan.

2.7.2 HISTORY OF INSTRUCTIONAL DESIGN

As a formal discipline, Instructional Systems Design has been a long time in the making. The early contributions of thinkers such as Aristotle, Socrates and Plato regarding the cognitive basis of learning and memory was later expanded by the 13th century philosopher St. Thomas Aquinas who discussed the perception of teachings in terms of free will.

In 1962 Robert Glaser synthesized the work of previous researchers and introduced the concept of "instructional design", submitting a model which links learner analysis to the design and development of instruction.

A variety of models for instructional system design proliferated the late 1970's and early 80's: Gagné and Briggs, Branson, Dick and Carey, and Atkins, to name a few. One possible reason for this phenomenon deals with the establishment of formal education and training departments within both public and private organizations. Faced with the computerized technologies of the times, these organizations require a means by which to quickly develop appropriate methods by which to educate internal employees in the new business practices ushered into existence by the Information Age.

In the 1990's a dual focus on technology and performance improvement has developed. For example, in his 1988 essay "Why the Schools Can't Improve: The Upper Limit Hypothesis" Robert Branson offers an argument for systemic school reform, suggesting that schools are operating at near peak efficiency and must be redesigned from the top down using technological interventions. Later in that year Branson was contracted by the Florida Department of Education (DOE) to analyze its various programs and plan a system-wide technology-based educational reform initiative for Florida called Schoolyear 2000. Over the next several years Branson's team developed and piloted multiple computerized instructional technologies, as well as models of the interaction between the internal operations of the school system and the experiences and knowledge of students, parents, and teachers.

The advent of new media, such as the Internet and hypermedia, has brought about not only technological innovations, but also coupled these with new ways of approaching

learning and instruction. As opposed to the behaviorist perspective that emphasizes learning objectives, the constructivist approach holds that learners construct their understanding of reality from interpretations of their experiences. Theorists such as Thomas Duffy and Seymour Papert suggest that constructivism provides a model whereby socio-cultural and cognitive issues regarding the design of learning environments can be supported by computer tools. This philosophy has been applied to such computerized technologies as online help systems and programming language LOGO.

2.7.3 EDUCATIONAL TECHNOLOGY

Educational Technology can easily be confused as electronic gadgetry. Essentially, *“it is a rational, problem-solving approach to education. A way of thinking skeptically and systematically about learning and teaching.”* –Rowntree 1982

2.7.4 INSTRUCTIONAL TECHNOLOGY

In education, instructional technology is "the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning," according to the Association for Educational Communications and Technology (AECT) Definitions and Terminology Committee. Instructional technology is often referred to as a part of educational technology but the use of these terms has changed over the years. While instructional technology covers the processes and systems of learning and instruction, educational technology includes other systems used in the process of developing human capability.

2.8 ROAD SAFETY

2.8.1 OVERVIEW

"Road Safety is no accident. It happens through the deliberate efforts of many individuals and many sectors of society. Everyone has a role to play, especially health care providers, automobile associations, educators, victims of road traffic crashes and the media among other sectors of our national life" - Hon. Mike Allen Hammah (Minister of Transport)

2.8.2 WHAT IS ROAD SAFETY

Road traffic safety means to safely drive on road to ensure that there is no harm or the driver of vehicle do not cause any harm to any other vehicle moving nearby it. In other words we can say that road traffic safety means to reduce accident causes on road for proper driving.

Road safety campaigns aim at reducing the harm (deaths, injuries, and property damage) resulting from motor vehicle collisions. Harm from road traffic crashes is greater than that from all other transportation modes (air, sea, space, off-terrain, etc.) combined.

2.8.3 STATISTICS OF ROAD ACCIDENTS WORLDWIDE

A report published by the World Health Organization in 2004 estimated that some 1.2 million people were killed and 50 million injured on roads around the world each year and was the leading cause of death among children 10 – 19 years of age. The report also noted that the problem was most severe in developing countries and that simple prevention measures could halve the number of deaths. For reasons of clear data collection, only harm involving a road vehicle is included.

Over 90% of the world's fatalities on the roads occur in low-income and middle-income countries, which have only 48% of the world's vehicles. -The Global status report on road safety (WHO).

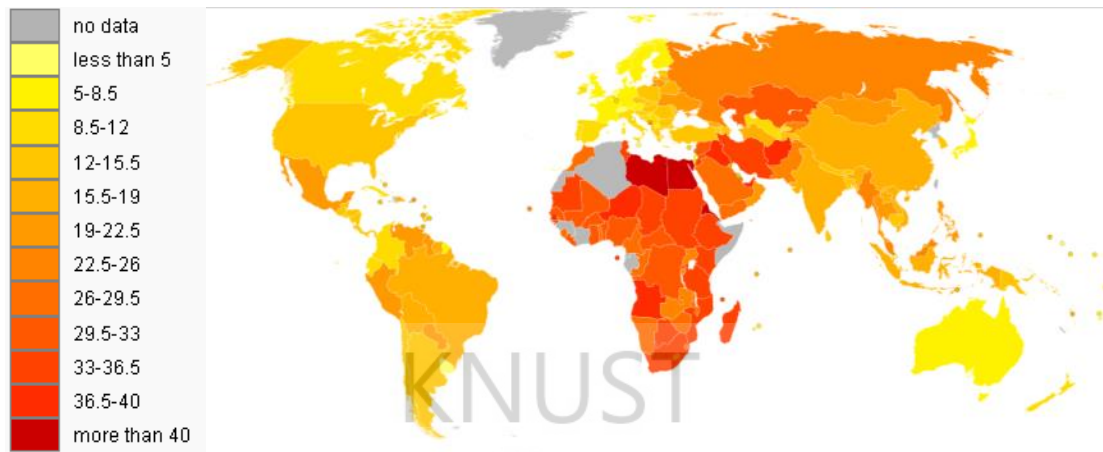


Figure 2.1: Road Fatalities

2.8.4 GHANA'S ACCIDENT STATISTICS

Ghana is a developing country where a majority of its population falls within the low income bracket. The country has a population of 23,478,394 people and a Gross national income of \$590 per capita.

The country has an Institutional Framework called National Road Safety Commission. This institution is responsible for road safety. Funded in national budget, the Framework have national road safety strategies with measurable targets that is Funded by the government.

The National Road Safety Commission works hand in hand with the police service in the compilation accident data. Below is a report by National Road Safety Commission, based on police reports. *Death*, according to these reports is defined as died within 30 days of the crash.

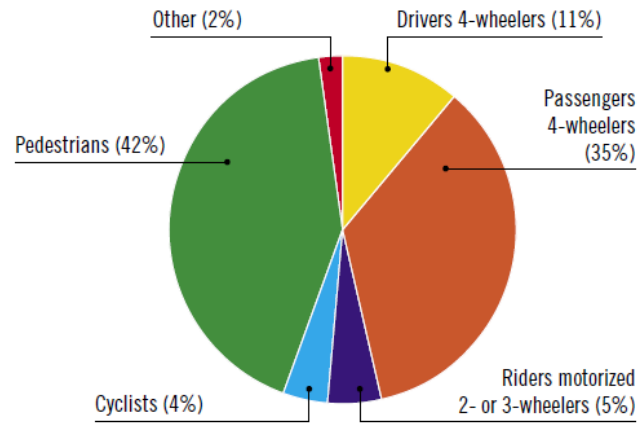


Figure 2.2: recorded deaths by road users

Illustrated in the table below is the enforcement level of various road safety rules in the country. The table is based on research by the World Health Organization (WHO).

NATIONAL LEGISLATION	
Speed limits set nationally	Yes
Local authorities can set lower limits	No
Maximum limit urban roads	50 km/h
Enforcement ^a	0 1 2 3 4 5 6 7 8 9 10
Drink-driving law	Yes
BAC limit – general population	0.08 g/dl
BAC limit – young or novice drivers	0.0 g/dl
Random breath testing and/or police checkpoints	Yes
Road traffic deaths involving alcohol	—
Enforcement ^a	0 1 2 3 4 5 6 7 8 9 10
Motorcycle helmet law	Yes
Applies to all riders	Yes
Helmet standards mandated	Yes
Helmet wearing rate	—
Enforcement ^a	0 1 2 3 4 5 6 7 8 9 10
Seat-belt law	Yes
Applies to all occupants	Yes
Seat-belt wearing rate	—
Enforcement ^a	0 1 2 3 4 5 6 7 8 9 10
Child restraints law	Yes
Enforcement ^a	0 1 2 3 4 5 6 7 8 9 10

^a Enforcement score represents consensus based on professional opinion of respondents, on a scale of 0 to 10 where 0 is not effective and 10 is highly effective.

Figure 2.3: E-Ink technology based Readers

Year	All Accidents	All Casualties	Fatalities	Estimated Population (X106)	Registered Vehicles	Fatalities per 10,000 Vehicles	Fatalities per 100,000 Population	Fatalities per 100 Casualties	Fatalities per 100 Accidents
1991	8,370	9,693	920	14.8	132,051	69.7	6.2	9.5	11.0
1992	6,922	10,030	914	15.2	137,966	66.2	6.0	9.1	13.2
1993	6,467	8,578	901	15.6	157,782	57.1	5.8	10.5	13.9
1994	6,584	8,188	824	16.1	193,198	42.7	5.1	10.1	12.5
1995	8,313	10,132	1,026	16.5	234,962	43.7	6.2	10.1	12.3
1996	8,488	10,952	1,049	16.9	297,475	35.3	6.2	9.6	12.4
1997	9,918	11,448	1,015	17.4	340,913	29.8	5.8	8.9	10.2
1998	10,990	13,201	1,419	17.9	393,255	36.1	7.9	10.7	12.9
1999	8,762	11,438	1,237	18.3	458,182	27.0	6.7	10.8	14.1
2000	11,714	14,664	1,578	18.8	511,063	30.9	8.4	10.8	13.5
2001	11,291	14,833	1,660	19.3	567,780	29.2	8.6	11.2	14.7
2002	10,718	15,075	1,665	19.8	613,153	27.2	8.4	11.0	15.5
2003	10,644	16,247	1,718	20.5	643,824	26.7	8.4	10.6	16.1
2004	12,164	18,436	2,185	21.1	703,372	31.1	10.4	11.9	18.0
2005	11,328	15,838	1,784	21.7	767,067	23.3	8.2	11.3	15.7
2006	11,668	16,348	1,856	22.3	841,314	22.1	8.3	11.4	15.9

Table 2.3: Changes in Ghana's Traffic Fatalities

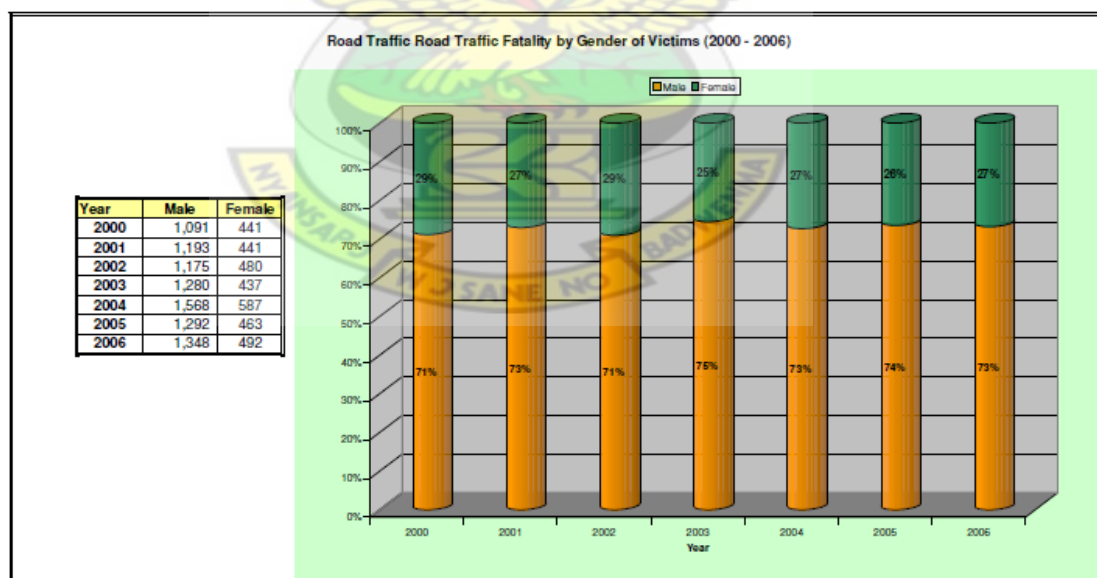


Table 2.4: Traffic Fatalities by Gender

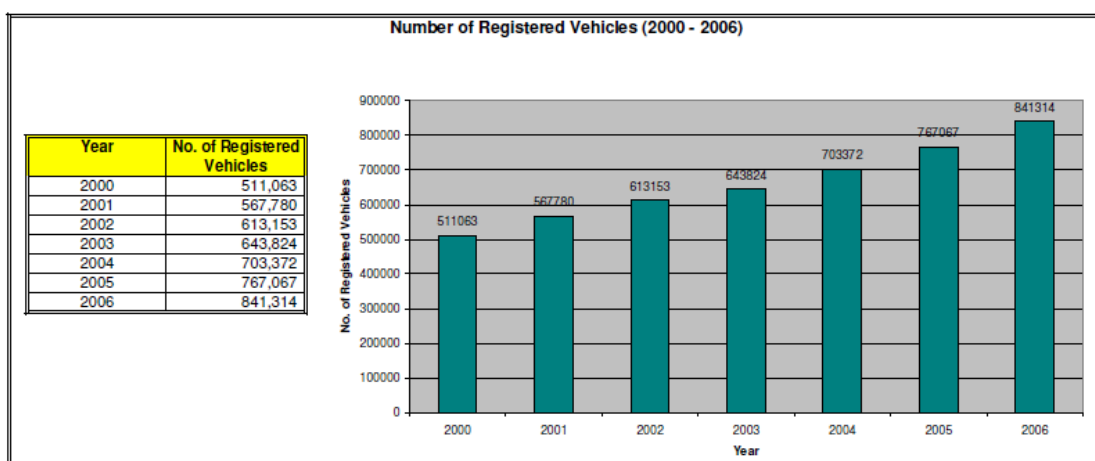


Table 2.5: Number of Registered Vehicles – 200- 2006

the national legislation's law sets the Maximum speed limit on urban roads to 50Km/h. this laws cannot be changed by Local authorities. The road safety laws also cover drunk-driving. The agency has set the limit of blood alcohol level to 0.08 g/dl in the general population. But does **not have any** limit set for young or novice drivers. Whiles the country has Seat-belt law, Motorcycle helmet law and Child restraints laws, it does not have any data on the number of deaths or injuries related to these laws.

2.9 SOME RELATED WORKS ON EBOOKS

2.9.1 GHOST FOREST - ENEV DESIGN

One of the most successful interactive electronic books for children on the market is Ghost Forest. It is based on a story written by Zlatko Enev.



Plate 2.2: A scene from Ghost forest

GRAPHICS

The graphics is hand painted and targeted at children. This appeal to children was achieved by the use of variety of colours. These colours are bright and vivid.

INTERACTIVITY

The story is being told as the player or the reader makes the moves by selecting from a series of actions.

SOUND

The eBook is narrated as the reader reads along. The sound effects are help the child to relate more to the story being told. A door opening action is accompanied with the squeaking sound of a door.

2.9.2 ENCARTA KIDS – MICROSOFT CORPORATION

Encarta Kids helps young students with homework and encourages them to learn in a fun and engaging way. Encarta Kids offers articles, multimedia, and interactive games specifically for ages 7 and up.



Plate 2.3: A Screen shot of MS Encarta for Kids

FEATURES

PARENTAL CONTROLS

Parental controls helps include only family-friendly content in search results from the dictionary. The list of words excluded from the dictionary search cannot be customized. The Parental controls are for the dictionary only. Enabling the controls will not limit any other content areas. If the user activates parental controls, words are omitted from the dictionary and search results from the dictionary, but may appear in articles.

SOUND

The buttons and the windows have sound effects that add life to the interactive book.

NAVIGATION

The navigation buttons are animated; this helps sustain the interest of a child. The user can also navigate to a specific topic by using the search feature available from within the eBook.

The navigation is simple, for easy understanding to the child. It also has a history, enabling the user to go back to the previous page or article.

VIDEOS

The eBook has embedded videos that help illustrate the articles to the user. The videos are compressed to a small size to facilitate fast streaming.

2.9.3 IXL – IXL WEB TEAM

A great place for a child to be to learn some basic subjects like English and Mathematics. IXL is a web based electronic publication. This is a complete classroom with teachings, assignments and home works.

The site is a service provided in exchange for money. Registered members can use it as extra-classes after school hours.



Plate 2.4: A Screen shot of the IXL Website

FEATURES

PARENTS

Parents can view reports of their children. This helps monitor the use and effect of the site on the child user.

NAVIGATION

The navigation is not simple to use. A beginner user may need assistance for the first time.

VIDEOS

The site has just a few animations that stream as macromedia shockwave files.

