Designing and Implementation of E-Commerce Practical Paper-II in Zambian Secondary Business Studies Curriculum: A focus on Urban and Rural schools.

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Abstract

In this paper we describe the designing and implementation of E-Commerce Practical Paper II in Zambian Secondary Business Studies Curriculum. The findings from this paper demonstrate both the challenges Students face in using e-commerce in developing countries and the opportunities emerging from this new Internet platform for development. If the projections for the upcoming years concerning the growth of e-commerce are true, then it is important for the Ministry of Education to realize the opportunities available for generating revenue online. The e-commerce curriculum is incorporated through a set of two courses. The first is a client-server programming course that introduces the structure of the web along with client and server-side scripting techniques. The second is a corporate web development course, which builds on the earlier course by introducing elements of e-commerce technology such as security and encryption, electronic payment systems, agents. This explosion of e-commerce activity has created a new problem

for educational institutions. More specifically, how can business schools meet the demand for Internet savvy graduates in the new economy? This paper explores the opportunities and challenges of introducing e-commerce concepts in business school curriculum. Explores the opportunities and challenges of introducing e-commerce concepts in business school curriculums. Examines the knowledge components of electronic commerce, including Web-based technology skills; and discusses the need for faculty training and development. This manual is a step by step guide for

the use of the Grade 12 E-commerce website for suppliers(students) and buyers(teacher) and provides a comprehensive overview of Grade 12 E-commerce. This E-Commerce page should now be at a point which you are happy with. In an attempt to improve the training of e-commerce teachers, we have carried out research into tasks, exercises and mechanisms that have proved to be effective in online training. Five aspects of the teaching / learning process (theoretical content; activities; mechanisms of interaction; communication tools; and design) were analyzed. A training course was assessed at two different times using two cohorts of students, which in total comprised 150 participants. The second delivery of the course was modified following feedback on the first course. In order to further increase our understanding of the effectiveness and value of the course changes, 12 teachers were also questioned throughout the development of the course. The overall aim of the study was to determine what training methods were most effective in the delivery of an online business teaching training course.

Keywords: E-commerce; E-business; Business curriculum; Knowledge Components Technology uses in education; Online courses and Online business; Teacher training; Teacher education; E-learning and E-commerce; Online tutoring.

INTRODUCTION

E-commerce is fast gaining ground as an accepted and used business paradigm. More and more business houses are implementing web sites providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming commonplace. The objective of this project is to develop a general-purpose e-commerce store for Grade 12 pupils where product like books and past papers can be bought from the comfort of home through the Internet. However, for implementation purposes, this paper will deal with an online shopping for books and past papers. An online store is a virtual store on the Internet where customers or pupils in particular can browse the catalog and select products of interest. The selected items may be collected in a shopping cart. At checkout time, the items in the shopping cart will be presented as an order. At that time, more information will be needed to complete the transaction. Usually, the customer or pupils in particular will be asked to fill or select a billing address, a shipping address, a shipping option, and payment information such as credit card number. An e-mail notification is sent to the customer as soon as the order is placed.

> ➤ **OVERALL DESCRIPTION:**

Description:

- ❖ Any member or pupils in particular can register and view available products.
- ❖ Only registered member or pupils in particular can purchase multiple products regardless of quantity.
- ❖ Contact Us page is available to contact teacher's Admin for queries.
- ❖ There are three roles available: Visitor, User or pupils in particular and teacher's Admin.

- ▪ Visitor can view available products.
- ▪ User or pupils in particular can view and purchase products.
- ▪ An Admin or a teacher in particular has some extra privilege including all privilege of visitor and user.
- ❖ Admin or teachers can add products, edit product information and add/remove product.
- ❖ Admin or teachers can add user or pupils in particular, edit user or pupils in particular information and can remove user or pupils in particular.
- ❖ Admin or teachers can ship order to user or pupils in particular based on order placed by sending confirmation mail.

This chapter presents the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, theoretical framework, operational definitions, delimitation of the study and the

organization of the study.

1.1 Background to the Study

Currently, Zambia's formal education system consists of two years of early childhood education, seven years of primary education (grade one to seven), two years of junior secondary education (grade eight to nine), three years of senior secondary education (grade ten to twelve) and two to seven years of tertiary education (Education Act, 2011; Ministry of Education, Science, Vocational Training and Early Education [MESVTEE], 2013). Transition from primary to secondary and tertiary levels, is determined by national competitive examinations set by Examinations Council of Zambia (ECZ) at the end of grades seven, nine

and twelve (Ministry of Education [MoE], 1996). Early childhood care, development and education refers to both non-formal and formal service provision. Early childhood education caters for two broad levels which are: Day-Care or Crèche and early childhood education. Furthermore, the early childhoodeducation has two levels which are nursery and reception. The crèche stands in for the parents as it provides care, affection and love to the young children. The aim of nursery education is to promote social interaction of young children from different social backgrounds through play. The reception level prepares learners aged five to six years for entry into grade one. Therefore, the teaching and learning at this level is largely informal through guided and unguided play with formal teaching taking about 40 percent of the programme. The academic component prepares them for smooth transition to formal education at grade one. The curriculum for early childhood education is dominated by play and pre-learning activities based on the following learning areas: social studies, integrated science, pre-mathematics, literacy and language and expressive arts (MESVTEE, 2013). The teachers who teach at this level possess pre-school teachers' certificate (MoE, 1996). The curriculum for lower primary education (grade one to four) in Zambia consists of the following learning areas: literacy and language or sign language or braille, integrated science, social studies, mathematics, creative and technology studies (CTS). Learning areas at upper primary (grade five to seven) are: literacy and language or sign language or braille, integrated science, social studies, mathematics, expressive arts, technology studies and home economics. The primary curriculum forms the foundation for the junior secondary school education (MESVTEE, 2013). The main focus of the education offered at grade one is to provide the first competence

level necessary for the learner to assimilate the learning in grade two. As such the teaching and learning at grade one starts with imparting pre-learning skills in all learning areas. At grade two theemphasis is to develop and consolidate the levels of literacy and basic mathematical skills achieved earlier. Primary curriculum forms the foundation for the juniorsecondary school education.These learners are taught by teachers with Zambia primary course certificate or Zambia primary diploma who teach them all the subjects (MESVTEE, 2013). At junior secondary school level there are two pathways that learners choose to pursue. They can choose either academic education or pursue pre-vocational and life skills. Junior secondary schools offer the following compulsory academic subjects: English language, business studies, computer studies, integrated science, social studies, mathematics, religious education, Zambian languages and one optional subject; French, Chinese or Portuguese (MESVTEE, 2013). The vocational career pathway offers five options. Learners choose one of the following options according to their aspirations and ambitions: agriculture, technology, performing arts and creative arts, physical education and sports and home economics and hospitality. They take a maximum of seven subjects. They take six compulsory subjects namely, computer studies, English language, mathematics, integrated science, social studies and business studies. At each secondary school learners choose one vocational pathway from the two they are given to choose from. Source: MESVTEE, 2013 Junior secondary school level is the basis for acquiring knowledge, skills and values needed for learning at senior secondary level. The curriculum at this level also equips learners with knowledge and skills to either continue with the academic education or pursue pre-vocational and life skills (MESVTEE,

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2013). The teachers qualified to teach at this level are holders of secondary teachers' diploma. Teachers received specialized training from colleges of education to teach particular subjects at this level (MoE, 1996). The senior secondary school curriculum prepares learners for tertiary education and the world of work. They may choose to follow either the academic or the vocational pathway. However, each Senior Secondary School is restricted to offering two options under academic and two options under vocational career pathways. The academic career pathway at this level consists of the following options: Social Sciences, Business Studies and Natural Sciences (MESVTEE, 2013).

Source: MESVTEE, 2013. The vocational and technical career pathway offers the same options as those offered at junior secondary, the following are options: business studies, technology, home economics and hospitality, performing and creative arts and physical education and sports. take at least two business subjects. At this level teachers with bachelor's degree qualify to teach a particular subject they trained to teach. Of all the business subjects given above, commerce is taken by the largest number of pupils compared to other business subjects. It is also offered by most secondary schools in Zambia (MoE, 1996; ECZ, 2012). E-commerce is buying and selling goods and services over the Internet. Ecommerce is part of e-business, E-business is a structure that includes not only those transactions that center on buying and selling goods and services to generate revenue, but also those transactions that support revenue generation. These activities include generating demand for goods and services, offering sales support and customer service, or facilitating communications between business partners. It covers the following aspects: Introduction to e-Commerce: e-

Commerce Infrastructure: Business Models and e-Commerce: Digital Business Strategy: Supply Chain Management and e-Commerce: Marketing Strategies and e-Commerce: e-Commerce Security and Controls: Electronic Payment Systems: Legal and Ethical Issues in e-Commerce: Social Commerce and Other Issues in e-Commerce: ecommerce Systems Analysis and Design. E-commerce is an important topic to learn in these days and age where its applications are relevant to everyday business. In Commerce/Business, Electronic Commerce can offer both short term and long-term benefits to the companies. Not only can it open new markets, enabling you to reach new customers, but it can also make it easier and faster for you to do business with your existing customer base. Moving business practices, such as ordering, invoicing and customer support, to network-based system can also reduce the paperwork involved in business-to-business transactions. In Zambia the performance of candidates in Commerce school certificate examinations held at the end of senior secondary has been good. E-commerce is an important topic to be learnt as it is relevant to everyday life business. Thus, it was decided that the teachers teaching this topic be investigated in a more systematic way. Hence the e-commerce of this research idea. For decades commerce has been based on the concept of customers coming to bricks-and-mortar establishments to conduct their business. They have placed their orders, received the products, paid for them and taken them with them. Alternatively, they have placed their orders, had them delivered, been invoiced, and then paid for them. Regardless of when orders were paid for and delivered, customers still needed to visit the bricks-and-mortar establishments to conduct business transactions. Advent of the telephone meant that orders could be placed from a distance, but all business

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transactions still involved traditional bricks-and-mortar establishments. According to the editor-in-chief of *International Journal of Electronic Commerce*, Vladimir Zwass, 'Electronic commerce is sharing business information, maintaining business relationships and conducting business transactions by means of telecommunications networks'. Even nowadays, long after the emergence of the so called "**dot.com"/"Internet Revolution**", electronic commerce remains relatively new, being developed and altered constantly in the business management space and the information technology.

There have been and will constantly be discussions on the electronic commerce. There are always doubts, confusion and misunderstandings about this topic as a result of the difference in achievements in the schools where this form of commerce has been implemented. Electronic commerce or E-commerce, based on ICT bears an extraordinary potential to improve the global trade efficiency and to integrate the developing countries in these developments. As a consequence, a considerable rise of e-commerce has been taking place in developed countries in the last two decades as well as in its implementation in the developing schools.

E-commerce is a completely new model for commerce; consequently, it requires a fundamental reassessment of the way in which it operates, especially of the tax, legal, risk and compliance, trade and customer protection issues that were taken for granted in older business models. Under the old traditional model, companies could take years to become global players. They could take their time in becoming established as successful businesses.

1.2 Statement of the problem

Electronic commerce over the Internet is a new way of conducting business. It has the potential to radically alter economic activities and the social environment. Already, it affects such large sectors as communications, finance and retail trade. It holds promise in areas such as education, health and government. The largest effects may be associated not with many of the impacts that command the most attention which is customized products and the elimination of middlemen, but also with less visible, but potentially more pervasive, effects on routine business activities (e.g. ordering office supplies, paying bills, and estimating demand), that is, on the way businesses interact and operate. This paper focuses on the Electronic Commerce framework and its relationship with decision support system. E-commerce is not limited to the purchase of a product, it includes, beside e-mail and other communication platform, all information or services that a company may offer to its customers over the net, from pre-purchase information to after sale service and support. These are essentially two major uses of e-commerce. The first is to use it to reduce transaction cost by increasing efficiency in the use of both time and procedure, and thus lowing cost. The other is to use it both as a marketing tool to increase sales (and customer services) as well as to create new business through it for example, information technology enabled business, call-centers, software maintenance services etc. It is thus a tool for both existing business as well as an opportunity for new business, both for existing companies as well as for new entrants. E commerce provides consumers the ability to purchase, distribute, communicate, explore, and research from virtually anywhere an Internet connection can be obtained. This study is examining challenges

and prospects associated with e-commerce and retail business in Zambia.

> ➤ **Therefore, the problem statement for this study is;**

1. Lack of understanding on how Electronic Commerce business operation works.

2. Lack of understanding of Electronic Commerce association with Decision Support System.

3. Lack of Computers in schools.

4. Lack of internet facilities.

5. Lack of expert teachers.

1.3 Purpose of the study

The purpose of this study was to design and implement E-Commerce Practical Paper II in Zambian Secondary Business Studies Curriculum and to determine the characteristics of teachers who teach E-commerce and to investigate how e-commerce was taught in secondary schools in Zambia. The study also explored the challenges faced by the teachers and pupils when teaching and learning ICT respectively.

1.4 Objectives of the study

The following are the objectives of this study:

❖ To examine the challenges of teaching e-commerce in Zambia.

❖ To examine the prospects of e-commerce in Zambia.

❖ To identify the approaches to e-commerce in Zambia.

❖ To determine who teaches e-commerce in secondary schools in Zambia.

❖ To establish how e-commerce is taught in Secondary Schools in Zambia.

❖ To explore the challenges faced by the teachers and pupils when teaching and learning e-commerce respectively.

❖ To come up with ideas and suggestions on how to improve the teaching of e-commerce.

❖ To demonstrate how to create an online business.

1.5 Research Questions

The study was guided by the following questions:

1) Who teaches e-commerce in secondary schools in Zambia?

2) How is e-commerce taught in secondary schools in Zambia?

3) What challenges do teachers and learners face when teaching and learning e-commerce respectively?

4) How could the teaching of e-commerce be improved?

5) What are the challenges of teaching e-commerce in Zambia?

6) What are the prospects of teaching e-commerce in Zambia?

7) What are the approaches to e-commerce in Zambia?