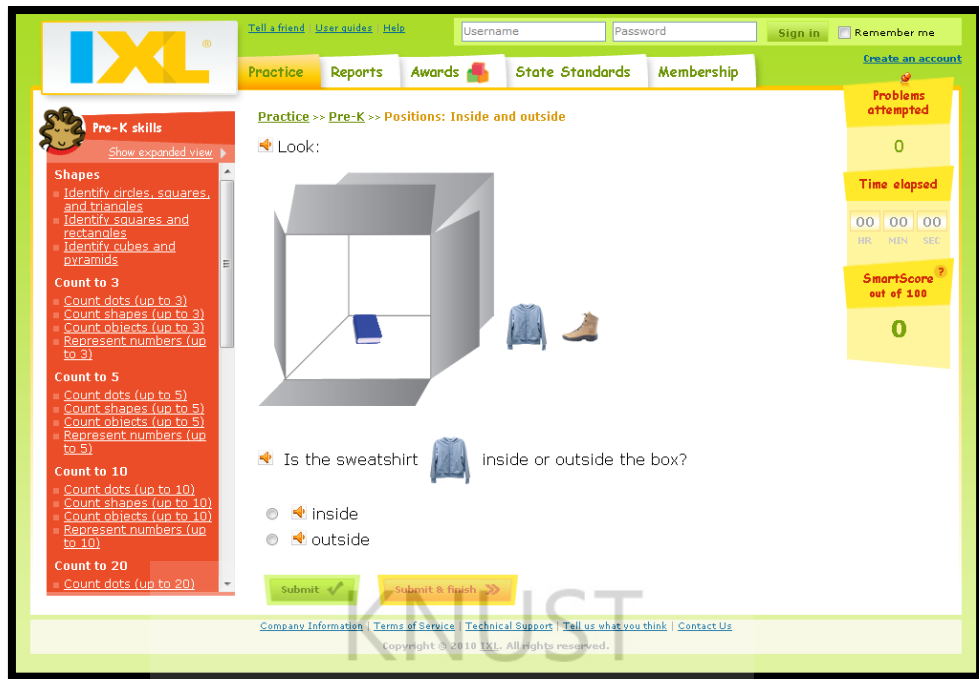


Plate 2.5: A Screen shot of the IXL Website



RESEARCH METHODOLOGY

3.1 OVERVIEW

This chapter outlines the various research instruments and methods that were used to collect data for the study. *Research Methodology* is described in this chapter in terms of design, concepts, theories, methods, population, instruments and procedures used for data collection as well as complete execution of the software prototype.

The *Research Design* chosen enabled the researcher to achieve the purpose and objectives of the study.

The purpose of the study was to first of all examine current trend in electronic publication, and to identify the factors that contribute to unsatisfactory finish of some electronic publications.

The researcher's research findings were finally used to develop a prototype application that demonstrates how interactive books can be made fun in educating children.

The data collection methods for the fulfilment of these objectives were also classified under field and studio methods.

The field method comprised the following:

- i. Research design
- ii. library search
- iii. Sampling
- iv. Concepts, principles and processes in design.
- v. Data collecting instruments and techniques
- vi. Validation of instruments

vii. Data discussions.

Whiles the studio method comprises the design and development of the interactive electronic book prototype (Little Road Users)

3.2 RESEARCH DESIGN

The research design for this study was quasi-experimental with a hybrid approach. The design was designated quasi-experimental because of the inability for random assignment to treatment and comparison groups. The independent variable in this project was the integration of the software prototype (Little Road Users). The dependent variables were the end users and the department of Publishing Studies, KNUST.

Additionally the field methods for the research embodies study of interactive Books technologies, interactive media, visual resources, instruction media and Publishing Under-graduate, Post-graduate students and lectures of Kwame Nkrumah University of Science and Technology, Kumasi. The research considered data that has to do with general publishing, design and development of interactive books.

3.3 SELECTION OF A METHODOLOGY

In order to successfully develop an educational interactive Book, an appropriate design methodology must be chosen. Design is defined in the Collins English dictionary as a process that is used *“to work out the structure or form of (something) as by making a sketch or plan”* (in Dimitrova, 2003).

It is important to understand the role of children in the design process as the end user, and also how other users (parents and teachers) could aid in the design of the interactive Book.

3.4 POPULATION AND SAMPLING METHOD

The subjects for this study were the lectures of the department of publishing studies, KNUST and undergraduate / post-graduate students from the faculty of fine art who are parents. Children from the Sunyani Garrison primary school were also sampled.

Purposive sampling was also employed by the researcher in the execution of this study because the researcher has a fair knowledge about the department and also selected student who use interactive Books.

3.5 SAMPLING DESIGN

Owing to the heterogeneity of the accessible population, it was rational that each place of study was treated as a stratum. Three strata were generated by this study. The first stratum consisted of members of institutions of learning, such as lecturers and teachers. The second category or stratum included parents. The third stratum comprised students. Since there were many strata to deal with, the Stratified Random Sampling method was used for the study.

3.6 DESCRIPTIVE STUDY

Descriptive study was used by the researcher to examine the electronic publishing technology systems, and usage of interactive Books by the sample group.

3.7 RESEARCH TOOLS

3.7.1 QUESTIONNAIRE

At prior notice, the researcher travelled to each place of study and administered questionnaires. The questionnaire format combined both close and open forms. This is advantageous in many ways. According to Best (1981), depending on the type of information, the researcher wants, both questionnaire types could be combined. He

went on to describe their merits as follows: according to his submission, the close form type of questionnaire is easy to fill out, takes little time, keeps the respondent on the subject, is relatively objective and is fairly easy to tabulate and analyse. The open form type of questionnaire in his view calls for a free response in the respondent's own words and this perhaps makes room for in depth response. He however, admits that both types have their own demerits, some of which he enumerated as close form questionnaire are restricted and gives way for prejudiced answers while the open form questionnaire because of its nature provides little returns. Best was quick to state that most questionnaires include both open and closed forms, notwithstanding their demerits. He explains further that it is therefore incumbent on the questionnaire builder to decide on which type is more likely to supply the information he or she wants.

The table below shows the number of questionnaire which were collected per stratum:

Respondents	Number of Questionnaires administered	Number of Questionnaires returned
Stratum 1	30	28
Stratum 2	50	48
Stratum 3	50	50
Total	130	126

Table 3.1: Questionnaire distributions per stratum

Out of the 130 questionnaire copies administered to the sample population, 126 were retrieved and this represents 96.92% of the total number of questionnaires

administered. The data collected were then assembled, synthesized, critically evaluated and translated conclusions drawn from them.

3.7.2 OBSERVATION

For a study like this, the observational approach was indispensable. Best (1981) explains that certain types of information can best be obtained through direct observation. The researcher therefore adopted the participant observant method which enabled him to undertake on-the-spot observation of the use of some selected interactive Books by the end users of related works. Information gathered from the employment of this tool was critically analysed and interpreted using the experimental and descriptive research methods.

3.7.3 INTERVIEW

Interview which is more or less an oral questionnaire was employed by the researcher to extract pertinent information from children who could neither read nor write. It was observed by the researcher that about 90% of the sample population could understand the narrations in the samples interactive Books.

The use of interview also afforded the researcher the opportunity to seek the clarification of the same information in several ways, at various stages of the interview, thus providing a check of the truthfulness of responses. While interviewing, the researcher also made use of an mp3 recorder to record relevant information which could easily be forgotten.

3.8 SOURCES OF DATA

3.8.1 PRIMARY SOURCES OF DATA:

A primary source is a document, speech, or other sort of evidence written, created or otherwise produced during the time under study. Primary sources offer an inside view of a particular event. Examples include: Original Documents, Autobiographies, diaries, e-mail, interviews, letters, minutes, news film footage, official records, photographs, raw research data, speeches. Relics or Artifacts (blum, 2010). in this wise the researcher made use of the interviews from the.

3.8.2 SECONDARY SOURCES OF DATA:

Secondary sources provide interpretation and analysis of primary sources. Secondary sources are one step removed from the original event or "horse's mouth." Examples of Secondary Sources include Wikipedia; an online encyclopedia, textbooks (blum, 2010). In outlining the concepts, theories and processes in design the researcher referred to some text books as secondary sources of information.

3.8.2.1 LIBRARY RESEARCH

To make room for comparison and scholarly presentation of ideas, the researcher conducted library research to collect secondary data for the study.

The following facilities were visited for relevant literature: Main library, KNUST, Kumasi; College of Art library, KNUST, Kumasi; and the internet.

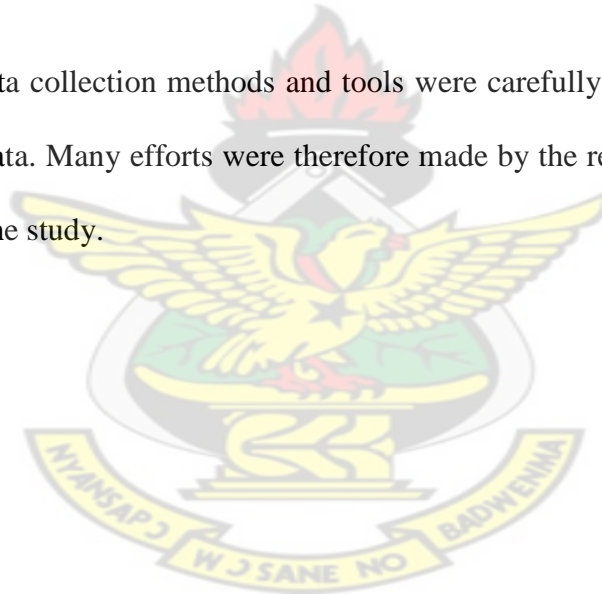
At these facilities, data were collected from the internet, books, journals, magazines, periodicals, encyclopaedias, newsletters, brochures, unpublished theses and catalogues.

The various data collected were evaluated and used as substantive literature for the research.

3.9 SUMMARY OF DISCUSSION

It is evident in this chapter that the research was approached in a practical manner. The field works carried out show and demonstrate the level of in depth research carried out throughout the study. The library research also points to the fact that all will not be well with a study such as this if it does not include what others have done in the related field of study. A scholarly approach was therefore used to enable the researcher to compare and contrast his findings with old information already existing in literature. It also made it possible for the researcher to compare and contrast his findings from books, magazines and other sources of literature with the field research carried out so that he can adequately criticize any wrong points raised in the work.

The various data collection methods and tools were carefully manipulated to acquire and interpret data. Many efforts were therefore made by the researcher to collate data necessary for the study.



METHODOLOGY

4.1 OVERVIEW

This chapter lays out how the interactive Book Prototype was built. The researcher shows how the interactive Book was designed and how the programming aspect was carried out. The development of the prototype happens to be the first objective of this project, as repeatedly stated in earlier chapters. Here in this chapter, the researcher explains in details how the interactive Book was designed, built and packaged onto a CD.

The chapter deals with topics like programming aspect of the Prototype, the graphic user interface (work flow), design aspect of user interface, testing and evaluation. The researcher has a first degree in Graphic Design, which came handy in the execution of the design aspect. He also has a programming background as a hobbyist developer.

Esperet (1996) and Narayanan and Hegarty (1998) observed that much of the literature has focused on how to apply technology to create interactive books rather than how to create interactive books based on sound design frameworks or design criteria. Rouet and Levonen (1996) stated that research on electronic books has focused on development of applications and content in a “non-theoretical, technology driven way”. Dillon (1996) stated that the literature on interactive books is lacking in validated guidelines and frameworks that help developers create usable interactive books. Mangiaracina and Maioli (1995) and Crestani and Melucci (1997) acknowledged that there is a lack of extensive evaluation criteria. This research topic will investigate whether the inclusion of book metaphors as proposed in Catenazzi’s and Sommaruga’s Hyper-Book and Landoni’s and Gibb’s Visual-Book guidelines provides improved design and user satisfaction.

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4.2 PLANNING AND IDEA DEVELOPMENT

In the planning of the interactive Book, the researcher took into consideration the factors that influence the development of the product. These factors were discussed in the earlier chapters of the project.

4.2.1 TARGET

Target in this context referred to the stakeholders and *Preece* defines stakeholders as “*people or organizations who will be affected by the system and who have a direct or indirect influence on the system requirements*”.

There were three main stakeholder groups that contributed to the user requirements capture for the interactive book. These were children, their teachers and the people who buy the interactive Books for the children. From the interviews and data collected, the researcher found that; the first stratum, which consisted of members of institutions of learning, such as lecturers and teachers. Will readily recommend interactive Books as a supplementary reading or teaching material. The second category or stratum which included parents, will buy an interactive Book if it is recommended by a teacher or Ghana Education Service. Most parent still buy imported interactive books based on the packaging and art. The third stratum comprised students or the children. 32 out of 50 children questioned remember only the name of the character associated with the interactive Book they have ever used.

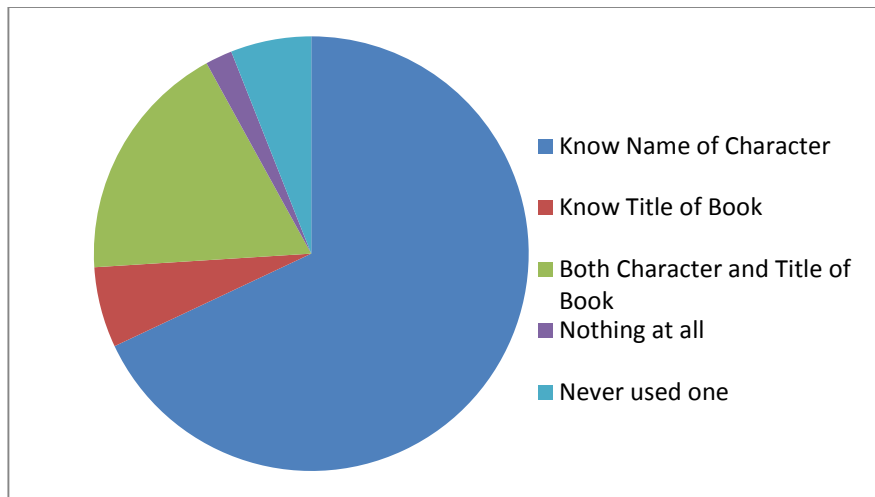


Figure 5.1 interactive Book details remembrance rate in Children

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4.2.2 THE MARKET

While as many as “...678 new children’s software titles were released in the year 2000 alone” (Siraj-Blatchford et al, 2003). A school may purchase only one or two new pieces of software a year, a library; may get not less than 30 new titles for eBooks in a year for their shelves. Therefore the researcher assumed that there is a vibrant market for interactive eBooks.

4.3 LIST OF TARGET REQUIREMENTS

The two main types of user requirement employed for used in the software engineering are: **functional requirements**; which stated what the system should do and **non-functional requirements**; which stated what constraints there were on the system and its development.

4.3.1 USABILITY REQUIREMENTS

The interactive book should be easy to use, following the same principles of user interaction as the other books on the market. To achieve this, the researcher made use of a consistent colour scheme.

The interactive book should be entertaining to children at the lower primary school age. This was hopefully achieved through the use of narrative and appropriate sound effects.

4.3.2 USER REQUIREMENTS

- The interactive book must be suitable for a novice computer user.
- The interactive book must operate using a limited range of input.
- The interactive book must include clear instructions in a form understandable by children.

The key requirements for the interactive book focused on the message and the user interaction. It is essential that the children do not only understand how to navigate but also enjoyed learning road safety. It is important that the interactive book is *“a place that asks children to enjoy what they learn..”* and that *“...by simply using a computer mouse to point and click on a particular picture, word, or button, stories as well as information will come alive on [the] computer screen”*, (Hussain et al 2003). The other critical factor in the interactive book is the element of story as *“to keep the audience's interest, one must let them participate and get involved”* (Sobral et al, 2003).

4.4 DESIGN TOOLS

4.4.1 TOOLS AND MATERIALS USED

- Paper, pen and pencil: These were used for making initial sketches and drafts.

4.4.2 SOFTWARE

The software tools used for the developing on the prototype were;

- Adobe Photoshop
- Adobe Illustrator
- Adobe Captivate
- Microsoft Visual Basic
- Adobe Flash

4.5 SOFTWARE ARCHITECTURE

Publishing of the interactive book Prototype required the expert advice of professional programmers and graphic designers with knowledge in Graphic User Interface Design. The Graphic User Interface diagram was drawn and tested. Workflow herein used means architecture of the software application. The programme was structured in a way that aids easy access to the information. The flow in execution is illustrated below:

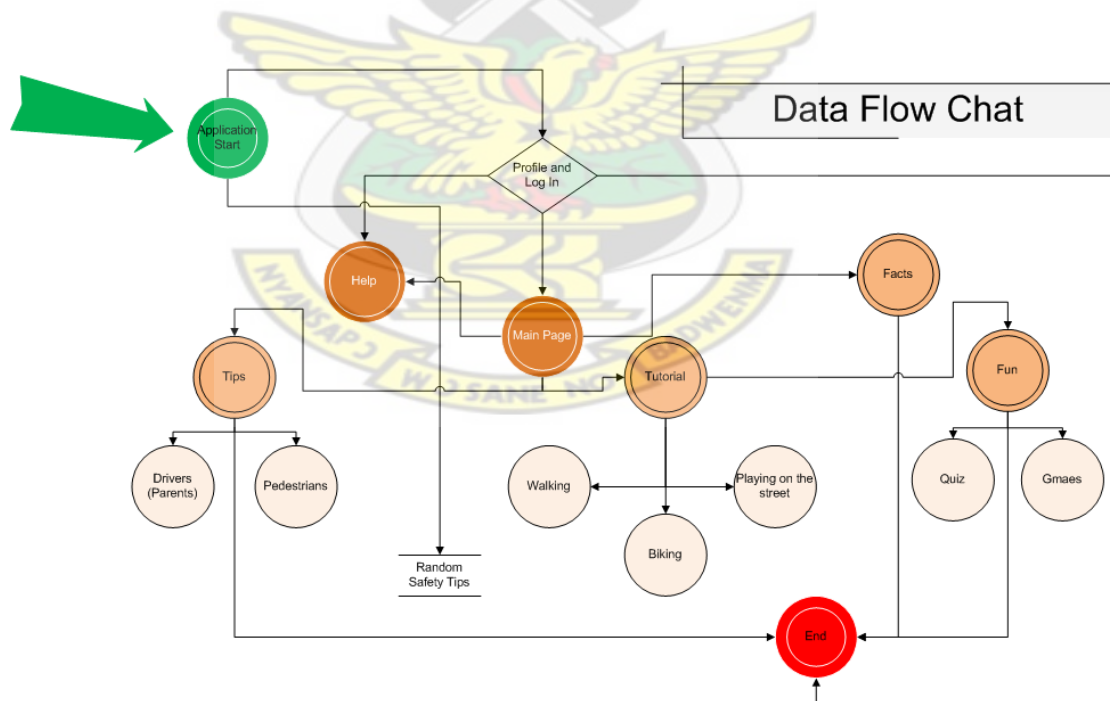


Figure 5.2 Activity diagram representing flow through interactive book

The programme was designed to start executing by loading all the library files it needs to run. The splash screen is displayed as it loads these files. The splash screen was designed with Adobe Flash. It has a moving bus against a green background. A progress bar at the bottom of the splash screen form, displays the total work progress of loading sequence. The words ‘Street Heroes’ on its top-left section.