1.6 Significance of the study

It was anticipated that the findings from this study would generate knowledge which could minimize the existing knowledge gap about how e-commerce was taught in secondary schools in Zambia. It was also anticipated that the

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information generated by this study could be used by teachers of commerce, school administrators, heads of departments (HOD's) for business studies, teacher educators, senior education standards officers (business studies) and in-service training providers, textbook writers, Business Studies Teachers Association of Zambia (BUSTAZ) and curriculum development officers to improve teaching and pupils learning of e-commerce in secondary schools in Lusaka District. Data generated could also be useful to other researchers.

> ➤ **Delimitation**

The research was undertaken in three selected secondary schools in Lusaka District, on the Lusaka Province.

> ➤ **Operational Definitions**

Constructivism: Refers to the theory of learning which states that learners construct their own knowledge of the around them through experiencing things.

Active Learning refers to anything that students do in a classroom other than merely passively listening to an instructor's lecture.

Collaborative or Cooperative Learning refers to instructional approaches in which students work together in small groups to accomplish a common learning goal.

Critical Thinking is a collection of mental activities that include the ability to intuit, clarify, reflect, connect, infer and judge. It brings these activities together and enables the student to question what knowledge exists.

Learners refer to individuals receiving instruction. In this study this term is used interchangeably with pupil or student.

Learner Centered Lesson: This refers to the type of lesson where the student did most of the activities in a lesson. The student assumes the responsibility for learning while the instructor is responsible for facilitating the learning. Thus, the power in the classroom shifts to the student.

Teacher Centered Lesson: This refers to the type of lesson where the teacher did most of the talking and activities while learners passively received information.

Teaching Strategy refers to the procedures and methods by which objectives of a lesson are realized in the class.

1.8 Organization of the Study

This study was organized as follows: chapter one presented the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, significance of the study, theoretical framework, operational definitions and delimitation of the study.

In chapter two, related literature is reviewed. This chapter is structured as follows: Teaching, lesson planning and preparation, lesson presentation, designing and implementation.

Chapter three outlines the research methodology as follows: research design, research sites, target population, sample and sampling procedures, research instruments, data collection procedures, data analysis, ethical issues and limitations of the study.

In chapter four the findings of this study are presented according to research questions. The discussions of the findings are presented in chapter five. In chapter six, conclusions are drawn from the results and recommendations are given. In addition to the main text, there are appendices.

Materials/ Methods/Design/Methodology

This chapter presents review related to e-commerce education. It is structured as follows: Teaching; lesson planning, scheme of work and preparation, scheme of work and preparation, lesson presentation, e-commerce designing, studies on e-commerce education done outside Africa, studies on e-commerce education done in Africa, studies on e-commerce education done in Zambia and Examinations Council of Zambia Chief Examiner's Reports on performance of candidates in e-commerce questions. These aspects of literature depict the problems teachers encounter while teaching as well as the learners' problems on learning e-commerce and how the problems could be solved.

> ➤ **Teaching**

This section starts by defining what teaching and particularly what effective teaching is. It highlights the factors that contribute to effective teaching. Mohan (2010) defines teaching as a process of assisting learners acquire new knowledge and skills. It consists of showing and guiding the learners in performance of tasks and then measuring their results. Das (2007) on the other hand defines teaching as the creation of a situation which facilitates learning. He observes that it is an interactive process between the teacher and the pupil. Onyekuru and Ibegbunam (2013) defined teaching effectiveness as a measure of the extent of realization of instructional objectives. They stated that there are four main factors that enhance effective teaching and learning; teacher variables, family variables, school variables and learner variables. They defined teacher-variables as aspects of teacher characteristics such as qualification, experience, motivation and dedication. Family variables include social cultural background of pupils, level and type of education of parents or guardians and personal relationships among

family members. School variables, on the other hand are seen as teaching effectiveness which include quality and quantity of teaching staff, facilities such as well-equipped libraries and laboratories, instructional materials and learner variables which include motivation and previous knowledge. Of these factors, the teacher-variables are the ones that exert the most influence on learning outcome because the teacher is the implementer of the curriculum. One of the teacher variables which contribute greatly to improve pupil academic achievement is teacher qualifications. Edu, Edu and Kalu (2012) and Onyekuru and Ibegbunam (2013) reported that teaching experience and teachers' qualification had an influence on teaching effectiveness of secondary school teachers while gender had no influence. Teaching and learning are interrelated. Well trained teachers, highly qualified teachers and teachers who perform their duties responsibly have a bearing on the effectiveness of teaching (Onyekuru and Ibegbunam, 2013).

> ➤ **Qualified and Experienced Teachers**

Qualified teachers are teachers who received relevant training in education for their teaching subject up to a minimum level (Onyekuru and Ibegbunam, 2013). In Zambia, University bachelor's degree holders are the teachers qualified to teach senior secondary classes and diploma holders are qualified to teach junior secondary school classes (MoE, 1996). The experience of a teacher is based on the number of years of service (Rice, 2010). Onyekuru and Ibegbunam (2013) reported that the more years a teacher spends in teaching service, the more experience the teacher gets and becomes more knowledgeable in all it takes to improve the achievement of learners. In addition, Rice (2010) revealed that teacher experience enhances the knowledge, skills and productivity of teachers. The Zambian Ministry of Education

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recognized the importance of having qualified teachers to teach Zambian learners. As a result, in 1990 this ministry established the Teacher Education Directorate (TED) whose mandate is to deal with the training of teachers (Mulenga, 2012).

> ➤ **Lesson Planning and Preparation**

This section highlighted lesson planning and aspects of a lesson plan. The merits and demerits of teaching methods are discussed. Mohan, (2012) defines a lesson plan as an outline of the important points of a lesson arranged in the order in which they are to be presented to learners by the teacher. A lesson plan is a detailed description of the course of instruction for one lesson in a particular class which guides class instruction (Davar, 2012; MESVTEE, 2014). Lesson planning is a hallmark of the teaching profession. Furthermore, Jones (1998), Muzumara, (2008) and Mohan (2012) considered lesson planning as a creative process which provides a framework for purposeful teaching and learning. Good lesson planning is the key to successful teaching. During lesson planning, a teacher reflects on issues such as objectives, delivery, the learning procedures and evaluation mechanism. Planning for a lesson also requires that a teacher thinks and reflects on how to use the teaching and learning materials to genuinely and effectively engage the learners. Petty (2009) stated that a teacher also requires sound knowledge of the subject matter, teaching strategies and the pupils he or she intends to teach. Every teaching and learning item serves a well thought out purpose. The developed and selected teaching and learning materials must

bring out pupils' awareness of learning objectives. Jones (1998), Muzumara (2008), Petty (2009) and Mohan (2010) highlighted the following as some of the advantages of lesson planning; helping to make the lesson well organized and systematic, enhancing the self-confidence and self-reliance of the teacher and facilitating the appropriate use of teaching and learning aids. Jones (1998) and Muzumara (2008) both agree that lesson planning enables the teacher to plan suitable learner activities that help to retain students' interest and it ensures economical use of time as each step is planned. Furthermore, Mohan (2010) asserted that lesson planning establishes proper connection between lessons and ensures continuity in the teaching-learning process. MESVTEE (2014) stated that lesson planning helps a teacher to anticipate pupils' reactions and enables the teacher to prepare adequately in order to avoid foreseeable problems. In this researcher's view, lesson planning is an important creative and reflective activity which provides a framework for purposeful teaching and learning. It is the key to successful teaching and learning because it helps to create a conducive teaching and learning environment. During lesson planning, the teacher carefully considers the following; what content will be covered during the lesson, duration of the lesson, prior knowledge of the learners, the teaching and learning materials, the abilities of the learners and learner centered methods and strategies of teaching to use. Planning also helps the teacher to decide how the lesson will be introduced so that learners' interest is aroused and learners are motivated to learn. Lesson planning also helps the teacher to

plan how to conclude the lesson effectively. Furthermore, lesson planning helps the teacher to anticipate some challenges and think how they can be overcome.