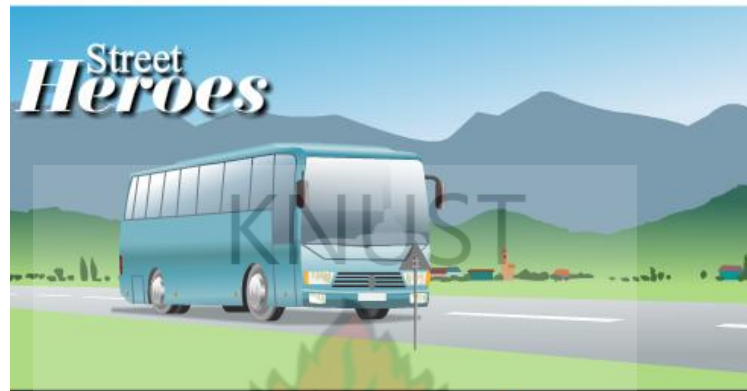


Plate 5.1: The Splash Screen

After the loading of the libraries and the dependency files, a Log In is displayed. This foam asks for the users name which is stored in Memory temporally, it is cleared when the application is exited.

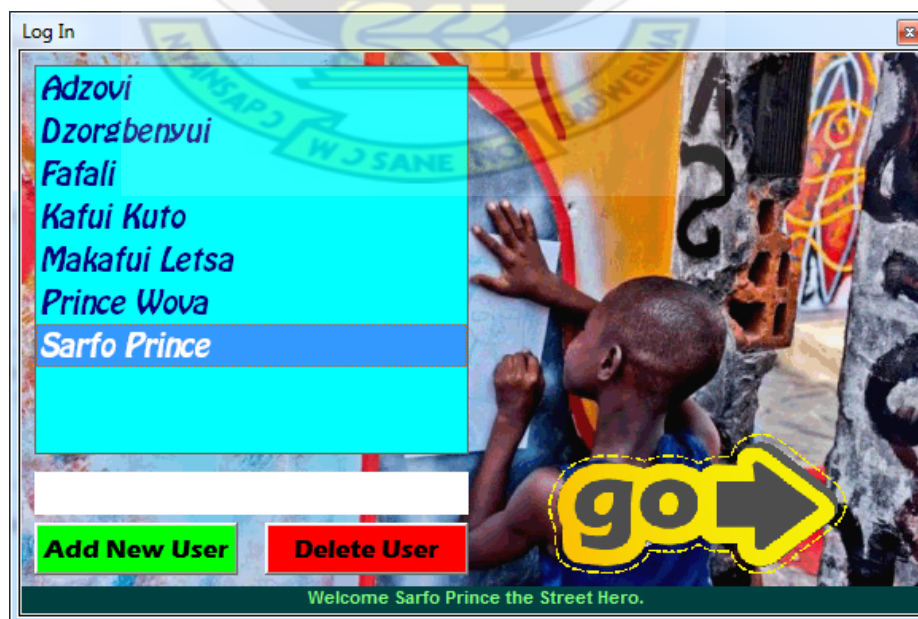


Plate 5.2: The Log In Dialog Box

From the Log In screen, the interactive book displays the welcome page. The user of the application software then has the opportunity to select the topic he wants to read.

Research conducted by Henke (1998) has shown that users are dissatisfied with interactive books and the applications used to view them. One reason for user dissatisfaction may be the lack of familiar book metaphors embedded into the interactive books. In Henke's study, users preferred using table of contents and indexes (both of which were hypertext linked) to find information as opposed to using a search tool.

Based on the above research, the researcher presents the user with a menu in the form of a table of content.

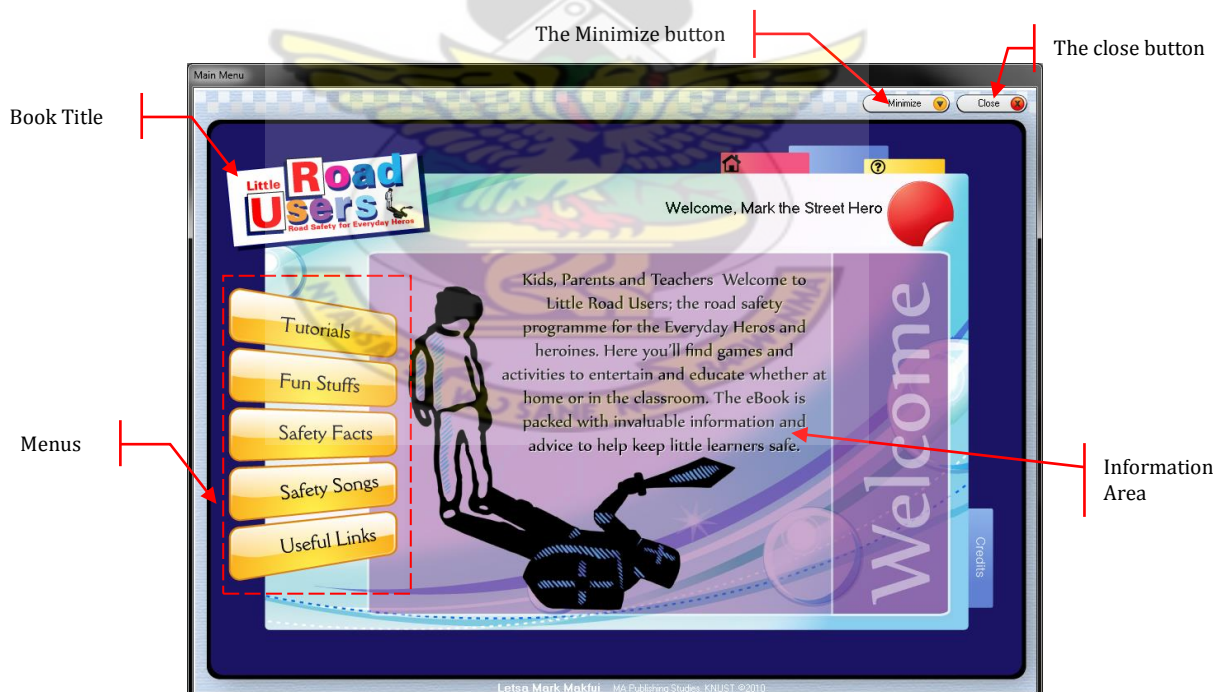


Plate 5.3: The Welcome Screen

The user is presented with information on the various sections as he moves the mouse pointer over the buttons. On selecting a category, the interface updates to display the contents of that category. The button for that category is highlighted to show the

chapter the user is on. There is little change in the interface when a category is selected. This is to mark the interface easy to learn. All the various categories have a menu from which the user selects a specific topic. Apart from the safety facts menu that links directly to its content.

There are some buttons in the interactive book that change according to the page on which the user is on. One of these Dynamic Buttons is located at the top of all the content pages in the interactive book.



Plate 5.4: A dynamic Button

The button helps the user navigate his way back to the main category menu.



Plate 5.5: The Main Menu Screen of a category

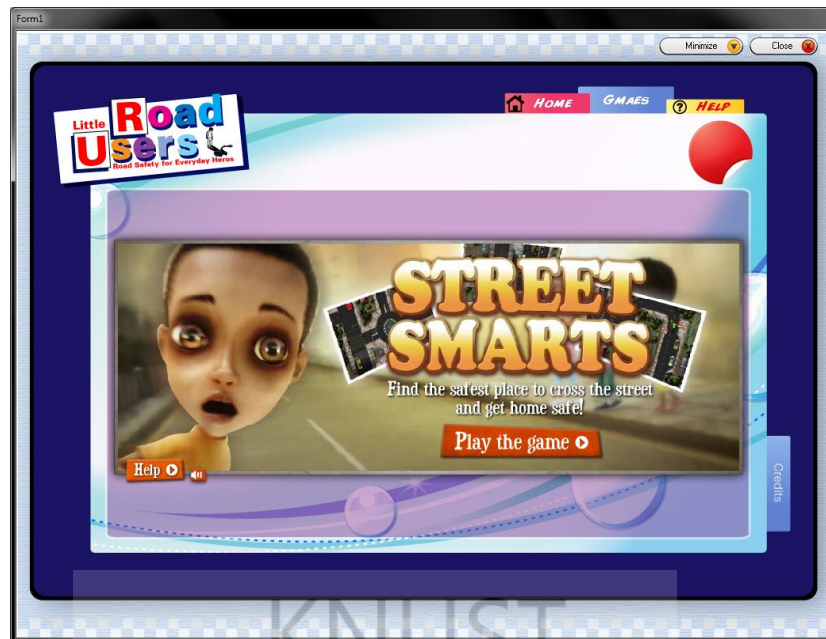



Plate 5.6: The content page of a category

Dialogue boxes were used to get input from the user. One of such dialogue boxes is the exit dialogue box.



Plate 5.7: The Exit dialogue Box

The user can exit the programme by clicking the Exit Button [, this ends or terminates the programme when the command is confirmed. Exiting the application releases all the system resources that were in use by the software application. The user can exit the application from any part of the book. This enables programme termination at any time.

A standard window has a title bar, a menu bar, a programme icon, a status bar, a close button and a minimize button. The researcher adopted the basic features of a standard

window, both in Apple Macintosh® and IBM based Microsoft Windows® with modifications that would suit the interactive book. This adoption was made so that the interactive book might seem familiar and easier to use by the average computer user.

4.5.1 THE STUDIO METHODS:

The studio research method of the methodology had to do with the design, development and implementation of the interactive interactive book. The steps and approaches that the researcher took were broken down into the following:

1. The user Interface Design
2. Application Source Code Development

4.6 DEVELOPING THE SOFTWARE

Developing the prototype of the interactive book involves the design of the user interface and the architecture of the application with its coding.

4.6.1 GRAPHICS

The graphics employed in the development of the prototype, is a combination of standard 2D graphics and animations for the interface. The colours are bright, considering the target group and the colours that are appealing to them.

4.6.2 DESIGNING THE INTERFACE AND CHARACTERS

Siraj-Blatchford defines criteria for analyzing a “learning tool”. The criterion takes into account the following:

- User-friendliness
- Age-appropriateness
- Appropriate content

- Clear Learning goals
- Reward success
- Graphics (also includes sounds etc.)

Based on these criteria, the developer evaluated the related interactive books that were reviewed in Chapter Two, and started the design process by making thumbnail sketches.

4.6.2.1 SKETCHES

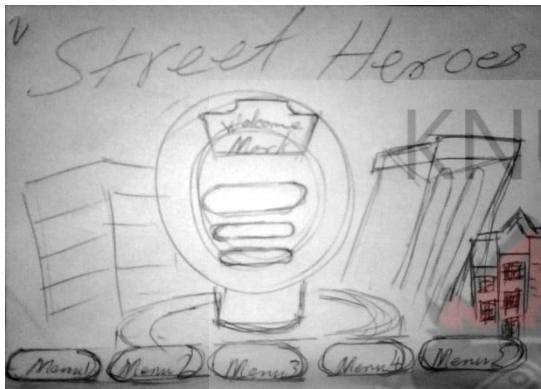


Plate 5.8: Thumbnail sketch 1

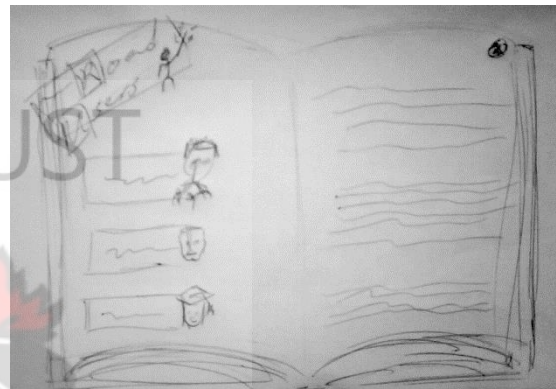


Plate 5.9: Thumbnail sketch 2



Plate 5.10: Thumbnail sketch 3

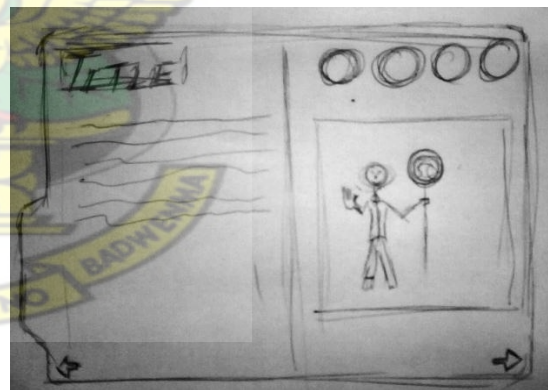


Plate 5.11: Thumbnail sketch 4

4.6.2.2 ROUGHS

Here, the researcher made definite decisions on the layout. A book-like layout was chosen for the design as it makes it more book related. The buttons were designed to look like book markers, this gives both computer feel and traditional book look.

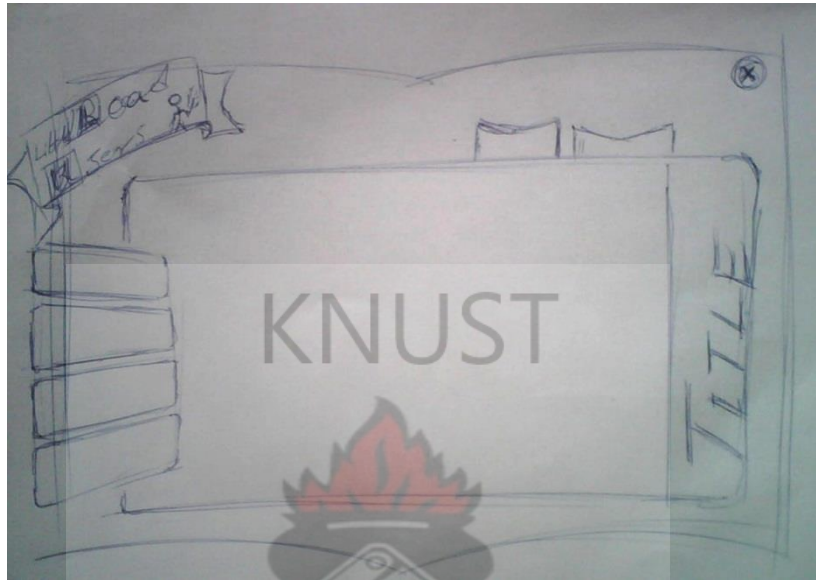


Plate 5.12: Rough

The rough was based on the thumbnail sketches that were done earlier. It is a combination of plate 5.9 and plate 5.11

4.6.2.3 COMPREHENSIVES

Comprehensives are the next step after the roughs are done. This is the design put to test. The designer started work on the computer at this stage. The design was done in Adobe Illustrator CS4. This application was selected as it is vector based. Vectors are resolution independent and this feature comes as an advantage in user interface design as the graphics can be resized without losing quality.

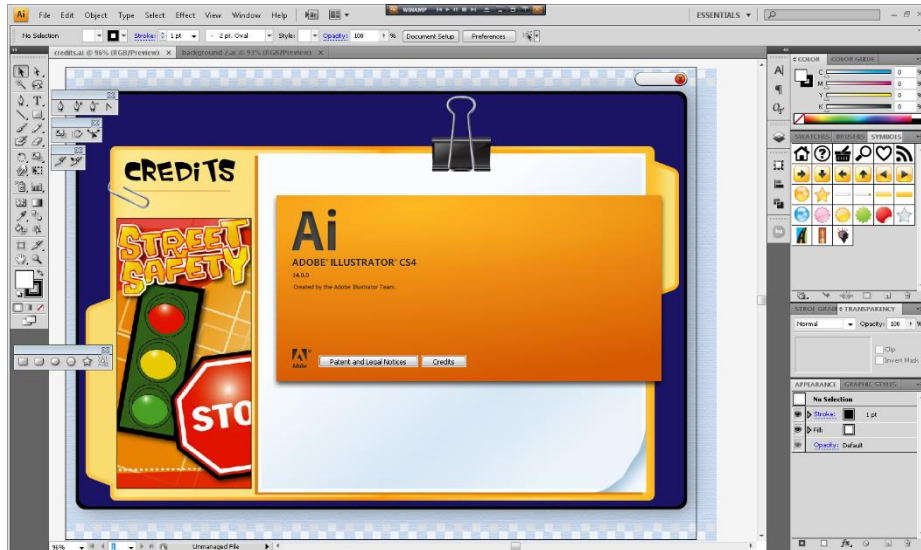


Plate 5.13: the Adobe Illustrator CS4 interface

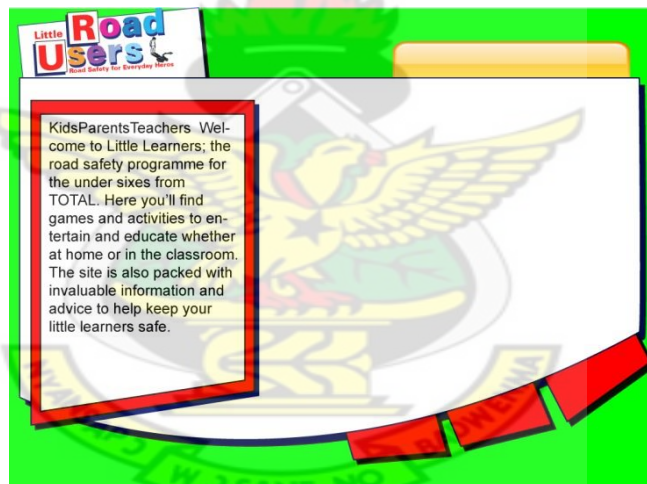


Plate 5.14: Comprehensive 1

After the first Comprehensive design, the interface was put to test. It was realized that the, Navigation system was too complex for the target users (Children). The researcher then introduced the dynamic button at the top-right corner of the form. Still keeping the bookmark style and a menu item that helps the user navigate to the Home page anytime during use. The help is also always available to the user.