PROJECT DESIGN

In order to design a web site, the relational database must be designed first. Conceptual design can be divided into two parts: The **data model** and the **process model**. The data model focuses on what data should be stored in the database while the process model deals with how the data is processed. To put this in the context of the relational database, the data model is used to design the relational tables. The process model is used to design the queries that will access and perform operations on those tables.

❖ **Data Model**

A data model is a conceptual representation of the data structures that are required by a database. The first step in designing a database is to develop an Entity-Relation Diagram (ERD). The ERD serves as a blue print from which a relational database maybe deduced.

❖ **Database Design**

In this section, the basic structure of the tables composing the database for the project are shown along with information about primary and foreign keys.

✓ *Pupils*

a. SNO	b. NAME	c. TYPE	d. DESCRIPTION
e. 1	f. **UserID**	g. **Varchar**	h. **Primary key for Pupils identification**
i. 2	j. **Password**	k. **Varchar**	l. **Security for Pupils**
m. 3	n. **First_Name**	o. **Varchar**	p.
q. 4	r. **Last_Name**	s. **Varchar**	t.
u. 5	v. **Address**	w. **Varchar**	x.
y. 6	z. **City**	aa. **Varchar**	bb.
cc. 7	dd. **Zip**	ee. **Integer**	ff.
gg. 8	hh. **State**	ii. **Varchar**	jj.
kk. 9	ll. **Email Address**	mm. **Varchar**	nn.
oo. 10	pp. **Phone_Number**	qq. **Varchar**	rr.
ss. 11	tt. **School name**	uu. **Varchar**	vv.

✓ *Books and Past papers*

TABLE I. SNO	TABLE II. NAME	TABLE III. TYPE	TABLE IV. DESCRIPTION
TABLE V. 1	TABLE VI. **InventoryID**	TABLE VII. **Integer**	TABLE VIII. **Primary key for Inventory Identification,** TABLE IX. **ISBN of a book**
TABLE X. 2	TABLE XI. **Book_Name**	TABLE XII. **Varchar**	TABLE XIII.
TABLE XIV. 3	TABLE XV. **Author**	TABLE XVI. **Varchar**	TABLE XVII.
TABLE XVIII. 4	TABLE XIX. **Past paper_Subject Name**	TABLE XX. **Varchar**	TABLE XXI.
TABLE XXII. 5	TABLE XXIII. **Year prepared**	TABLE XXIV. **Varchar**	TABLE XXV.
TABLE XXVI. 6	TABLE XXVII. **Price**	TABLE XXVIII. **Double**	TABLE XXIX.

✓ *State_Tax*

SNO	NAME	TYPE	DESCRIPTION
1	**State Name**	**Varchar**	**Primary key for State Identification**
2	**Sales Tax Rate**	**Double**	**Sales tax for each state**

✓ *Shopping_Cart_Items*

SNO	NAME	TYPE	DESCRIPTION
1	**ShoppingCartID**	**Integer**	**Primary key for Shopping Cart Identification**
2	**InventoryID**	**Varchar**	**Foreign key to Inventory**
3	**Price**	**Double**	
4	**Date**	**Date**	
5	**UserID**	**Varchar**	**Foreign key to Customer**
6	**Quantity**	**Integer**	

❖ **Process Model**

A Process Model tells us about how the data is processed and how the data flows from one table to another to gather the required information. This model consists of the Functional Decomposition Diagram and Data Flow Diagram.

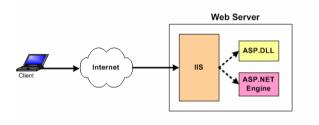➢ **Functional Decomposition Diagram**

A decomposition diagram shows a top-down functional decomposition of a system and exposes the system's structure. The objective of the Functional Decomposition is to break down a system step by step, beginning with the main function of a system and continuing with the interim levels down to the level of elementary functions. The diagram is the starting point for more detailed process diagrams, such as data flow diagrams (DFD).

➢ **User Interface Design**

Before implementing the actual design of the project, a few user interface designs were constructed to visualize the user interaction with the system as they browse for books, create a shopping cart and purchase books. The user interface design will closely follow our Functional Decomposition Diagram.

Implementation Technologies

The objective of this project is to develop an online book store. When the user types in the URL of the Book Store in the address field of the browser, a Web Server is contacted to get the requested information. In the .NET Framework, IIS (Internet Information Service) acts as the Web Server. The sole task of a Web Server is to accept incoming HTTP requests and to return the requested resource in an HTTP response. The first thing IIS does when a request comes in is to decide how to handle the request. Its decision is based upon the requested file's extension. For example, if the requested file has

the .asp extension, IIS will route the request to be handled by asp.dll. If it has the externs ion of .aspx, .ascx, etc, it will route the request to be handled by ASP.NET Engine. The ASP.NET Engine then gets the requested file, and if necessary contacts the database through ADO.NET for the required file and then the information is sent back to the Client's browser. Figure 21 shows how a client browser interacts with the Web server and how the Web server handles the request from client.

2.6 Ecommerce User Manual

1. Categories and Subcategories

❖ When setting up a new product, Pupils will be assigned to categories as such the categories must be created first.

❖ To add a new category, Pupils will be navigating to the menu and select category under display new products.

❖ To add a sub-category, pupils will be clicking on Display Sub-categories and add the product name and description.

2. Adding a New Product:

1. Pupils will be able Click on Products under My Products Menu.

2. Pupils will be able Navigate to Display New Products.

3. Pupils will be able Select a Category from the Examples as follows

- ✓ Apparel

- ✓ Automobiles & Motorcycles

- ✓ Beauty and Personnel Care e.t.c.

4. Pupils will be able Indicate Product Name on the space provided.

5. Pupils will be able Attach Products Terms and Conditions

6. Pupils will be able Upload the Product Photo from their products photo bank

7. Pupils will be able Indicate the Product Details by describing all the attributes

3. Editing Products

1. Pupils will be able Go to My Products

2. Pupils will be able Click on Manage Products

3. Pupils will be able Enter the Product name and search

4. Pupils will be able to edit the product details by clicking on editing required

5. Pupils will be able to delete the product by clicking on delete

4. Master Page details:

➢ Online Shopping Master Page (Similar Master Page for Visitor, User and Admin)

ONLINE SHOPPING APPLICATION:

Anyone can view Online Shopping portal and available products, but every user or pupils in particular must login by his/her Username and password in order to purchase or order products. Unregistered members can register by navigating to registration page. Only Admin will have access to modify roles, by default developer can only be an 'Admin'. Once user register site, his default role will be 'User'.