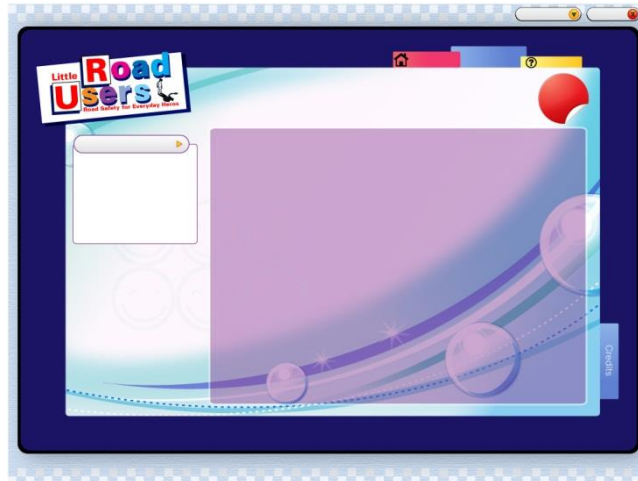


Plate 5.15: Comprehensive 2

It was also noted by the researcher that, clicking of the buttons may be difficult to the users as they may be new to the use of computers. The menu was then made bigger to accommodate the skill level.



Plate 5.16: Comprehensive 3

4.6.2.4 FINAL DESIGNS

The final design of the welcome screen is having the text “Little Road Users – Road Safety for Everyday Heroes” as the title at the top-left corner of the form. The

minimize and close buttons are positioned at the top-right corner to conform to the traditional window feature. The main menus are on the left side of the form.

The same layout was maintained throughout the pages.

4.6.3 SOUND

Two kinds of sounds will be used in the interactive book; these are sound effects that occur when certain events take place, and background music, that plays continuously.

4.7 DEVELOPING THE FRONT END, MIDDLE AND BACK END

This stage in the design of the interactive book is purely technical. This is one of the factors that affects the design of interactive books. As the development of some interactive books is done by computer programmers who concentrate more on the codes that make up the books, little attention is paid to the usability and the aesthetic aspect.

There are many applications available on the market for developing interactive books, some examples are Adobe Acrobat, Microsoft Word, Adobe Flash, eBook creator and even MS Notepad. But the researcher chose to use a Microsoft Visual Basic. Visual Basic is the leader of the pack when it comes to rapid application development. And because the interactive book Prototype needs an application for the organization of the interactive book contents videos clips and the work flow, the designer decided to use it for development.

4.7.1 VISUAL BASIC OVERVIEW

Visual Basic is not *cross-platform*, this means it can only develop for the MS Windows environment. The researcher still chose the tool because the interactive book prototype under development is for interactivity demonstration purposes.

- *A Visual Basic program consists of one or more windows, or forms; each form contains a number of controls.* A wide variety of different controls is available, providing just about any functionality your program could need—entering and editing text, selecting options, displaying graphics, and so on. Together, the forms and controls make up a program’s visual interface.

- *Each object (form or control) in a Visual Basic program has a number of properties associated with it.* An object’s properties control the way it behaves and looks. Properties can be modified by the programmer during program design and by Basic code as the program is executing.

- *Visual Basic objects have the ability to detect events, such as mouse clicks and key presses.* This ability is built in and requires no effort on the part of the programmer.

- *Basic code written by the programmer defines the functionality of the program—in other words, what the programme does.* Whether its text processing, graphical display, or numerical calculations, the programmer’s job is to write the code to perform the desired actions. Basic code also serves to link the program’s visual interface to the program’s functionality—to control what happens in response to those events that Visual Basic objects can automatically detect.

4.7.2 UNDER THE HOODS OF VB

A great deal goes on behind the scenes in Visual Basic. The design mode is for the designer whiles the codes are for the programmer, and the purpose for not putting them together, is to make the designers life easier.

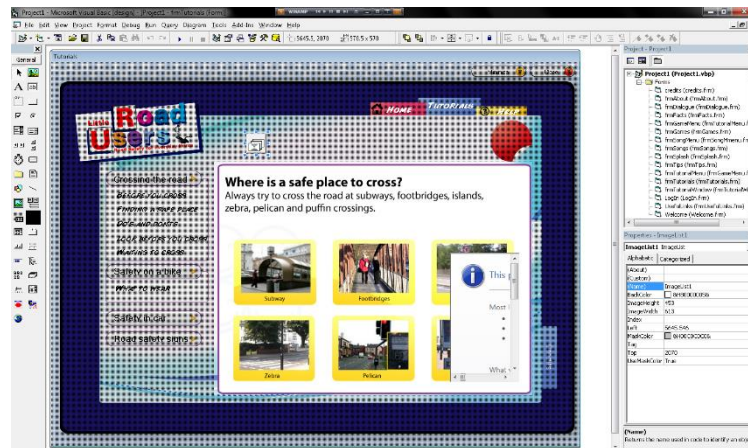


Plate 5.17: The Design mode in Visual Basic 6

The design mode enables the selection of components from the Visual Basic framework that are best suited for the type of application being developed.

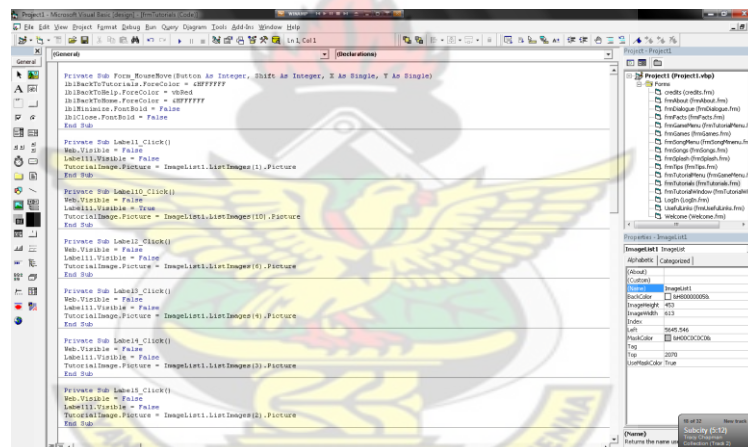


Plate 5.18: The Coding mode in Visual Basic 6

This is where basic code to tie the framework components together and provide the needed functionalities is written.

Objects

These are also called components, the term class is also used as well. These are used in a program to perform some useful functions like user inputs and data display.



Plate 5.19: Visual Basic's Components tool bar

Custom Controls

Also referred to as OCX and ActiveX controls. A custom control is not part of the Visual Basic package, but is provided by Microsoft or another vendor as an enhancement. When you install a custom control, it is available within Visual Basic just like the controls that come with Visual Basic. The developer used the Flash control in the development. This control is developed by Adobe Systems.

Methods

Most Visual Basic objects have one or more methods associated with them. A method is a chunk of code that does something to, or with, the object.

Events

With a few exceptions, events are things the user does with the mouse or the keyboard while the program is running. In other words, event means user input. An application's respond to events, is an event procedure. An event procedure is a block of Basic code associated with an event. When the event is detected, the code in the procedure is automatically executed.

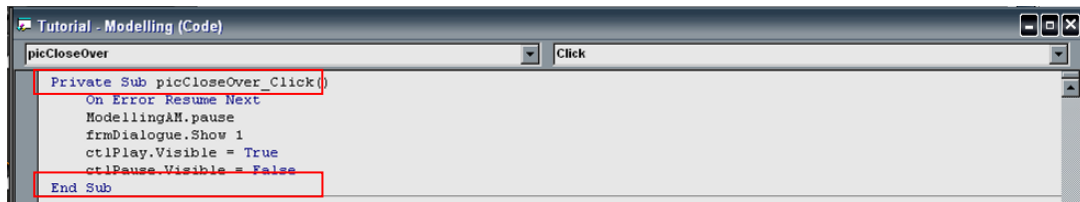


Plate 5.20: The click event of a close button

4.7.3 CODING

Code Structure

The programmer made use of the tab index to organize programme codes. Indenting your codes makes reading easier and less boring to look at.

```

=====
Rem HELP BUTTONS
Private Sub picHelpNormal_MouseMove(Button As Integer, Shift As Integer, X As Single, Y As Single)
    picHelpNormal.Visible = False
    picHelpOver.Visible = True
    TdINFO.Caption = "Help"
End Sub

Rem MINIMIZE BUTTON
Private Sub lblMinNormal_MouseMove(Button As Integer, Shift As Integer, X As Single, Y As Single)
    lblMinNormal.Visible = False
    picMinOver.Visible = True
    TdINFO.Caption = "Minimize"
End Sub

Rem CLOSE BUTTON
Private Sub lblCloseNormal_MouseMove(Button As Integer, Shift As Integer, X As Single, Y As Single)
    lblCloseNormal.Visible = False
    picCloseOver.Visible = True
    TdINFO.Caption = "Close"
End Sub

Private Sub picMinOver_Click()
    Me.WindowState = 1
End Sub

=====
'=====
'CreateTab.Show
'Unload Me
End Sub
=====

```

Plate 5.21: Indented Lines of code

Programme Comments

Comments are used to mark lines, this are also called remarks. They are used as reminders. The use of these comments by the programmer made editing and updating easier.

```

Rem Help MouseOver
picHelpNormal.Visible = True
picHelpOver.Visible = False

Rem Minimize MouseOver
lblMinNormal.Visible = True
picMinOver.Visible = False

Rem Close MouseOver
lblCloseNormal.Visible = True
picCloseOver.Visible = False

Rem BOX Tool MouseOver
tlBox.FontBold = False
tlBox.ForeColor = &HCOCOCO

Rem BALL Tool MouseOver
tlBall.FontBold = False
tlBall.ForeColor = &HCOCOCO

```

Plate 5.22: Comments or Remarks used to mark lines

Mouse-over actions

The mouse-Over effect helps the user to know what the mouse is hovering. Because the targets are children, the effects also included sounds.

Coding the mouse-over action was achieved with a visual trick. In this coding stage, the programmer created two image controls and loaded the Photoshop buttons (*CloseNormal* and *CloseOver*) into the controls.

The two images were positioned at the same place and an event procedure written for the *MouseMove* event.

```

Rem CLOSE BUTTON
Private Sub lblCloseNormal_MouseMove(Button As Integer, Shift As Integer, X As Single, Y As Single)
lblCloseNormal.Visible = False
picCloseOver.Visible = True
TiNFO.Caption = "Close"
End Sub

```

Plate 5.23: the event procedure for the mouse-over event

In the above code, the normal close button is hidden when the mouse is moved over it and the second image for the *MouseOver* effect is made visible.

4.7.4 TESTING AND DEBUGGING

Programming errors are called Bugs. The debugging process included running the programme and performing tasks that the user is likely to perform, issuing commands that they might issue. Some of these commands might give error messages. The fixing process of the error is called debugging.

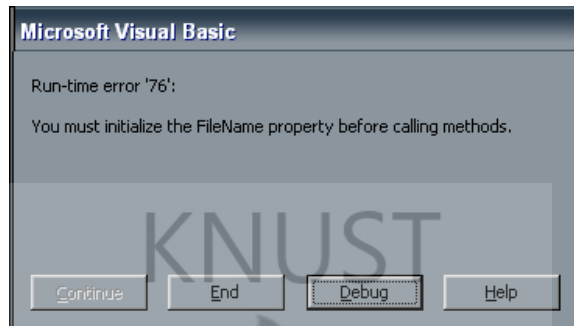


Plate5.24: an error message dialogue

To fix most of the errors, the programmer uses a programming method called error trapping. In this trapping method, the programmer writes a line into the code to tell the computer what to do when it encounters an error. `On Error Resume Next`

This line tells the application to move to the next line in case there is an error.

4.8 PACKAGING AND INSTALLER

The term packaging is used for bundling a project into a single setup programme. At this stage the Microsoft Visual Studio 6.0 Package & Deployment Wizard was used.

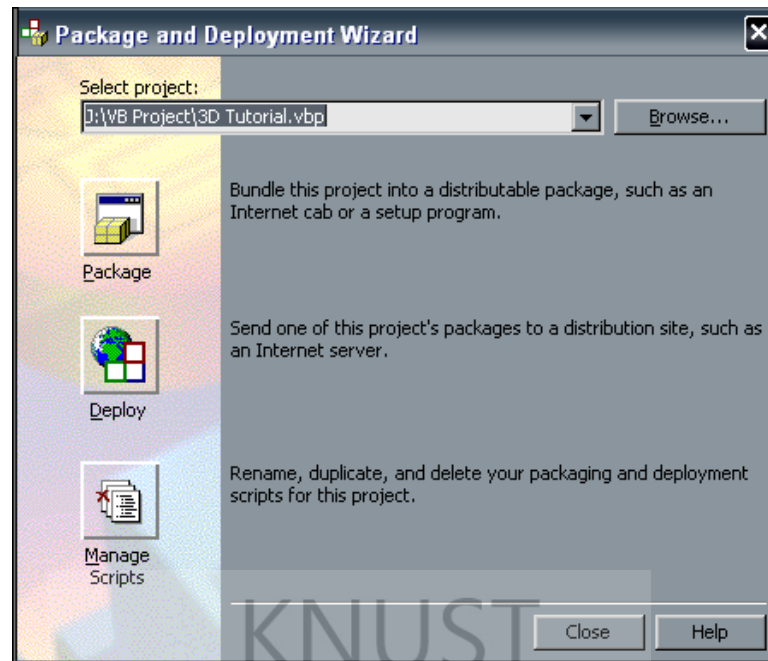


Plate 5.25: The Package and Deployment Wizard dialogue

Apart from a programme menu, only two files will need to be installed on the user's computer. No file will be updated and nothing will be deleted from the user's computer.

Backward compatibility

The programmer made use of only components common to most computers. Older versions of DLLs (dynamic link library) which can be found on Microsoft windows 98 first edition were used. This makes the application compatible with a lot of available platforms.

System resources

The application uses an insignificant amount of system resources, this is possible because it uses the Shockwave (.SWF) video format. This format need less streaming and many of the other components used in the development are also native to the windows environment.

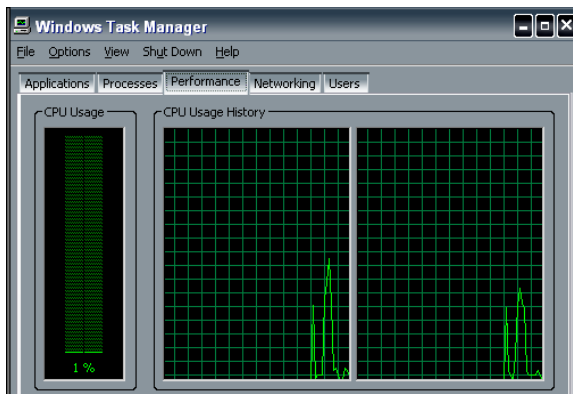


Plate 5.26: CPU Usage Before Launching of the Application.

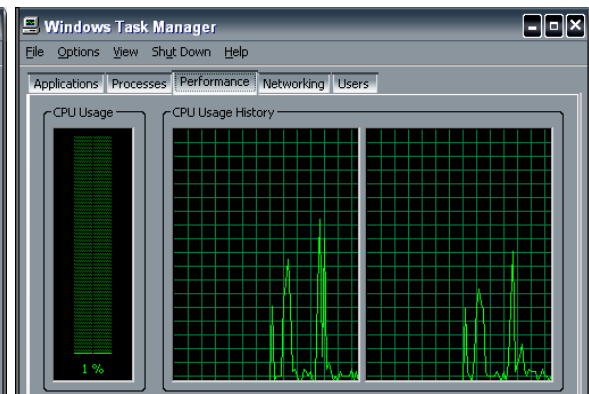


Plate 5.27: CPU Usage After Launching of the Application.

4.8.1 VIDEOS AND SOUNDS

The researcher acknowledges the notable support of some musicians and designers in the sound and game programming and design aspects of the final prototype. These individuals can be found under the credits of the prototype.

The video format used in this project is SWF. This file format was used because it is able to interlace video and blend to clips or images without distorting them. It is designed to meet the goals of On-screen display, Extensibility, Network delivery, Simplicity, Scriptability, Speed and Scalability.

1. *SWF is vector based.* This means that the graphics can be scaled easily, so they can be zoomed in or be fit onto different size screens, and the file will still look very clear and play very smooth (unlike bitmap animation).
2. *SWF is fast loading.* It was intentionally created small and light to display entertaining animations and could be reused by a player running on any system and which would work with slower network connections.

3. *Easy and smooth compression.* Like PNG format, SWF uses a non-patented lossless data compression method known as DEFLATE.

4. *Supports transparencies* (like PNG and GIF). SWF offers a variety of transparency options. With *truecolor* and *greyscale* images either a single pixel value can be declared as transparent or an alpha channel can be added (enabling any percentage of partial transparency to be used).

The wave (.WAV) was the dominating audio format used in the execution of the project. Wave was used because it supports up to 32-bit sample type and 960000Hz of sample rate. MP3 formats were also used, but with different frequencies.

4.9 ACCESSING THE INTERACTIVE BOOK

The interactive eBook designed has been published onto CD. This makes it portable to transport and saves space on hard drives. When installed, all the dependency files are copied unto the Hard Drive. This makes it easier for children to use as they will not need to carry Compact Discs around. It is designed to run on IBM Computers with the following minimum specifications:

- Intel, Celeron or AMD Processor
- Pentium III 600MHz or higher
- RAM 128Mb or Higher
- 120Mb Hard Disk Space
- Windows 98 Second Edition or Higher
- CD-ROM Drive

The application runs automatically when the CD is inserted into the CD-ROM Drive.

If the programme is already installed, the application is launched. To run the application manually, click the *start* button and select *All Programmes*, then *Road Safe Heroes* and then *Heroes* The default application folder name is “*Road Safe*

Heroes” unless the user changes this name during installation, it will remain the same.

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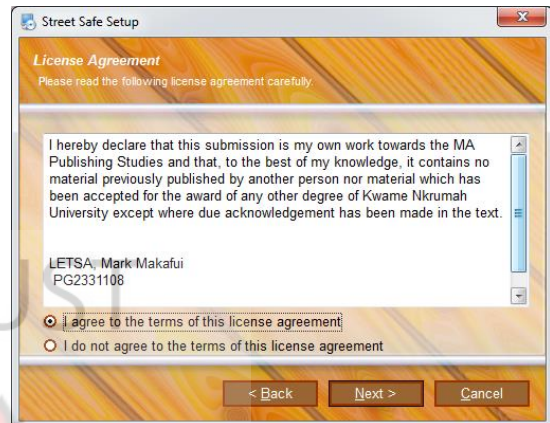
4.10 INSTALLATION

The user is supposed to insert the CD into the drive.

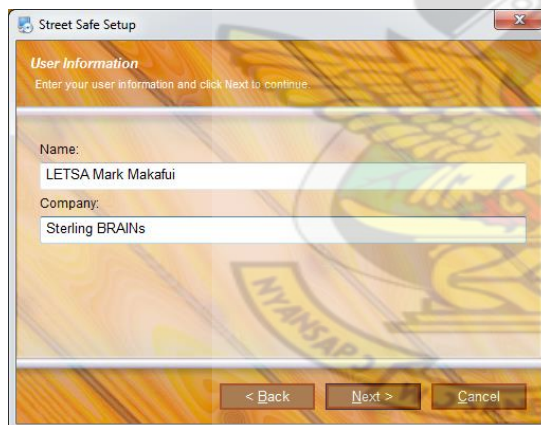
Choose between *Street Hero 64 Setup* and *Street Hero 32 Setup* depending on your operating system.



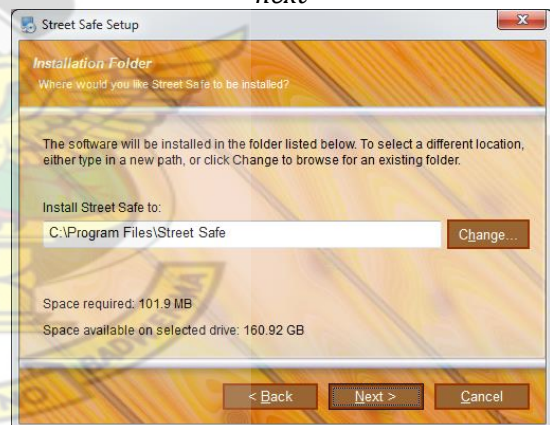
Click Next



Read and accept the conditions then click next



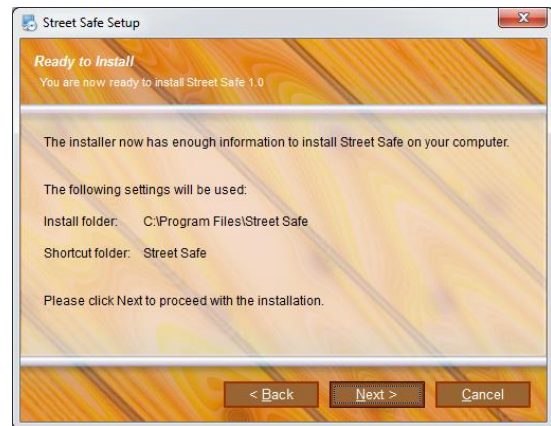
Input your name and company name and click next



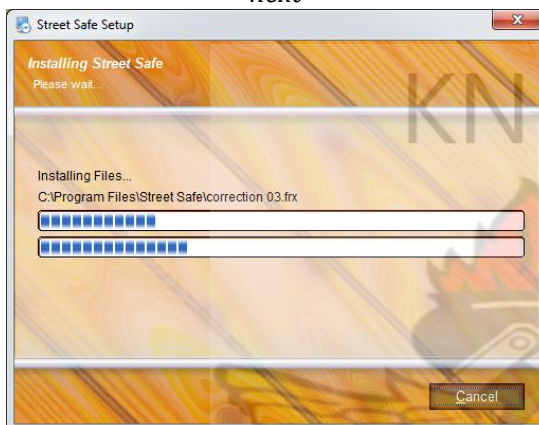
Choose a destination drive and click next



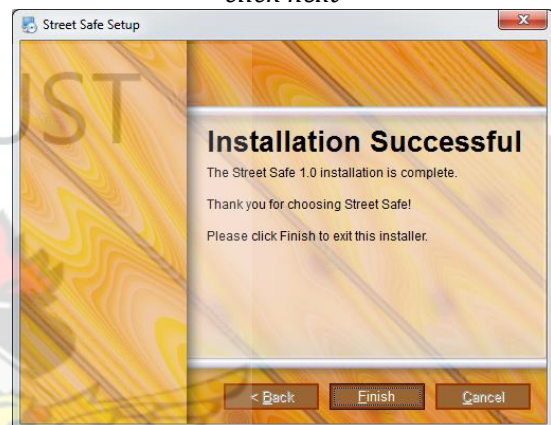
Select a name for shortcut folder and click next



Check if all your choices are correct and click next



Wait for the installation to complete



click finish

4.11 CD PACKAGE

The packaging market is exploding with the increased need for innovative solutions to media promotions, instructional information and more. In today's competitive environment for customer and user attention, it is important that the presentation be as engaging as the message.

4.11.1 PACKAGING

To be able to develop a highly effective and innovative package design for today's software market, the researcher employed several methods and resources. These included magazines, the internet, analysis of foreign packages and general

observation. This was to ascertain the concepts and ideas behind the existing packages and their functionality in the market. These initial stages helped the researcher to know the general layout, colour and its symbolism in package design, design elements, principles and their application in software packaging. The use of images and illustrations were also discovered.

Child and Environmental care

Nowadays, an important issue is environmental impact. Component and equipment manufacturers are continuously working to improve the environment friendliness of their products and packaging, and have devoted much effort to eliminating the use of toxic materials and to looking at ways in which materials can be recycled.

In these respects, the researcher has taken several important steps on the packaging front. These include:

- Reducing the amount of packaging
- Changing to 'mono material' to aid recycling.
- The aim is to ensure minimum waste and minimum environmental impact.

The package may also be handles by children, and this means it should not be made of small parts that can be swallowed. It should also be as grease free as possible.

4.11.2 DVD AND CD LABELLING

In the case of labelling of the CD-ROM or DVD-ROM, the researcher observed that most products had their labels designed in full colour and pasted on the CD-ROM or DVD-ROM. Another form of labelling the CD-ROMs was printing directly on the ROMs. In most cases the colour does not provide a true and honest picture of the package's content. Similarly, the general layout of the label design does not always conform to the information on the DVD/CD-ROM.

Based on these critical observations and findings, the researcher addressed these pertinent problems in the execution of his design laying particular emphasis on consumer satisfaction and convenience.

Another factor that was considered is simplicity and aesthetic properties. The designer aimed at improving the general layout, illustration, colour, text and shape of these packages.

Finally, typography, layout and colour was dealt with seriously, alongside the incorporation of both foreign and local elements of the design.



4.12 TESTING AND EVALUATION

Before the Interactive book was sent out to be evaluated by the people randomly sampled, the developer tested the software application to be able to debug and correct errors that might come up. The Interactive book was tested on a few operating systems: Microsoft Windows 98, XP and Windows 7. The Interactive book is compatible with Dynamic Link Libraries (DLL) and drivers from any version of operating system. The colour quality of the monitor was also tested, the application runs on a minimum of 16bit, with a resolution of 1024 x 768 or higher. The prototype was tested on only the Intel based processor. It was found out that the application works both on Pentium and Celeron processors.

Twenty people were sampled and used in the testing and evaluation of the database. Only fifteen people were sampled because the researcher found it difficult identifying a higher number of willing respondents who had access to computers for the testing of the Interactive book as it requires installation. However, twenty extra computer literate respondents were also consulted with the database running on the researcher's laptop. Appendix 7 shows the questionnaire used for the evaluation. The following table gives the result of the findings.

TOPIC	RESPONSE / ASSESSMENT					
	Excellent	Very Good	Good	Fair	Poor	Total
Ease of Installation	9	4	2	0	0	15
GUI Usability	13	17	5	0	0	35
Graphic Design	16	13	6	0	0	35
Interactivity (Navigation)	9	20	6	0	0	35
General Packaging	2	27	6	0	0	35

Content	5	18	12	0	0	35
General Impact on User	1	26	7	1	0	35

Table 5.2: Response from Evaluation of Database

The table above suggests that respondents found the database very convenient and easy to install. The graphic user interface was also found to be user-friendly with no respondent having any problem using the software. The general design of the Interactive book was also judged to be very good. There were no negative comments about the contents of the interactive Book and its general impact on the user. Rather, respondents desired to have even more additional features discussed below.

4.13 COMMENTS / RECOMMENDATION OF RESPONDENTS

Generally, all respondents were satisfied with the Interactive book design and content. It was however recommended that the researcher should make the graphics and Songs in the Interactive book 'copyable'. This feedback was considered but could not be implemented as the researcher only has the permission of the copyright owner to use the resources for academic purposes.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

One of the objective of the researcher to develop an Interactive book prototype that demonstrates the interactivity of Interactive book s for children.

Related literatures were reviewed in the areas of Interactive book s and electronic publishing as a whole. Other topics reviewed were Instructional Design and road safety. Some related works were also reviewed, this helped the researcher to know the current design trend.

To execute the research, a hybrid approach was adopted. Questionnaires, Advanced interview guides / face to face interviews, Observation and Note Taking, were among the research tools and instruments employed.

Data gathered during the research was used to develop an Interactive book prototype. This illustrates the use on interactivity in teaching children road safety. The effectiveness of teaching methods and presentations of foreign Interactive book was also evaluated.

It was also realized that, lack of collaboration between developers of Interactive book, Publisher and Designers is a factor contributing to the low quality of Interactive books. Suggested opinions of the public and users to Developers and Designer of Interactive books is that, more interactivity and design should be integrated into the interactive Books.

CONCLUSIONS

The main concern of this project was an evaluative attempt to investigate and document the effectiveness of Interactive books in teaching Children road safety. The first objective therefore was to identify good development methods, document the production trends and create an interactive eBook prototype. This had been duly achieved. An interactive CD with tutorials and Games to teach children road safety.

The project also attempted to document and assess the quality of existing interactive electronic book. This was also accomplished by the researcher. It was realized that the major causes of poor finish of Interactive books is due to the skill-set of the developers, who are most times technical and pay little attention to publishing rules.

RECOMMENDATIONS

1. The revelation and lack of poor standards
2. Judging from the number of pirated software packages on the market, coupled with public concern over inferior quality of CDs and CD Contents, some needful steps ought to be taken:
 - ❖ GES and the Education Ministry should ensure that interactive training materials that come into the country are evaluated and certified.
3. Considering the increasing demand for interactive books, it is recommended that the publishing department of Kwame Nkrumah University of Science and Technology, introduce an electronic publishing programme that includes development (Programming).

APPENDIX 1:

RESEARCH QUESTIONNAIRE

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

Q U E S T I O N N A I R E

(SAMPLE 'A' FOR PARENTS)

This questionnaire is strictly for academic purposes and shall be treated with all confidentiality. It is designed to help the researcher gather information on the use of interactive books in Ghana.

I would be grateful if you provide answers to the following. Kindly tick [] or fill in the spaces provided.

1.	<p>a) Name:</p> <p>b) Age: 18 – 25 years [] 26 – 30 years [] 31 – 35 years [] 36 – 40 years [] 41 – 45 years [] 46 – 50 years [] 51 years and above []</p> <p>c) Sex: Male [] Female []</p>
2.	<p>Education Level</p> <p>Uneducated [] Apprenticeship [] Polytechnic Trained [] University Trained []</p> <p>Other (Specify) _____</p>
3.	<p>a) How many children do you have?</p> <p>1 [] 2 [] 3 [] 4 [] more than 5 []</p> <p>b) What are their age ranges?</p> <p>0 – 5 years [] 6 – 10 years [] 11 – 15 years [] 16 – 20 years [] 21 – 25 years [] 26 years and above []</p>
4.	<p>Do you buy Interactive books for your children?</p>

	Yes [] No []
5.	<p>If yes to question 4, what subject areas do you buy?</p> <p>[] English [] Mathematics [] Science [] Health [] Music [] Design</p> <p>[] Adventure [] History</p> <p>Others (Specify) _____</p>
6.	<p>State the major attribute that you look out for in an Interactive book:</p> <p>[] Quality of Package [] Appropriateness for target audience</p> <p>[] Originality of design [] Subject</p> <p>[] Accuracy of information [] Good spellings & grammar</p> <p>[] General beauty of design [] Known Publisher</p> <p>[] Recommendation [] Strong Concept Generation</p> <p>[] Other(s) Specify _____</p>
7.	<p>Have you ever purchased an interactive book made in Ghana?</p> <p>Yes [] No []</p>
8.	<p>Can interactive book made in Ghana meet the international market?</p> <p>Yes [] No []</p>
9.	<p>Will you ever purchased an interactive book made in Ghana?</p> <p>Yes [] No [] Maybe []</p>
10.	<p>Do you involve your children in the selection of Interactive books?</p> <p>Yes [] No []</p>
11.	<p>Are the Interactive books available on the market?</p> <p>Yes [] No []</p>
12.	<p>Are the Interactive books you buy reasonably priced?</p> <p>Yes [] No []</p>

Thank you very much!

APPENDIX 2:

INTERVIEW QUESTIONS

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

I N T E R V I E W Q U E S T I O N S

(SAMPLE 'B' FOR CHILDREN)

1.	a) Name: b) Age: 5 years [] 6 years [] 7 years [] 8 years [] 9 years [] c) Sex: Male [] Female []
2.	Have you used an Interactive book before Yes [] No []
3.	If yes to question 2, What do you use Computer [] Console []
4.	Do you remember any title of a book u have used before? Yes [] No [] If yes, state the title: _____
5.	Do you remember any body (character) from the book u have used? Yes [] No [] _____
6.	Where do you get access to the Interactive book? School Computer Lab [] Personal (Home) [] Friends [] Public Library []
7.	What subjects do you like? spelling [] puzzles [] Mathematics [] General Knowledge [] _____
8.	What do you know about road safety?

APPENDIX 3:

PROGRAMME CODE

SPLASH SCREEN

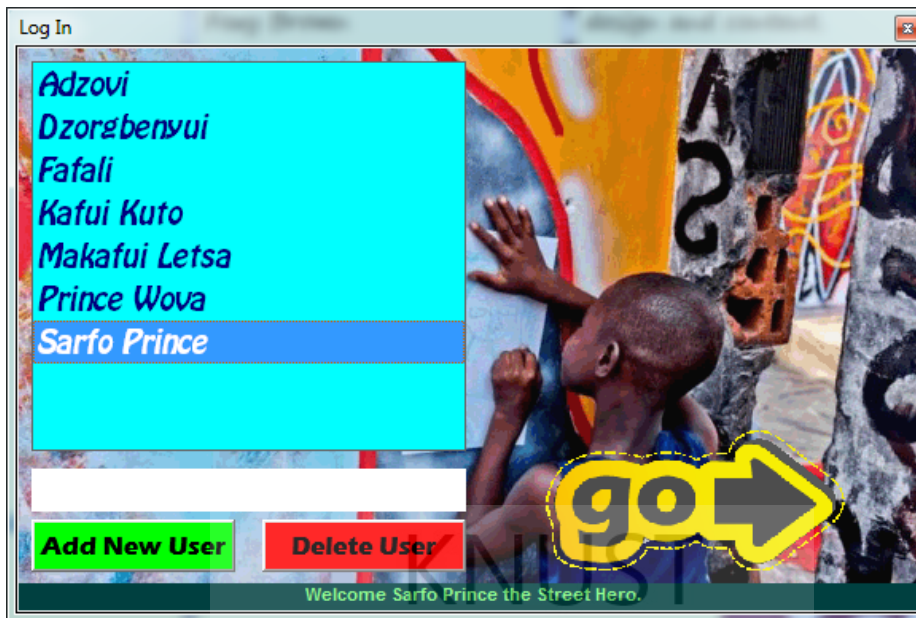


```
Option Explicit
Dim LoadingTime As Integer
Private Sub Form_KeyPress(KeyAscii As Integer)
    LogIn.Show
    Unload Me
End Sub

Private Sub Form_Load()
    Label1.Caption = pd.Max
    tm.Interval = 6
    flashIntro.Movie = App.Path & "\Flash\intro.swf"
End Sub

Private Sub tm_Timer()
    If Label1.Caption = 0 Then
        LogIn.Show
        Unload Me
        tm.Enabled = False
    Else
        Label1.Caption = Label1.Caption - 1
        pd.Value = Label1.Caption
    End If
End Sub
```

LOGIN SCREEN



```

Option Explicit
Private WithEvents Cn As ADODB.Connection
Private WithEvents rsRecordSet As ADODB.Recordset
Private WithEvents rstempcode As ADODB.Recordset
Dim mblnAdd As Boolean
Dim mblnEdit As Boolean
Dim strEditRec As String
Dim X As Byte
Dim XlistIndex As Integer

Private Sub Command1_Click()
    For X = 0 To lstUsers.ListCount
        rsRecordSet!UserName = Text1.Text
    ErrorHandler:
        DisplayErrorMsg
        If rsRecordSet.EditMode = adEditAdd Then rsRecordSet.CancelUpdate
    Next X
End Sub

Private Sub Form_Load()
    Set Cn = New ADODB.Connection
    Cn.CursorLocation = adUseClient
    Cn.Open "Provider=Microsoft.Jet.OLEDB.4.0;Persist Security
Info=False;Data Source= " & App.Path & "\Accountss.mdb"
    Set rsRecordSet = New ADODB.Recordset
    rsRecordSet.Open "SELECT * From Salesman ORDER BY username", Cn,
adOpenStatic, adLockOptimistic
    If rsRecordSet.EOF = True And rsRecordSet.BOF = True Then
        Exit Sub
    End If

    '-----
    While rsRecordSet.EOF = False
        lstUsers.AddItem rsRecordSet!UserName
        rsRecordSet.MoveNext
    Wend
    '-----