5. Web Pages details:

❖ **Home Page**

The Home Screen will consist of screen were one can browse through the products which we have on our website.

❖ **About Us Page**

This page describes about website and owners.

❖ **Books and Past papers Page**

This page consists of product details. This page appears same for both visitors and users.

❖ **Order Us Page**

Registered users can order desired products from here.

❖ **Contact Us Page**

Visitors and Registered users can contact website owners or administrators from here

❖ **Admin Page**

Only difference you see in this page is Role: Admin. User and Admin role will be checked once the page was login and Session ["role"] will be either Admin or User. If credentials belong to Admin then role will be Admin and if credentials belong to User then role will be User.

❖ **Login Page**

Login page for both users and administrators.

❖ **Register Page**

New users can register here.

❖ **Track**

Website Administrators can track and ship orders here.

❖ **Paypal for payment**

Once user orders products they are redirected to payment page.

➢ **Syllabus outcomes/Scheme of workand preparation**

New Concepts in E-Commerce Project

E-commerce
Syllabus outcomes
Focus: Students learn how to use the Internet for researching commercial and legal information, and buying and selling goods and services.
A student: 5.2   analyses the rights and responsibilities of individuals in a range of consumer, financial, business, legal and employment contexts 5.3   examines the role of law in society 5.4   analyses key factors affecting commercial and legal decisions 5.5   evaluates options for solving commercial and legal problems and issues 5.7   researches and assesses commercial and legal information using a variety of sources 5.8   explains commercial and legal information using a variety of forms 5.9 works independently and collaboratively to meet individual and collective goals within specified timelines.

Students learn about:	Students learn to:	Teaching/Learning Activities

The scope of e-commerce
 	
• uses of e-commerce for commercial purposes by private and public institutions and individuals
 	
• advantages and disadvantages of using the Internet for researching commercial information and buying and selling goods and services
 	
(Spread 7.1)
	• identify the range of e-commerce used by public and private organisations and individuals
	
	• search for and find key websites in Australia and internationally that are used for commercial purposes
	• use the links provided by key websites to access the information provided by government, non-government and commercial institutions
		- Survey.
		  1. Conduct a class survey to determine the number of students who have accessed the Internet to:
		  (a) purchase a product.
		  (b) to sell a product.
		  (c) research information for a school assignment
		  (d) conduct their banking
		  (e) send email.
		  2. Record the most commonly access (i) commercial, (ii) government and (iii) non-government sites.
		  3. Analyse the results of the class survey.
		- Outline the two meanings of e-commerce: B2C and B2B as detailed on page 168.
		- Read the list of advantages and disadvantages of using the Internet for commercial purposes on page 168. Explain three advantages and three disadvantages of using the Internet.
		- Group work. Brainstorm how e-commerce may effect:
		  (a) Australian consumers
		  (b) large retailers
		  (c) the Australian economy.
		- Analyse a graph. Complete the Skillbooster on page 169.
		
		- Explain the meaning of 'e-tailer'.

Students learn about:	Students learn to:	Teaching/Learning Activities
The scope of e-commerce • uses of e-commerce for commercial purposes by private and public institutions and individuals • advantages and disadvantages of using the Internet for researching commercial information and buying and selling goods and services **(Spread 7.1)**	• identify the range of e-commerce used by public and private organisations and individuals • search for and find key websites in Australia and internationally that are used for commercial purposes • use the links provided by key websites to access the information provided by government, non-government and commercial institutions	- Compile a report. In pairs, have students prepare a one-page report on the impact that the development of the Internet has had on their: (a) school work (b) family (c) leisure activities (d) spending habits. - Internet activity. Use www.jaconline.com.au/commerce to access five key websites in Australia and internationally that are used for commercial purposes. - E-tailer's homepage evaluation. Use www.jaconline.com.au/commerce to access: (a) Yahoo! Australia and New Zealand Shopping Mall (b) Buy Guide (c) ninemsn shopping links. Evaluate each site using the criteria listed in activity 8 page 169.

Students learn about:	Students learn to:	Teaching/Learning Activities

The e-commerce user
• online shopping
  - purchase and payment online
  - making payments securely over the Internet
  - domestic and international laws that provide protection
  - the extent which protection is provided and the available redress
 	
(Spread 7.2)
	• investigate the process of purchasing and paying for goods electronically
	
	• identify exchange rate issues related to purchases and payments
	
	• analyse the importance of protection for consumers
	
	• identify laws which provide protection for e-commerce users
	
	• identify the problems associated with transferring funds online
	
	• identify the safeguards that an individual would undertake before transferring funds online
		- Revise the function of an e-tailer.
		
		- 'Add to cart' mind map. Examine the information contained on pages 170-71. Create a mind map of the six online shopping strategies.
		- Discuss how shopping on the Internet is:
		(a) similar to traditional shopping
		(b) different from traditional shopping.
		- Flow chart. Draw a flow chart to show how e-commerce transactions take place. Refer to the traditional shopping transaction flow chart on page 173.
		- Read 'Ten things to check before shopping on the Internet' on page 172. Discuss the importance of each item.
		- Internet activity. Use www.jaconline.com.au/commerce to access the Australian Competition and Consumer Commission's (ACCC) website. List the ten questions the ACCC suggests a consumer should ask before committing to an online purchase.
		
		- Create an A4 poster or pamphlet titled 'The Dos and Don'ts of Online Shopping' (refer to activity 11 on page 173.
		
		- 'Advice line'. Role play a situation where a student has to provide advice to a friend who wants to purchase a product from an overseas e-tailer.

Students learn about:	Students learn to:	Teaching/Learning Activities

The e-commerce user
 	
• online shopping
 	
   - purchase and payment online
   - making payments securely over the Internet
   - domestic and international laws that provide protection
   - the extent which protection is provided and the available redress
 	
(Spread 7.2)
	• investigate the process of purchasing and paying for goods electronically
	
	• identify exchange rate issues related to purchases and payments
	
	• analyse the importance of protection for consumers
	
	• identify laws which provide protection for e-commerce users
	
	• identify the problems associated with transferring funds online
	
	• identify the safeguards that an individual would undertake before transferring funds online
		Internet activity. Use www.jaconline.com.au/commerce to access the Amazon site.
		  (a) List the methods of payment accepted.
		  (b) What security of payment measures does the site provide?
		  (c) Outline the refund policy
		  (d) What is the cost of p&p?
		
		- Read the information about Consumer PING on page 172. . Use www.jaconline.com.au/commerce to access the Consumer PING website. List the advantages of using Consumer PING when shopping online.
		- 'Place a bid' personal stories. Discuss online auctions. Have students recount their online auction purchases.
		- Internet activity. Use www.jaconline.com.au/commerce to access the ebay site. Compare the ease of navigation between the ebay and Amazon sites.
		- Discuss the consumer protection issues involved when shopping online.
		
		- Internet activity. . Use www.jaconline.com.au/commerce to investigate consumer protection legislation in other countries.
		
		- Complete activity 10 – construct a web page.

Students learn about:	Students learn to:	Teaching/Learning Activities

The e-commerce user (cont.)
 	
1) advice on e-commerce issues
 	
   - government
 	
   - non-government
 	
(Spread 7.3)
	2) investigate a range of government and non-government websites that provide advice, useful tips, courses, seminars and workshops for consumers	- Virtual web tour. Read the introduction to 'Virtual Web Tours' on page 175.
		
		- Government websites.
		(1) Read the introduction to the government websites as shown on pages 174-75.
		
		(2) Have student access some or all of the following government websites. Using www.jaconline.com.au/commerce and clicking on the relevant links can access all these websites.
		(a) www.accc.gov.au
		(b) www.consumeronline.gov.au
		(c) www.econsumer
		(d) www.consumerping.gov.au
		(e) www.asic.gov.au
		(f) www.fairtrading.nse.gov.au
		(g) www.customs.gov.au
		(h) www.consumer.gov.au
		
		3. Evaluate the usefulness of the advice given at each site. Have students select what they think is the most useful site. Give reasons for their selection.
		
		4. Discuss the benefits of these websites to Australian consumers. Group work. Design a poster aimed at 15-16 years old, students advertising some of the websites that provide advice on e-commerce issues.

Students learn about:	Students learn to:	Teaching/Learning Activities
The e-commerce user (cont.) 3) advice on e-commerce issues - government - non-government **(Spread 7.3)**	4) investigate a range of government and non-government websites that provide advice, useful tips, courses, seminars and workshops for consumers	- Non-government websites. (1) Read the introduction to the non-government websites on page 174. (2) Have student access some or all of the following non-government websites. Using www.jaconline.com.au/commerce and clicking on the relevant links can access all these websites. (a) www.choice.com.au. Select the 'Shopping Online' section (b) www.visa.com.au. Research how to make a secure payment online. (c) www.nab.com.au. Select the 'FAQ' section. 3. Evaluate the usefulness of the advice given at each site. Have students select what they think is the most useful site. Give reasons for their selection. - Group work. Design a poster aimed at 15-16 year-old students, advertising some of the websites that provide advice on e-commerce issues. - Outline the role of the Australian Consumers' Association (Choice). Have students research the advice the ACA provides regarding: (a) buying online from an overseas e-tailer (b) delivery problems (c) maintaining privacy. - Presentation. Access the Consumers Online website. Present a two-minute oral report based on the information contained in one of the 'Fact Sheets'. - Complete worksheet 7.1 'Exploring the Federal Government website.

Students learn about:	Students learn to:	Teaching/Learning Activities
The e-commerce user (cont.) 5) **e-consumer protection issues** - formation of contract - the payment of goods and services - the conduct of the organisation providing goods and services - security, integrity of websites **(Spread 7.4)**	- identify consumer protection issues in electronic commerce - access government websites to investigate and report recent Australian and/or international scams	- Revise the three elements of a contract: offer; acceptance; consideration. Discuss how a contract is established when purchasing online. - Discuss the old adage: 'Let the buyer beware (caveat emptor). This should now read: 'On the Internet, let the buyer beware. But where?' - Examine the illustration on page 176. Outline the problems a consumer may experience when purchasing online, especially from an overseas e-tailer. - Read the Com Fact on page 177. Discuss the implications of this survey. - Have students recount their own experiences. - Brainstorm. The safety features a consumer should look for on an e-tailer's website. - Read and discuss 'How to avoid super-highway robbery' on page 177. - Use www.jaconline.com.au/commerce to access the Consumers International's web site. (a) What is the role of Consumers International? (b) Prepare a two-minute presentation based on the Consumer International's 'Top five tips for friendly advice and information on the Internet'. (PowerPoint presentation).

Students learn about:	Students learn to:	Teaching/Learning Activities
The e-commerce user are required to evaluate the e-commerce system the following functions: - catigories - subcategories - registration of suppliers - company profiles - adding new product - contacting suppliers b. include the following: - strengths - weeknesses - opportunities - threats - suggestions on how to improve this e-commerce system	describe the following functions: - catigories - subcategories - registration of suppliers - company profiles - adding new product - contacting suppliers b. include the following: - strengths - weeknesses - opportunities - threats - suggestions on how to improve this e-commerce system	- Revise the three catigories of e-commerce system: - Discuss how a the e-commerce system is established when purchasing online. - Discuss the old adage: 'Let the buyer beware (caveat emptor). This should now read: 'On the Internet, let the buyer beware. But where?' - Outline the problems a consumer may experience when purchasing online, especially from an overseas e-tailer. - Have students recount their own experiences. - Brainstorm. The safety features a consumer should look for on an e-tailer's website. - Use www.jaconline.com.au/commerce to access the Consumers International's web site. (a) What is the role of Consumers International? (b) Prepare a two-minute presentation based on the Consumer International's 'Top five tips for friendly advice and information on the Internet'. (PowerPoint presentation).

Students will be able to develop the skills in the field of Electronic Commerce and to keep students at the forefront of the Global Digital Economy via facilitating innovation, creating values in the Electronic market place with the Cooperation of leading Edge organizations.

The Objectives of this course are three-fold:

    I.   To become familiar with state of the art Electronic Model, Payment Mechanisms.

    II.   To understand the basic principal of E-commerce, Securities, Supply Chain Management.

    III.   To Evaluate and observe various online businesses.

➤ **Lesson Objectives**

Lesson objectives are statements which set out to describe what pupils are expected to learn or demonstrate from a particular lesson in a way that allows the teacher to identify if learning has occurred. Objectives should be feasible and attainable by most learners (MESVTEE, 2014). Muzumara (2008) and Davar (2012) stated that teaching is best achieved if a teacher sets well defined objectives which provide the direction of instruction for a given topic. Behavioral objectives must clearly identify what pupils should be able to do at the end of instruction, the condition under which the expected behavior is to be achieved should be given and the level of acceptable performance should be indicated. Behavioral objectives are stated in terms of observable behavior that a pupil should perform after having completed a learning task or activity. Muzumara (2008) and Davar (2012) support this view and say that it is important to bear in mind the action verbs to use when stating the behavioural objectives. It is

important to avoid using verbs that are too general and not easily observable, such as know, think, understand, desire, want, appreciate, feel, have, learn or remember. The verbs to use should easily be measured or observable such as state, define, construct, measure, identify, compute, record, classify, explain, name, describe, analyse, organise, hypothesis, draw and prepare. For example, a well written lesson objective in genetics would be; at the end of the lesson pupils should be able to name two types of variations correctly.

➤ **Rationale of a Lesson**

Rationale is the significance of a lesson. It is the statement that emphasises the applicability of and usefulness of the contents of the lesson to the learner. The rationale affords the teacher an opportunity to see why the lesson must be taught. It also shows how the teacher understands the knowledge and skills to be taught in the lesson. There are four basic components of the rationale: content which outlines what is to be taught and learnt in a lesson, concept/value outlines why the lesson should be learnt, methods are approaches or strategies that will be used to present the lesson and location of the period where the lesson is located out of the total number of planned periods for teaching the unit. For example, the lesson on variations will be taught in order for learners to identify the causes of differences within a species using group work and practical work this is the first lesson in a series of ten lessons in this unit. A lesson is a form of teaching and learning. A lesson has a certain flow starting from introduction, development, evaluation and conclusion (MESVTEE, 2014).