```

```

        mblnAdd = False
End Sub

Private Sub LockTbox()
Text1.Locked = True
End Sub
Private Sub UnLockTbox()
Text1.Locked = False
End Sub
Private Sub LoadDataInControls()
    If rsRecordSet.BOF = True Or rsRecordSet.EOF = True Then
        Exit Sub
    End If
    Text1.Text = rsRecordSet!UserName & ""
    Text2.Text = rsRecordSet!SalesMan & ""
End Sub
Private Sub WriteData()
    rsRecordSet!UserName = Text1.Text
End Sub
Private Sub ClearControls()
    Text1.Text = ""
    'Text2.Text = ""
End Sub
Private Sub cmdFirst_Click()
    mblnAdd = False
    If rsRecordSet.BOF = False Then
        rsRecordSet.MoveFirst
    ElseIf rsRecordSet.BOF = True And rsRecordSet.EOF = True Then
        MsgBox "There is no data in the Recordset!", , "Oops"
    End If
    Text1.SetFocus
    LoadDataInControls
End Sub
Private Sub CmdPrevious_Click()
XlistIndex = XlistIndex - 1
    'lstUsers.Selected = XlistIndex
    mblnAdd = False
    If rsRecordSet.BOF = False Then
        rsRecordSet.MovePrevious
        If rsRecordSet.BOF Then rsRecordSet.MoveFirst
    Else
        If rsRecordSet.EOF = True Then
            MsgBox "There is no data in the Recordset!", , "Oops"
        Else
            rsRecordSet.MoveLast
        End If
    End If
    LoadDataInControls
    Text1.SetFocus
End Sub
Private Sub CmdNext_Click()
    mblnAdd = False
    If rsRecordSet.EOF = False Then
        rsRecordSet.MoveNext
        If rsRecordSet.EOF Then rsRecordSet.MoveLast
    Else
        If rsRecordSet.BOF Then
            MsgBox "There is no data in the Recordset!", , "Oops"
        Else
            rsRecordSet.MoveLast
        End If
    End If
    LoadDataInControls
    Text1.SetFocus
End Sub
Private Sub CmdNext_Click()
    mblnAdd = False
    If rsRecordSet.EOF = False Then
        rsRecordSet.MoveNext
        If rsRecordSet.EOF Then rsRecordSet.MoveLast
    Else
        If rsRecordSet.BOF Then
            MsgBox "There is no data in the Recordset!", , "Oops"
        Else
            rsRecordSet.MoveLast
        End If
    End If
    LoadDataInControls
    Text1.SetFocus
End Sub

```

```

End If
End If
    LoadDataInControls
    Text1.SetFocus
End Sub
Private Sub CmdLast_Click()
mblnAdd = False
If rsRecordSet.EOF = False Then
rsRecordSet.MoveLast

ElseIf rsRecordSet.BOF = True And rsRecordSet.EOF = True Then
MsgBox " There is no Data in the RecordSet!", , "Oops"

    End If
        LoadDataInControls
        Text1.SetFocus
End Sub
Private Sub cmdAdd_Click()
CmdAdd.Visible = False
CmdDelete.Visible = False
CmdSave.Visible = True

CmdCancel.Visible = True
Labell.Visible = True

    Labell.Caption = "Please choose a user name"
    mblnAdd = True
    UnLockTbox
    ClearControls
    Text1.SetFocus
End Sub

Private Sub cmdSave_Click()
lstUsers.AddItem Text1.Text
Labell.Visible = False
On Error GoTo ErrorHandler
    If mblnEdit = True Then
        mblnEdit = False
        If strEditRec <> Text1.Text Then
            LoadDataInControls
        End If
    End If
    If ValidData Then
        If mblnAdd Then rsRecordSet.AddNew
        WriteData
        rsRecordSet.Update
        mblnAdd = False
        Text1.Enabled = True
        Text1.SetFocus
        CmdAdd.SetFocus
        LockTbox
        ClearControls
        CmdDelete.Enabled = True
    End If
Exit Sub
rsRecordSet.Close
rsRecordSet.Open
ErrorHandler:
DisplayErrorMsg
If rsRecordSet.EditMode = adEditAdd Then rsRecordSet.CancelUpdate

```

```

End Sub
Private Sub CmdEdit_Click()
    mblnEdit = True
    UnLockTbox
    Text1.Enabled = False
    strEditRec = Text1
    SetButtons False
    Text2.SetFocus
End Sub
Private Sub CmdCancel_Click()
    Text1.Enabled = True
    LockTbox
    Label1.Visible = False
    'rsRecordSet.CancelUpdate
    LoadDataInControls
    mblnAdd = False
    mblnEdit = False
End Sub
Private Sub cmdDelete_Click()

On Error GoTo ErrorHandler
    If MsgBox("Are you sure you want to delete this record?", _
        vbYesNo + vbDefaultButton2 + vbQuestion) = vbYes Then
        On Error Resume Next
        rsRecordSet.Delete
        rsRecordSet.MoveNext
        If rsRecordSet.EOF Then
            rsRecordSet.Requery '(its only necessary when you
are using Severside cursors)
            rsRecordSet.MoveLast
        End If
        LoadDataInControls
    End If
    If rsRecordSet.BOF = True Then
        Call ClearControls
        MsgBox "There is no data in the recordset!", , "Oops!"
        CmdDelete.Enabled = False
    End If
    lstUsers.RemoveItem (lstUsers.ListIndex)
    Text1.SetFocus
    Exit Sub
ErrorHandler:
    DisplayErrorMsg

End Sub
Private Sub cmdClose_Click()
    rsRecordSet.Close
    Cn.Close
    Set rsRecordSet = Nothing
    Set Cn = Nothing
    Unload frmSalesMan
End Sub

Private Sub Image1_Click()
    If Label1.Caption = "" Then
        Exit Sub
    End If

Welcome.Show

```

```

Me.Hide

End Sub

Private Sub lstUsers_Click()
Label1.Visible = True
Label1.Caption = "Welcome " & lstUsers.Text & " the Street Hero."
Image1.Visible = True
End Sub

Private Sub Text1_KeyDown(KeyCode As Integer, Shift As Integer)
    Dim ChkCode As Boolean
    If mblnEdit = False And mblnAdd = False Then
        MsgBox "Click Edit to edit records or Add to enter new records.",
vbOKOnly + vbInformation
        Exit Sub
    End If
    If KeyCode = vbKeyReturn Then
        ChkCode = VrfyUnique
        If ChkCode = True Then
            MsgBox " Code has already been taken ! ", vbExclamation +
vbOKOnly
            Text1.SetFocus
        End If
    End If
End Sub

Private Sub Text2_KeyDown(KeyCode As Integer, Shift As Integer)
    If mblnEdit = False And mblnAdd = False Then
        MsgBox "Click Edit to edit records or Add to enter new records.",
vbOKOnly + vbInformation
        Exit Sub
    End If
End Sub

Private Sub Text2_KeyPress(KeyAscii As Integer)
    If KeyAscii = 13 Then
        SendKeys "{tab}"
    End If
End Sub

Private Function ValidData() As Boolean
    Dim strMessage As String
    If Text1.Text = "" Then
        Text1.SetFocus
        strMessage = "You must enter a username first."
    ElseIf Text2 = "" Then

        ValidData = True
    End If
    If Not ValidData Then
        MsgBox strMessage, vbOKOnly
    End If
End Function

Public Function VrfyUnique() As Boolean
    Set rstempcode = New ADODB.Recordset
    rstempcode.Open "SELECT username from Salesman where username =" &
& Trim$(Text1.Text) & "'", Cn, adOpenStatic, adLockOptimistic
    If rstempcode.RecordCount > 0 Then
        VrfyUnique = True
    Else
        VrfyUnique = False
    End If
End Function

```



```

    End If
    Set rstempcode = Nothing
End Function
Private Sub DisplayErrorMsg()
    MsgBox "Error Code: " & Err.Number & vbCrLf & _
        "Description: " & Err.Description & vbCrLf & _
        "Source: " & Err.Source, vbOKOnly + vbCritical
End Sub
Private Sub Text2_GotFocus()
    Text2.SelLength = Len(Text2.Text)
End Sub

```

KNUST



WELCOME SCREEN



```
PRIVATE SUB BTNGAMES_CLICK()
FRMGAMES.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB CMDFACTS_CLICK()
FRMFACTS.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB CMDFACTS_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,
Y AS SINGLE)
IMAGE1.PICTURE = IMAGELIST1.LISTIMAGES(5).PICTURE
END SUB
```

```
PRIVATE SUB CMDSAFETYSONGS_CLICK()
FRMSONGMENU.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB CMDSAFETYSONGS_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS
SINGLE, Y AS SINGLE)
IMAGE1.PICTURE = IMAGELIST1.LISTIMAGES(2).PICTURE
END SUB
```

```
PRIVATE SUB FORM_LOAD()
LABEL1.CAPTION = "WELCOME, " & LOGIN.TXTNAME.TEXT & " THE STREET HERO"
END SUB
```

```
PRIVATE SUB FORM_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y AS
SINGLE)
IMAGE1.PICTURE = IMAGELIST1.LISTIMAGES(1).PICTURE
LBLMINIMIZE.FONTBOLD = FALSE
LBLCLOSE.FONTBOLD = FALSE
END SUB
```

```

PRIVATE SUB FUNSTUFFS_CLICK()
FRMGAMEMENU.SHOW
ME.HIDE
END SUB

PRIVATE SUB FUNSTUFFS_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,
Y AS SINGLE)
IMAGE1.PICTURE = IMAGELIST1.LISTIMAGES(4).PICTURE
END SUB

PRIVATE SUB LBLCREDITS_CLICK()
CREDITS.SHOW 1
END SUB

PRIVATE SUB LBLLINKS_CLICK()
USEFULLINKS.SHOW 1
END SUB

PRIVATE SUB LBLLINKS_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,
Y AS SINGLE)
IMAGE1.PICTURE = IMAGELIST1.LISTIMAGES(6).PICTURE
END SUB

PRIVATE SUB LBLMINIMIZE_CLICK()
ME.WINDOWSTATE = 1
END SUB

PRIVATE SUB LBLTUTORIALS_CLICK()
FRMTUTORIALMENU.SHOW
ME.HIDE
END SUB

PRIVATE SUB LBLCLOSE_CLICK()
FRMDIALOGUE.SHOW 1
END SUB

PRIVATE SUB LBLCLOSE_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,
Y AS SINGLE)
LBLCLOSE.FONTBOLD = TRUE
END SUB

PRIVATE SUB LBLMINIMIZE_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS
SINGLE, Y AS SINGLE)
LBLMINIMIZE.FONTBOLD = TRUE
END SUB

PRIVATE SUB LBLTUTORIALS_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS
SINGLE, Y AS SINGLE)
IMAGE1.PICTURE = IMAGELIST1.LISTIMAGES(3).PICTURE
END SUB

```

TUTORIAL-MENU SCREEN



```
Private Sub btnGames_Click()
frmGames.Show
Me.Hide
End Sub
```

```
Private Sub cmdFacts_Click()
frmFacts.Show
Me.Hide
End Sub
```

```
Private Sub Form_Load()
Label1.Caption = "Welcome " & LogIn.txtName.Text & " the Street Hero"
End Sub
```

```
Private Sub Form_MouseMove(Button As Integer, Shift As Integer, X As
Single, Y As Single)
txtBody.Font.Bold = False
txtDressBright.Font.Bold = False
txtBelt.Font.Bold = False
txtWhere.Font.Bold = False
txtCross.Font.Bold = False
txtSaferJourney.Font.Bold = False
txtBikeSafety.Font.Bold = False
txtSafeBiking.Font.Bold = False
txtSafeBike.Font.Bold = False
lblBackToHelp.ForeColor = vbRed
lblBackToHome.ForeColor = &HFFFFFF
lblMinimize.FontBold = False
lblClose.FontBold = False
End Sub
```

```
Private Sub cmdSafetySongs_Click()
frmSongMenu.Show
Me.Hide
End Sub
```

```

Private Sub FunStuffs_Click()
frmGameMenu.Show
Me.Hide
End Sub

Private Sub lblBackToHome_Click()
Welcome.Show
Me.Hide
End Sub

Private Sub lblBelt_Click()
frmTutorialWindow.TutorialHeading.Width = 9780
frmTutorialWindow.Width = 9780
frmTutorialWindow.Height = 9360
frmTutorialWindow.TutorialPlayer.Height = 7635
frmTutorialWindow.TutorialPlayer.Width = 9555
frmTutorialWindow.cmdClose.Left = (frmTutorialWindow.Width -
frmTutorialWindow.cmdClose.Width) - 200
frmTutorialWindow.cmdClose.Top = (frmTutorialWindow.Height -
frmTutorialWindow.cmdClose.Height) - 200
frmTutorialWindow.TutorialHeading.Caption = "The Effect of Alchol on
the Body"
frmTutorialWindow.TutorialPlayer.Movie = App.Path &
"\Flash\tutorial\wear_seatbelt.swf"
frmTutorialWindow.Show 1
End Sub

Private Sub lblBackToHome_MouseMove(Button As Integer, Shift As
Integer, X As Single, Y As Single)
lblBackToHome.ForeColor = vbBlack
End Sub

Private Sub lblBelt_MouseMove(Button As Integer, Shift As Integer, X
As Single, Y As Single)
txtBelt.Font.Bold = True
End Sub

Private Sub lblBiking_Click()
frmTutorialWindow.TutorialHeading.Width = 10485
frmTutorialWindow.Width = 10485
frmTutorialWindow.Height = 9360
frmTutorialWindow.TutorialPlayer.Height = 7635
frmTutorialWindow.TutorialPlayer.Width = 10275
frmTutorialWindow.cmdClose.Left = (frmTutorialWindow.Width -
frmTutorialWindow.cmdClose.Width) - 200
frmTutorialWindow.cmdClose.Top = (frmTutorialWindow.Height -
frmTutorialWindow.cmdClose.Height) - 200
frmTutorialWindow.TutorialHeading.Caption = "How to be Safe on Your
Bike"
frmTutorialWindow.TutorialPlayer.Movie = App.Path &
"\Flash\tutorial\biking.swf"
frmTutorialWindow.Show 1
End Sub

Private Sub lblBiking_MouseMove(Button As Integer, Shift As Integer,
X As Single, Y As Single)
txtSafeBiking.Font.Bold = True

```

End Sub

```
Private Sub lblBody_Click()  
frmTutorialWindow.TutorialHeading.Width = 10950  
frmTutorialWindow.Width = 10950  
frmTutorialWindow.Height = 9480  
frmTutorialWindow.TutorialPlayer.Height = 7635  
frmTutorialWindow.TutorialPlayer.Width = 10605  
frmTutorialWindow.cmdClose.Left = (frmTutorialWindow.Width -  
frmTutorialWindow.cmdClose.Width) - 200  
frmTutorialWindow.cmdClose.Top = (frmTutorialWindow.Height -  
frmTutorialWindow.cmdClose.Height) - 200  
frmTutorialWindow.TutorialHeading.Caption = "The Effect of Alchol on  
the Body"  
frmTutorialWindow.TutorialPlayer.Movie = App.Path &  
"\Flash\tutorial\body.swf"  
frmTutorialWindow.Show 1  
End Sub
```

```
Private Sub lblCredits_Click()  
credits.Show 1  
End Sub
```

```
Private Sub lblCross_Click()  
frmTutorialWindow.TutorialHeading.Width = 10485  
frmTutorialWindow.Width = 10485  
frmTutorialWindow.Height = 9360  
frmTutorialWindow.TutorialPlayer.Height = 7635  
frmTutorialWindow.TutorialPlayer.Width = 10275  
frmTutorialWindow.cmdClose.Left = (frmTutorialWindow.Width -  
frmTutorialWindow.cmdClose.Width) - 200  
frmTutorialWindow.cmdClose.Top = (frmTutorialWindow.Height -  
frmTutorialWindow.cmdClose.Height) - 200  
frmTutorialWindow.TutorialHeading.Caption = "The Safest Place to  
Cross the Road"  
frmTutorialWindow.TutorialPlayer.Movie = App.Path &  
"\Flash\tutorial\safeplaceChecklist_v1.swf"  
frmTutorialWindow.Show 1  
End Sub
```

```
Private Sub lblCross_MouseMove(Button As Integer, Shift As Integer, X  
As Single, Y As Single)  
txtCross.Font.Bold = True  
End Sub
```

```
Private Sub lblDressBright_Click()  
frmTutorialWindow.TutorialHeading.Width = 10950  
frmTutorialWindow.Width = 10950  
frmTutorialWindow.Height = 7400  
frmTutorialWindow.TutorialPlayer.Height = 5600  
frmTutorialWindow.TutorialPlayer.Width = 10605  
frmTutorialWindow.cmdClose.Left = (frmTutorialWindow.Width -  
frmTutorialWindow.cmdClose.Width) - 200  
frmTutorialWindow.cmdClose.Top = (frmTutorialWindow.Height -  
frmTutorialWindow.cmdClose.Height) - 200  
frmTutorialWindow.TutorialHeading.Caption = "The Girl Who Did Not  
Dress Bright"
```



```

frmTutorialWindow.TutorialPlayer.Movie = App.Path &
"\Flash\tutorial\Crossing The Road Safely.swf"
frmTutorialWindow.Show 1
End Sub

Private Sub lblDressBright_MouseMove(Button As Integer, Shift As
Integer, X As Single, Y As Single)
txtDressBright.Font.Bold = True
End Sub

Private Sub lblJourney_Click()
frmTutorials.TutorialImage.Picture =
frmTutorials.ImageList1.ListImages(9).Picture
frmTutorials.Show
Me.Hide
End Sub

Private Sub lblJourney_MouseMove(Button As Integer, Shift As Integer,
X As Single, Y As Single)
txtSaferJourney.Font.Bold = True
End Sub

Private Sub lblMinimize_Click()
frmTutorialMenu.WindowState = 1
End Sub

Private Sub lblSafeBike_Click()
frmTutorialWindow.TutorialHeading.Width = 10875
frmTutorialWindow.Width = 10875
frmTutorialWindow.Height = 9360
frmTutorialWindow.TutorialPlayer.Height = 7635
frmTutorialWindow.TutorialPlayer.Width = 10605
frmTutorialWindow.cmdClose.Left = (frmTutorialWindow.Width -
frmTutorialWindow.cmdClose.Width) - 200
frmTutorialWindow.cmdClose.Top = (frmTutorialWindow.Height -
frmTutorialWindow.cmdClose.Height) - 200
frmTutorialWindow.TutorialHeading.Caption = "What to Check on Your
Bike"
frmTutorialWindow.TutorialPlayer.Movie = App.Path &
"\Flash\tutorial\checkYourBike.swf"
frmTutorialWindow.Show 1
End Sub

Private Sub lblBody_MouseMove(Button As Integer, Shift As Integer, X
As Single, Y As Single)
txtBody.Font.Bold = True
End Sub

Private Sub lblLinks_Click()
UsefulLinks.Show 1
End Sub

Private Sub lblTutorials_Click()
frmTutorials.Show
Me.Hide
End Sub

```



```

Private Sub lblClose_Click()
frmDialogue.Show 1
End Sub

Private Sub lblClose_MouseMove(Button As Integer, Shift As Integer, X
As Single, Y As Single)
lblClose.FontBold = True
End Sub

Private Sub lblMinimize_MouseMove(Button As Integer, Shift As
Integer, X As Single, Y As Single)
lblMinimize.FontBold = True
End Sub

Private Sub lblSafeBike_MouseMove(Button As Integer, Shift As
Integer, X As Single, Y As Single)
txtSafeBike.Font.Bold = True
End Sub

Private Sub lblSafety_Click()
frmTutorials.TutorialImage.Picture =
frmTutorials.ImageList1.ListImages(7).Picture
frmTutorials.Show
Me.Hide
End Sub

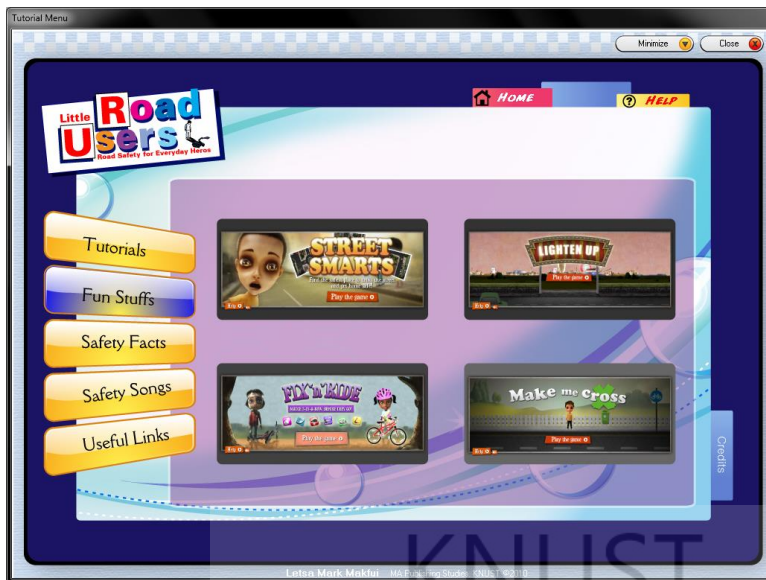
Private Sub lblSafety_MouseMove(Button As Integer, Shift As Integer,
X As Single, Y As Single)
txtBikeSafety.Font.Bold = True
End Sub

Private Sub lblWhere_Click()
frmTutorials.TutorialImage.Picture =
frmTutorials.ImageList1.ListImages(1).Picture
frmTutorials.Show
Me.Hide
End Sub

Private Sub lblWhere_MouseMove(Button As Integer, Shift As Integer, X
As Single, Y As Single)
txtWhere.Font.Bold = True
End Sub

```

GAME-MENU SCREEN



```
PRIVATE SUB BTNGAMES_CLICK()
FRMGAMES.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB CMDFACTS_CLICK()
FRMFACTS.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB FIXNRIDE_CLICK()
FRMGAMES.FLASHGAMES.MOVIE = APP.PATH &
"\FLASH\GAMES\TOTR_FIXANDRIDE_v4.SWF"
FRMGAMES.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB FORM_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y AS
SINGLE)
' LBLBACKTOGAMES.FORECOLOR = &HFFFFFF
LBLBACKTOHELP.FORECOLOR = VBRED
LBLBACKTOHOME.FORECOLOR = &HFFFFFF
LBLMINIMIZE.FONTBOLD = FALSE
LBLCLOSE.FONTBOLD = FALSE
END SUB
```

```
PRIVATE SUB CMDSAFETYSONGS_CLICK()
FRMSONGMENU.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB LBLBACKTOHELP_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS
SINGLE, Y AS SINGLE)
LBLBACKTOHELP.FORECOLOR = VBBLUE
END SUB
```

```

PRIVATE SUB LBLBACKTOHOME_CLICK()
WELCOME.SHOW
ME.HIDE
END SUB

```

```

PRIVATE SUB LBLBELT_CLICK()
FRMTUTORIALWINDOW.TUTORIALHEADING.WIDTH = 9780
FRMTUTORIALWINDOW.WIDTH = 9780
FRMTUTORIALWINDOW.HEIGHT = 9360
FRMTUTORIALWINDOW.TUTORIALPLAYER.HEIGHT = 7635
FRMTUTORIALWINDOW.TUTORIALPLAYER.WIDTH = 9555
FRMTUTORIALWINDOW.CMDCLOSE.LEFT = (FRMTUTORIALWINDOW.WIDTH -
FRMTUTORIALWINDOW.CMDCLOSE.WIDTH) - 200
FRMTUTORIALWINDOW.CMDCLOSE.TOP = (FRMTUTORIALWINDOW.HEIGHT -
FRMTUTORIALWINDOW.CMDCLOSE.HEIGHT) - 200
FRMTUTORIALWINDOW.TUTORIALHEADING.CAPTION = "THE EFFECT OF ALCHOL ON THE BODY"
FRMTUTORIALWINDOW.TUTORIALPLAYER.MOVIE = APP.PATH &
"\FLASH\TUTORIAL\WEAR_SEATBELT.SWF"
FRMTUTORIALWINDOW.SHOW 1
END SUB

```

```

PRIVATE SUB LBLBACKTOHOME_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS
SINGLE, Y AS SINGLE)
LBLBACKTOHOME.FORECOLOR = VBBLACK
END SUB

```

```

PRIVATE SUB LBLBELT_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y
AS SINGLE)
TXTBELT.FONT.BOLD = TRUE
END SUB

```

```

PRIVATE SUB LBLBIKING_CLICK()
FRMTUTORIALWINDOW.TUTORIALHEADING.WIDTH = 10485
FRMTUTORIALWINDOW.WIDTH = 10485
FRMTUTORIALWINDOW.HEIGHT = 9360
FRMTUTORIALWINDOW.TUTORIALPLAYER.HEIGHT = 7635
FRMTUTORIALWINDOW.TUTORIALPLAYER.WIDTH = 10275
FRMTUTORIALWINDOW.CMDCLOSE.LEFT = (FRMTUTORIALWINDOW.WIDTH -
FRMTUTORIALWINDOW.CMDCLOSE.WIDTH) - 200
FRMTUTORIALWINDOW.CMDCLOSE.TOP = (FRMTUTORIALWINDOW.HEIGHT -
FRMTUTORIALWINDOW.CMDCLOSE.HEIGHT) - 200
FRMTUTORIALWINDOW.TUTORIALHEADING.CAPTION = "HOW TO BE SAFE ON YOUR BIKE"
FRMTUTORIALWINDOW.TUTORIALPLAYER.MOVIE = APP.PATH & "\FLASH\TUTORIAL\BIKING.SWF"
FRMTUTORIALWINDOW.SHOW 1
END SUB

```

```

PRIVATE SUB LBLBIKING_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,
Y AS SINGLE)
TXTSAFEBIKING.FONT.BOLD = TRUE
END SUB

```

```

PRIVATE SUB LBLBODY_CLICK()
END
END SUB

```

```

PRIVATE SUB LBLCROSS_CLICK()
FRMTUTORIALWINDOW.TUTORIALHEADING.WIDTH = 10485

```

```

FRMTUTORIALWINDOW.WIDTH = 10485
FRMTUTORIALWINDOW.HEIGHT = 9360
FRMTUTORIALWINDOW.TUTORIALPLAYER.HEIGHT = 7635
FRMTUTORIALWINDOW.TUTORIALPLAYER.WIDTH = 10275
FRMTUTORIALWINDOW.CMDCLOSE.LEFT = (FRMTUTORIALWINDOW.WIDTH -
FRMTUTORIALWINDOW.CMDCLOSE.WIDTH) - 200
FRMTUTORIALWINDOW.CMDCLOSE.TOP = (FRMTUTORIALWINDOW.HEIGHT -
FRMTUTORIALWINDOW.CMDCLOSE.HEIGHT) - 200
FRMTUTORIALWINDOW.TUTORIALHEADING.CAPTION = "THE SAFEST PLACE TO CROSS THE ROAD"
FRMTUTORIALWINDOW.TUTORIALPLAYER.MOVIE = APP.PATH &
"\FLASH\TUTORIAL\SAFEPLACECHECKLIST_v1.swf"
FRMTUTORIALWINDOW.SHOW 1
END SUB

PRIVATE SUB LBLCROSS_MOUSEMOVE (BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,
Y AS SINGLE)
TXTCROSS.FONT.BOLD = TRUE
END SUB

PRIVATE SUB LBLDRESSBRIGHT_CLICK()
FRMTUTORIALWINDOW.TUTORIALHEADING.WIDTH = 10950
FRMTUTORIALWINDOW.WIDTH = 10950
FRMTUTORIALWINDOW.HEIGHT = 7400
FRMTUTORIALWINDOW.TUTORIALPLAYER.HEIGHT = 5600
FRMTUTORIALWINDOW.TUTORIALPLAYER.WIDTH = 10605
FRMTUTORIALWINDOW.CMDCLOSE.LEFT = (FRMTUTORIALWINDOW.WIDTH -
FRMTUTORIALWINDOW.CMDCLOSE.WIDTH) - 200
FRMTUTORIALWINDOW.CMDCLOSE.TOP = (FRMTUTORIALWINDOW.HEIGHT -
FRMTUTORIALWINDOW.CMDCLOSE.HEIGHT) - 200
FRMTUTORIALWINDOW.TUTORIALHEADING.CAPTION = "THE GIRL WHO DID NOT DRESS BRIGHT"
FRMTUTORIALWINDOW.TUTORIALPLAYER.MOVIE = APP.PATH & "\FLASH\TUTORIAL\CROSSING THE
ROAD SAFELY.SWF"
FRMTUTORIALWINDOW.SHOW 1
END SUB

PRIVATE SUB LBLDRESSBRIGHT_MOUSEMOVE (BUTTON AS INTEGER, SHIFT AS INTEGER, X AS
SINGLE, Y AS SINGLE)
TXTDRESSBRIGHT.FONT.BOLD = TRUE
END SUB

PRIVATE SUB LBLJOURNEY_CLICK()
FRMTUTORIALS.TUTORIALIMAGE.PICTURE =
FRMTUTORIALS.IMAGEList1.ListImages(9).PICTURE
FRMTUTORIALS.SHOW
ME.HIDE
END SUB

PRIVATE SUB LBLJOURNEY_MOUSEMOVE (BUTTON AS INTEGER, SHIFT AS INTEGER, X AS
SINGLE, Y AS SINGLE)
TXTSAFERJOURNEY.FONT.BOLD = TRUE
END SUB

PRIVATE SUB LBLCREDITS_CLICK()
CREDITS.SHOW 1
END SUB

PRIVATE SUB LBLMINIMIZE_CLICK()

```

```
FRMTUTORIALMENU.WINDOWSTATE = 1
END SUB
```

```
PRIVATE SUB LBLSAFEBIKE_CLICK()
FRMTUTORIALWINDOW.TUTORIALHEADING.WIDTH = 10875
FRMTUTORIALWINDOW.WIDTH = 10875
FRMTUTORIALWINDOW.HEIGHT = 9360
FRMTUTORIALWINDOW.TUTORIALPLAYER.HEIGHT = 7635
FRMTUTORIALWINDOW.TUTORIALPLAYER.WIDTH = 10605
FRMTUTORIALWINDOW.CMDCLOSE.LEFT = (FRMTUTORIALWINDOW.WIDTH -
FRMTUTORIALWINDOW.CMDCLOSE.WIDTH) - 200
FRMTUTORIALWINDOW.CMDCLOSE.TOP = (FRMTUTORIALWINDOW.HEIGHT -
FRMTUTORIALWINDOW.CMDCLOSE.HEIGHT) - 200
FRMTUTORIALWINDOW.TUTORIALHEADING.CAPTION = "WHAT TO CHECK ON YOUR BIKE"
FRMTUTORIALWINDOW.TUTORIALPLAYER.MOVIE = APP.PATH &
"\FLASH\TUTORIAL\CHECKYOURBIKE.SWF"
FRMTUTORIALWINDOW.SHOW 1
END SUB
```

```
PRIVATE SUB LBLBODY_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y
AS SINGLE)
TXTBODY.FONT.BOLD = TRUE
END SUB
```

```
PRIVATE SUB LBLLINKS_CLICK()
USEFULLINKS.SHOW 1
END SUB
```

```
PRIVATE SUB LBLTUTORIALS_CLICK()
FRMTUTORIALS.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB LBLCLOSE_CLICK()
FRMDIALOGUE.SHOW 1
END SUB
```

```
PRIVATE SUB LBLCLOSE_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,
Y AS SINGLE)
LBLCLOSE.FONT.BOLD = TRUE
END SUB
```

```
PRIVATE SUB LBLMINIMIZE_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS
SINGLE, Y AS SINGLE)
LBLMINIMIZE.FONT.BOLD = TRUE
END SUB
```

```
PRIVATE SUB LBLSAFEBIKE_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS
SINGLE, Y AS SINGLE)
TXTSAFEBIKE.FONT.BOLD = TRUE
END SUB
```

```
PRIVATE SUB LBLSAFETY_CLICK()
FRMTUTORIALS.TUTORIALIMAGE.PICTURE =
FRMTUTORIALS.IMAGELIST1.LISTIMAGES(7).PICTURE
FRMTUTORIALS.SHOW
ME.HIDE
```

```

END SUB

PRIVATE SUB LBLSAFETY_MOUSEMOVE (BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,
Y AS SINGLE)
TXTBIKESAFETY.FONT.BOLD = TRUE
END SUB

PRIVATE SUB LBLWHERE_CLICK ()
FRMTUTORIALS.TUTORIALIMAGE.PICTURE =
FRMTUTORIALS.IMAGEList1.LISTIMAGES(1).PICTURE
FRMTUTORIALS.SHOW
ME.HIDE
END SUB

PRIVATE SUB LBLWHERE_MOUSEMOVE (BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,
Y AS SINGLE)
TXTWHERE.FONT.BOLD = TRUE
END SUB

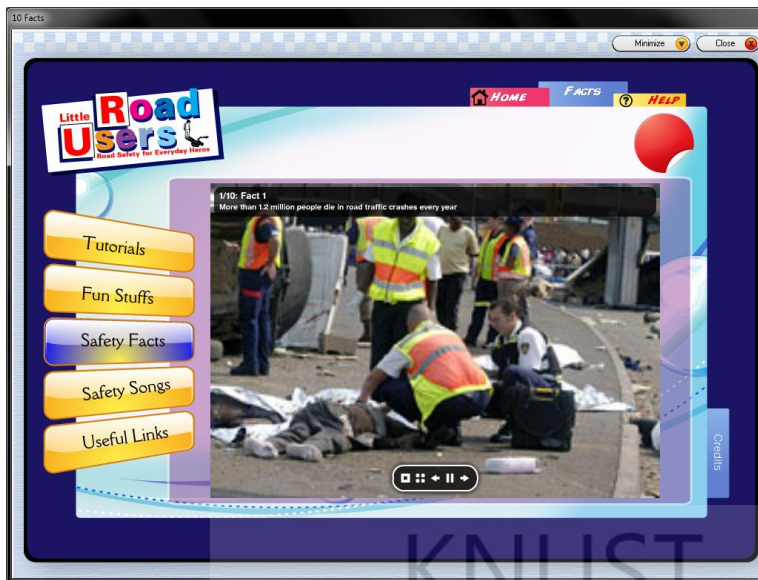
PRIVATE SUB LBSTREETSMARTS_CLICK ()
    FRMGAMES.FLASHGAMES.MOVIE = APP.PATH & "\\FLASH\\GAMES\\STREET SMARTS.SWF"
    FRMGAMES.SHOW
    ME.HIDE
END SUB

PRIVATE SUB LIGHTENUP_CLICK ()
    FRMGAMES.FLASHGAMES.MOVIE = APP.PATH & "\\FLASH\\GAMES\\TOTR_BE SAFE BE SEEN.SWF"
    FRMGAMES.SHOW
    ME.HIDE
END SUB

PRIVATE SUB MAKEMECROSS_CLICK ()
    FRMGAMES.FLASHGAMES.MOVIE = APP.PATH & "\\FLASH\\GAMES\\TOTR_MAKEMECROSS.SWF"
    FRMGAMES.SHOW
    ME.HIDE
END SUB