➤ **Lesson Introduction**

The introduction of a lesson prepares the mind of the learner to participate in a lesson and sets the mood for learning (Mohan, 2010). The

purpose of the introduction is to revisit prior knowledge which provides a vital link between the previous lesson and the new lesson. It also encourages the learners' interest in the new material to be learnt (Petty, 2009; Mohan, 2010). The introduction usually lasts 5 minutes at the beginning of a lesson. The teacher needs to let learners know the expected outcomes of the lesson during the introduction because it helps to arouse and maintain the interest of the learners in the lesson (Petty, 2009; Mohan, 2010; MESVTEE, 2014). The introduction plays an important role in the success of a lesson. An introduction of a lesson can be conducted using a variety of strategies (question and answer, film strips, brainstorming, lecture) depending on the content for the day's lesson. An introduction guides pupil to the understanding of a lesson (MESVTEE, 2014).

➢ Development of the Lesson

The purpose of a lesson development is to deepen the learning. It is a collection of several activities that help to develop what is to be learnt. Activities such as practical work, group work, group discussions, case studies, role play, concept mapping, games and songs should enable learners to construct their own knowledge can be done depending on the topic being taught. This stage should be interactive and the learners should be active participants in the teaching and learning processes so as to make learning enjoyable and permanent (Mohan, 2012). The learners should be encouraged to ask questions so as to address any cognitive conflicts that they may have. The teacher's role is to facilitate learning.

➢ Conclusion and Evaluation

Conclusion is a plenary session in which the learners draw out key points. The learning process is reviewed and reflected upon. Learners are encouraged to explain what they have learnt

and how they can apply it in day to day life. When concluding a lesson, the teacher and learners give an overview of what has taken place in the lesson. The teacher must plan in advance how the lesson will be concluded. Evaluation is the last stage in a lesson flow. The purpose of an evaluation is to assess the quality of teaching and learning that took place (MESVTEE, 2014). After a lesson, a teacher reflects on the lesson taught. This reflection enables the teacher to learn from the successes and failures of the lesson and is able to improve the teaching of the same topic in future (Petty, 2009). In this study the researcher observed how teachers concluded their lessons and evaluated their teaching.

➢ Teaching Methods and Strategies in Commerce

In this section, some common teaching methods and strategies used in teaching commerce are highlighted. These include lecture method, demonstration, question and answer, discussion and practical work. In order for a teacher to decide what teaching method to use and have a variety of activities during the lesson, the teacher must know what teaching methods are available, what strengths and weaknesses these methods have, what purpose each method serves and how to use the methods. Teaching methods are chosen on the basis of fitness for a particular purpose (Petty, 2009). The teacher first clarifies the purposes of the lesson and then chooses activities which will achieve these purposes. A number of factors determine what strategies a teacher should use to accomplish a given learning outcome. These factors may include age and academic level of pupils, amount of time available, physical environment, availability of teaching and learning resources as well as the topic being presented. A variety of teaching methods increase student attention and interest. It also helps the teacher to manage the

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class well (Petty, 2009). A variety of teaching methods makes the teacher's job more stimulating and enjoyable. The use of one method all the time bores teachers themselves and learners (Petty, 2009; MESVTEE, 2014). Teaching strategies may be classified in different ways: those in which the teacher has direct control are called teacher-centred. These include lecture, teacher demonstrations and teacher questioning. Mostly learning is not reinforced by physical activities and the pupils are only mentally involved in the lesson. Pupil centred strategies actively involve pupils in the lesson. These strategies are the most recommended in teaching because they involve learners, both in hands-on and minds- on activities. These methods stress learning by doing and becoming actively involved in experiencing, formulating ideas and solving problems (Muzumara, 2008; Petty, 2009). Hence learners become critical thinkers and problem solvers. Learner centred strategies are supported by the theory of constructivism.

> ➤ **Lecture Method**

Petty (2009) and Mohan (2012) describes lecture method as a teaching method used for the explanation of content by a teacher for passive assimilation by students. The teacher is the fountain of knowledge and the learners are empty tins that need to be filled. In a lecture, there is little room or no room at all of asking questions by the learners. Lecture method is one of the teacher centred methods of teaching. Davar (2012) and MESVTEE (2014) mentioned that lecture method can be used when teaching a large number of students, introducing a new topic in which students have little previous knowledge, communicating basic facts, terminologies or promoting initial understanding of the concepts, summarizing certain scientific concepts and principles at the end of the lesson, giving historical accounts of scientific events or

history of great scientists. The following are some advantages of a lecture method; efficient in resource requirement, one person can teach a large number of students at the same time, provides a role model by providing an insight into the thinking and problem-solving abilities of the teacher, less time consuming and simplifies work of the teacher, it can be adapted to the level of the class, it is a rapid method of presenting material (Petty, 2009; Davar, 2012). In the researcher's view lecture method is one of the methods that can be used when teaching the topic genetics because learners have little prior knowledge. This method promotes initial understanding of concepts and principles. However, for this method to be very effective it should be used together with other methods such as group work, pairing, practical work and role play. A lecture method has a number of limitations when applied to the teaching of genetics; students' involvement in the lesson is very minimal, minimizes feedback from the students, teacher can't be sure how much the students have understood, identification of individual's specific learning difficulties is a challenge, evaluation of the methodology, lesson and oneself is difficult, students get easily distracted and inattentive, scientific skills can't be developed, retention is very low and learners are not given the opportunity to use the ideas being taught. A lecture method is not suitable for slow learners and those pupils who have language problems, it can be boring, the students are not actively involved in the lesson, the concentration span for students is short (Petty, 2009; Davar, 2012).

> ➤ **Demonstration**

Muzumara (2008) defined a demonstration as a repetition of a series of planned activities which are designed to illustrate a certain phenomenon or event. Petty (2009) defined a demonstration as 'showing how'. Demonstrations help the

teacher to make some information clear. It helps the teacher to introduce certain topics vividly and clearly to pupils so that they can, on their own, carry out the activity or illustrations (Muzumara 2008). A good demonstration has the following characteristics: clearly defined aims and objectives, can be observed clearly by every learner and involves the class at every stage, uses simple apparatus whose operations can easily be understood by every learner, has a logical order of presentations, stimulates inquiry and curiosity in pupils and can easily be performed by learners themselves (Muzumara, 2008; Mohan, 2010; Davar, 2012). Muzumara (2008) and Mohan (2010) agree that a demonstration method has several advantages that make it very useful in teaching biology. Demonstrations allow learners to observe real objects and events, it helps in economising resources, minimise risks and hazards associated with certain experiments, can be used in large classes, learners can participate in a demonstration by, for example, taking readings and observing physical changes like colour changes. However, a demonstration method has a number of disadvantages such as limited learner participation and pupils do not develop manipulative skills. For example, when doing a demonstration to observe mitosis in onion root tip under a microscope, the learners are told to just look under a microscope and not to touch, all learners may not be able to see the details and results of a demonstration and sometimes the pace of the demonstration may be so fast that the pupils may have problems in understanding what is going on (Muzumara, 2008; Mohan, 2010; Davar, 2012).