```

SAFETY FACTS SCREEN



```
PRIVATE SUB CMDSAFETYSONGS_CLICK()
FRMSONGMENU.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB FORM_LOAD()
FACTPLAYER.MOVIE = APP.PATH & "\\FLASH\\10 FACTS\\MONOSLIDESHOW.SWF"
END SUB
```

```
PRIVATE SUB FORM_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y AS SINGLE)
LBLBACKTOTUTORIALS.FORECOLOR = &HFFFFFF
LBLBACKTOHELP.FORECOLOR = VBRED
LBLBACKTOHOME.FORECOLOR = &HFFFFFF
LBLMINIMIZE.FONTBOLD = FALSE
LBLCLOSE.FONTBOLD = FALSE
END SUB
```

```
PRIVATE SUB FUNSTUFFS_CLICK()
FRMGAMEMENU.SHOW
ME.HIDE
END SUB
```

```
PRIVATE SUB LBLBACKTOHELP_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y AS SINGLE)
LBLBACKTOHELP.FORECOLOR = VBBLUE
END SUB
```

```
PRIVATE SUB LBLBACKTOHOME_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y AS SINGLE)
LBLBACKTOHOME.FORECOLOR = VBBLACK
END SUB
```

```
PRIVATE SUB LBLBACKTOTUTORIALS_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y AS SINGLE)
LBLBACKTOTUTORIALS.FORECOLOR = VBRED
```

END SUB

```
PRIVATE SUB LBLCLOSE_CLICK()  
FRMDIALOGUE.SHOW 1  
END SUB
```

```
PRIVATE SUB LBLCLOSE_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE,  
Y AS SINGLE)  
LBLCLOSE.FONTBOLD = TRUE  
END SUB
```

```
PRIVATE SUB LBLCREDITS_CLICK()  
CREDITS.SHOW 1  
END SUB
```

```
PRIVATE SUB LBLLINKS_CLICK()  
USEFULLINKS.SHOW 1  
END SUB
```

```
PRIVATE SUB LBLMINIMIZE_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS  
SINGLE, Y AS SINGLE)  
LBLMINIMIZE.FONTBOLD = TRUE  
END SUB
```

```
PRIVATE SUB LBLTUTORIALS_CLICK()  
FRMTUTORIALMENU.SHOW  
ME.HIDE  
END SUB
```



SONG-MENU SCREEN



```
Private Sub btnGames_Click()
frmGames.Show
Me.Hide
End Sub
```

```
Private Sub cmdFacts_Click()
frmFacts.Show
Me.Hide
End Sub
```

```
Private Sub Form_Load()
Label1.Caption = "Welcome " & LogIn.txtName.Text & " the Street Hero"
End Sub
```

```
Private Sub Form_MouseMove(Button As Integer, Shift As Integer, X As
Single, Y As Single)
    lblBackToHelp.ForeColor = vbRed
    lblBackToHome.ForeColor = &HFFFFFF
    lblMinimize.FontBold = False
    lblClose.FontBold = False
End Sub
```

```
Private Sub FunStuffs_Click()
frmGameMenu.Show
Me.Hide
End Sub
```

```
Private Sub lblBackToHome_Click()
Welcome.Show
Me.Hide
End Sub
```

```
Private Sub lblCredits_Click()
credits.Show 1
End Sub
```

```

Private Sub lblSong2_Click()
    frmSongs.FlashSong.Width = 5555
    frmSongs.FlashSong.Left = 6450
    frmSongs.FlashSong.Movie = App.Path & "\Flash\songs\song2.swf"
    frmSongs.Show
    Me.Hide
End Sub

Private Sub lblLinks_Click()
    UsefulLinks.Show 1
End Sub

Private Sub lblBackToHome_MouseMove(Button As Integer, Shift As
Integer, X As Single, Y As Single)
    lblBackToHome.ForeColor = vbBlack
End Sub

Private Sub lblTutorials_Click()
    frmTutorialMenu.Show
    Me.Hide
End Sub

Private Sub lblsong1_Click()
    frmSongs.FlashSong.Width = 5555
    frmSongs.FlashSong.Left = 6450
    frmSongs.FlashSong.Movie = App.Path & "\Flash\songs\song1.swf"
    frmSongs.Show
    Me.Hide
End Sub

Private Sub lblSong3_Click()
    frmSongs.FlashSong.Width = 5555
    frmSongs.FlashSong.Left = 6450
    frmSongs.FlashSong.Movie = App.Path & "\Flash\songs\song3.swf"
    frmSongs.Show
    Me.Hide
End Sub

Private Sub lblSong4_Click()
    frmSongs.FlashSong.Width = 5555
    frmSongs.FlashSong.Left = 6450
    frmSongs.FlashSong.Movie = App.Path & "\Flash\songs\song4.swf"
    frmSongs.Show
    Me.Hide
End Sub

Private Sub lblSong5_Click()
    frmSongs.FlashSong.Width = 5555
    frmSongs.FlashSong.Left = 6450
    frmSongs.FlashSong.Movie = App.Path & "\Flash\songs\song.swf"
    frmSongs.Show
    Me.Hide
End Sub

Private Sub lblClose_Click()
    frmDialogue.Show 1
End Sub

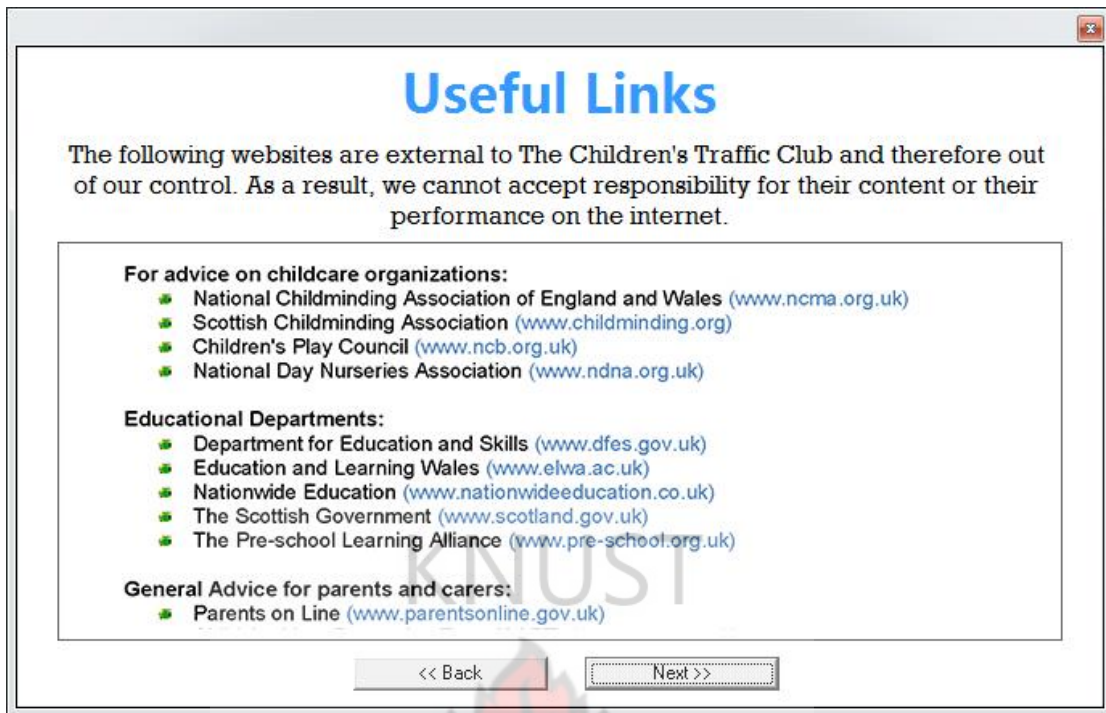
```

```
Private Sub lblClose_MouseMove(Button As Integer, Shift As Integer, X  
As Single, Y As Single)  
    lblClose.FontBold = True  
End Sub  
  
Private Sub lblMinimize_MouseMove(Button As Integer, Shift As  
Integer, X As Single, Y As Single)  
    lblMinimize.FontBold = True  
End Sub
```

KNUST



USEFUL LINKS FORM



Useful Links

The following websites are external to The Children's Traffic Club and therefore out of our control. As a result, we cannot accept responsibility for their content or their performance on the internet.

For advice on childcare organizations:

- National Childminding Association of England and Wales (www.ncma.org.uk)
- Scottish Childminding Association (www.childminding.org)
- Children's Play Council (www.ncb.org.uk)
- National Day Nurseries Association (www.ndna.org.uk)

Educational Departments:

- Department for Education and Skills (www.dfes.gov.uk)
- Education and Learning Wales (www.elwa.ac.uk)
- Nationwide Education (www.nationwideeducation.co.uk)
- The Scottish Government (www.scotland.gov.uk)
- The Pre-school Learning Alliance (www.pre-school.org.uk)

General Advice for parents and carers:

- Parents on Line (www.parentsonline.gov.uk)

<< Back Next >>

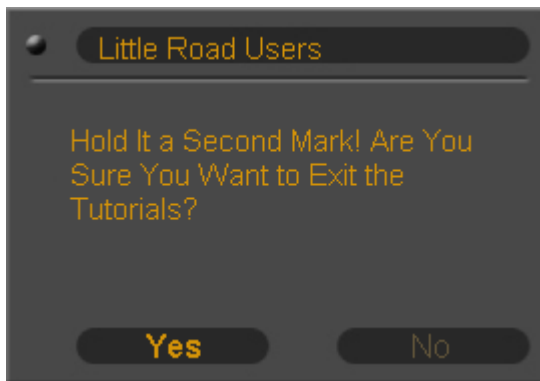
```
Dim PGNum As Integer
```

```
Private Sub Command3_Click()  
If PGNum < 5 Then  
PGNum = PGNum + 1  
End If  
PgDisplay.Picture = ImageList1.ListImages(PGNum).Picture  
End Sub
```

```
Private Sub Command4_Click()  
If PGNum > 1 Then  
PGNum = PGNum - 1  
End If  
PgDisplay.Picture = ImageList1.ListImages(PGNum).Picture  
End Sub
```

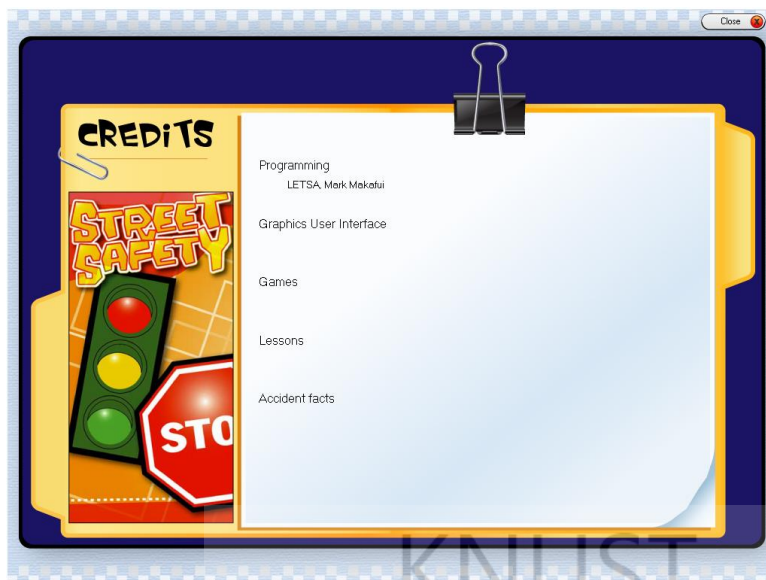
```
Private Sub Form_Load()  
PGNum = 1  
PgDisplay.Picture = ImageList1.ListImages(PGNum).Picture  
End Sub
```


EXIT OPTION SCREEN



```
PRIVATE SUB FORM_LOAD()  
LABEL1.CAPTION = "HOLD IT A SECOND " & LOGIN.TXTNAME.TEXT & "! ARE YOU SURE YOU  
WANT TO EXIT THE TUTORIALS?"  
END SUB  
  
PRIVATE SUB FORM_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y AS  
SINGLE)  
YES.FONTBOLD = FALSE  
NO.FONTBOLD = FALSE  
YES.FORECOLOR = &H3B5764  
NO.FORECOLOR = &H3B5764  
END SUB  
  
PRIVATE SUB NO_CLICK()  
ME.HIDE  
END SUB  
  
PRIVATE SUB YES_CLICK()  
END  
END SUB  
  
PRIVATE SUB YES_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y AS  
SINGLE)  
YES.FONTBOLD = TRUE  
YES.FORECOLOR = &H893D4  
END SUB  
  
PRIVATE SUB NO_MOUSEMOVE(BUTTON AS INTEGER, SHIFT AS INTEGER, X AS SINGLE, Y AS  
SINGLE)  
NO.FONTBOLD = TRUE  
NO.FORECOLOR = &H893D4  
END SUB
```

CREDITS



```
Private Sub Form_MouseMove(Button As Integer, Shift As Integer, X As Single, Y As Single)
lblClose.FontBold = False
End Sub
```

```
Private Sub lblMinimize_Click()
frmTutorialMenu.WindowState = 1
End Sub
```

```
Private Sub lblClose_Click()
Me.Hide
End Sub
```

```
Private Sub lblMinimize_MouseMove(Button As Integer, Shift As Integer, X As Single, Y As Single)
lblMinimize.FontBold = True
End Sub
```

```
Private Sub lblClose_MouseMove(Button As Integer, Shift As Integer, X As Single, Y As Single)
lblClose.FontBold = True
End Sub
```

APPENDIX 4: PERMISSIONS

LETSA, Mark Makafui
Department of Publishing Studies
Kwame Nkrumah University of Science
and Technology
Kumasi - Ghana

Data Protection Officer
Department for Transport
D/04, Ashdown House
Sedlescombe Road North
St Leonards on Sea
East Sussex, TN37 7GA
Informationhandling@dft.gsi.gov

Dear Sir or Madam,

I am writing to request permission to copy the following works for use in completing an academic work. If you do not have the ability to grant these rights, I would appreciate any information on who could.

Item Information

- Stop, look and listen and the scars you'll be missin' (Game)
- Dress brightly in cool gear if it's hospital you fear (Animation/Game)
- Cross the road where it's safe 'cause legs in plaster really chafe (Game)
- Should you fall and hit the dirt, a helmet might prevent the hurt! (Game)

Reproduction Information

- the materials will be used with other road safety animations materials in an interactive Book (school Project)
- three copies will be produced, one for the school Library, one for the researcher and a third copy for the academic board.
- the final work will be on CD
- the final product is strictly for academic purposes and shall be treated with all confidentiality

Course Information

Letsa Mark Makafui (Research Student)
Kwame Nkrumah University of Science and Technology
Department of Publishing Studies
Kumasi, Ghana.

Thank you for your attention to this matter.
Sincerely,

TERMS OF USE

USE OF DATA

If you are a child (a person who is not of legal age to give consent to the collection and processing of their data) and want to enter the competition, you must ask your parent or guardian for permission. They must then confirm their permission and provide an email address, to be used in the initial competition entry. We will then send a message to your parent that you have entered the competition with the Tales of the Road and will ask for their consent within 10 days of sending the email. No information should be given without consent of the relevant parent or guardian.

If consent is granted, parents are then invited to opt them and you in to receive more updates from Tales of the Road. At any point in future communication you will be able to unsubscribe to communication.

We will only collect your parents' email address to invite them to consent. Your name and email address will be used, if your parent agrees for you to receive further communication from Tales of the Road.

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APPENDIX 5:

TRANSCRIBED INTERVIEWS

INTERVIEW WITH DVLA STAFF (Transcribed from an MP3 recorder).

Researcher: Good morning, Mum.

DVLA Staff: Good Morning.

Researcher: Please do you work here.

DVLA Staff: Yes. How can I help you

Researcher: I need someone to help me with my research work.

DVLA Staff: What research, are you a journalist?

Researcher: No. I am a student from KNUST.

DVLA Staff: If you think you can come and put me on TV you are joking.

Researcher: No, Mum. I only need road fatality records for 2006-2009.

DVLA Staff: Then go to MTTU.

Researcher: Mum, I will still need your help with getting records on the number of vehicles we have registered.

DVLA Staff: Oh. It will not take long. Come next week and we do it.

Researcher: Monday?

DVLA Staff: No, Friday.

Researcher: That will be almost two weeks from now. Today is Tuesday.

DVLA Staff: Government ordered all those who work on record to give them record. We are busy putting them into the computer. Go to MTTU and Get that one and come here Friday next week and collect this one.

Researcher: Please, do you know anyone that can be of help?

DVLA Staff: Nobody. But as you can see, everybody here is busy doing something. And we are not always free.

Researcher: What about the police, can they get me something?

DVLA Staff: Yes, but small. They all give to MTTU.

Researcher: Thank you very much. Please what is your name.

DVLA Staff: [Name withheld by researcher]

Researcher: Sorry, it ...G-A-H?

DVLA Staff: [Response withheld by researcher]

Researcher: My name is Mark, but u can call me Zachariah.

DVLA Staff: What...? Are you from the north?

Researcher: No.

DVLA Staff: So, you are a Ghanaian?

Researcher: Yes, from the Volta Region.

DVLA Staff: Where are you a student?

Researcher: KNUST, Kumasi.

DVLA Staff: Bye...



APPENDIX 6

EVALUATION QUESTIONNAIRE FOR DATABASE

Please tick [] one response for each question where appropriate.

Part A: Assessment of Ease of Installation

TOPIC	RESPONSE / ASSESSMENT				
	Excellent	Very Good	Good	Fair	Poor
1. Ease of Installation					

Part B: Usability Assessment

TOPIC	RESPONSE / ASSESSMENT				
	Excellent	Very Good	Good	Fair	Poor
2. Usability					
3. Interface Design					
4. Navigation					
5. Packaging					

Part D: Recommendations

6. Please state your general comments, recommendations or suggestions for the improvement of the interactive Book.	
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Thank You.

KNUST