> ### Question and Answer

Muzumara (2008), Petty (2009) and Mohan (2010) advised that questions must be carefully thought out so that they are precise and unambiguous for learners to benefit from them.

Good questions must be clear, that is, the language in which the question is used should be at the level of learners' ability. In addition, questions must be interesting, that is, questions asked in class should stimulate and raise learners' curiosity.

- ### Types of Questions and Questioning Techniques

Mohan (2010), Davar (2012) and MESVTEE (2014) stated that a teacher needs to do a number of things in order for effective learning to flourish in any classroom situation. The teacher should answer learners' questions adequately. This encourages learners to be confident of their thoughts and generate an urge to ask more questions. As much as possible, during genetics lessons the teacher should mainly ask open ended questions because they promote critical thinking necessaryfor unblocking the enormous potential in the learners. The teacher should ask questions that the learners are able to answer. Questions that relate to the unit being taught should be asked. Clearly worded questions should be asked and the teacher should speak clearly. Good responses should be praised in order to encourage learners to participate in the lesson. Other learners can be asked to comment on a response from a learner before the teacher does. This ensures wider participation which brings about divergent views on a particular topic. The teacher should engage in active listening when the learners are giving responses. This makes learners to think deeply of what they want to say. The teacher should draw the learners' concentration before asking a question. This prepares the learners to listen to the question. The teacher should give learners time to think about the question asked because mental processes require some time to take effect. The wait time of 25 seconds is usually given. If no response is given after the wait time, the teacher

can rephrase the question to enable the learners to answer the question. The teacher should encourage learners to ask questions (Petty, 2009; Mohan, 2010). In genetics lessons this is important because of the abstract nature of the concepts, the learners need time to think about the answer The teacher should not answer his/her own questions. One of the best ways of classifying questions is using Blooms' Taxonomy. There are six levels and questions at each level require a response which uses a different kind of thought process. These are: Knowledge, comprehension, application, analysis, synthesis, evaluation (Petty, 2009; Mohan, 2010; Davar, 2012). The revised version of Taxonomy of cognitive domain (from lower to higher) is Remembering, Understanding, Applying, Analysing, Evaluating and Creating (MESVTEE, 2014).

> ➢ **Discussion**

A discussion is one of the teaching methods used to teach biology. It is an exchange of opinions or ideas. During classroom discussions (whole class or group), pupils learn how to express themselves clearly, to justify opinions and to tolerate different views. During discussions, learners also get a chance to ask for clarifications, to examine their own thinking, to evaluate ideas and to put together personal viewpoints. Some learners assume responsibility by taking leadership roles in the group. This method enables learners to collaboratively construct their knowledge (Mohan, 2010; Davar, 2012; MESVTEE, 2014). In genetics, for example, learners can construct concept maps during discussions. They can also solve questions involving case studies or e-commerce diagrams.

In addition, Muzumara (2008) and Petty (2009) agreed that during class discussions, pupils learn a number of skills such as being open to new ideas, making eye contact with the speaker, being attentive, organising thoughts, speaking clearly, taking notes, allowing speakers to express their thoughts without interruption and respecting other people's ideas. The teacher's role during class discussion is to encourage learners to express their opinions and not to inform or force the teacher's opinion on learners.

> ➢ **Practical work**

Practical work in commerce as hands on learning experience which prompts thinking about the world in which we live. The activities that could be considered to be practical work in two main categories: Core activities which include investigations, laboratory procedures and techniques and feedback. Directly related activities: Teacher demonstrations, experiencing phenomena designing and planning investigations and data analysis. Practical work in e-commerce enables e-commerce to be taught from what can be seen so that what is abstract can be understood. For example, teaching variations using different Business Models of e-commerce. New pricing policies: Free, Premium and Fermium solutions, couponing Practical work is a unique way of teaching Commerce. Good quality practical workengages learners, helps them to develop important skills, helps to understand theprocesses of Online business investigation and develops learners to understand businessconcepts. It helps students to understand complex,abstract ideas and gives an opportunity to participate and to have an appreciation for themethods of business.

> ➢ **Teaching and Learning Aids**

Petty (2009) defined teaching and learning aids as physical or software tools that a teacher uses to make effective teaching and learning occur meaningfully and less monotonously. Teaching and learning aids should provide the right

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atmosphere for learning and should aid learners to direct their own learning as well as help them to construct their own knowledge. The teaching and learning aids should help learners to retain most of the concepts that have been learnt as a result of active involvement in the lesson. The teaching and learning materials should also compel teachers to use learner centered approaches when teaching and help to sustain learners' interest in learning (Petty, 2009; Mohan, 2010; MESVTEE, 2014). Various aids such as charts, models, specimen, work sheets, work cards, handouts, information sheets, compact discs, expert human resource, newspapers, chalkboards, electronic boards and films are used by teachers to facilitate teaching, communicate the content effectively and arouse interest. Teaching and learning aids must be relevant and appropriate for the fulfillment of the lessons set objectives. The teaching aids serve as stimulus to learning, help learners to understand the concept and meet the objectives of learning. Teaching aids are also called audio visual aids. Depending on the senses stimulated by the teaching aids they may be grouped into three categories: visual aids, audio aids and audio-visual aids. Visual aids can be seen, audio aids stimulate the sense of hearing only and audio-visual aids stimulate both eyes and ears (Petty, 2009; Davar, 2012). In the teaching of e-commerce, audio-visual aids such as films and visual aids such as specimen, charts, work sheets and chalk board are suitable for use. Using teaching aids breaks the monotony of lecture method and helps to arouse pupil interest in the topic taught. Using teaching aids provides better understanding as concepts become clearer and meaningful as teacher explains with the help of teaching aids. The use of teaching aids saves time and energy of the teacher as the learners find it easy to understand when a concept is taught. Slow learners find it easy to understand

and remember abstract concepts with the help of teaching aids (Muzumara, 2008; Petty, 2009; Davar 2012). For example, in genetics chromosomes can be taught using model cut outs from card boards (AIEMS, 1994). The learners retain the learnt material for a long time because the experiences are concrete. A teacher acts as a facilitator of learning by using teaching aids. The objectives of the lesson can be achieved with greater ease as concrete materials facilitate understanding and better retention of concepts of commerce. The teacher who uses teaching aids in a lesson caters for individual differences (Muzumara, 2008; Petty, 2009; Davar 2012).

➢ Use of Chalkboard

The chalkboard is a teaching and learning tool that is present in any classroom. The following are some of the unique features of a chalkboard: it has a good background so that learners can easily see what is written on it; it is always strategically positioned and it is always readily available. Its usage can be maximised by demarcating it for logical flow of information, writing main points for the learners to structure their work and giving enough time to learners to capture important learning points (MESVTEE, 2014). The researcher considers the chalk board useful during e-commerce lessons because a teacher can write the main points as the lesson progresses and write summarized notes on it for learners to copy. The teacher can also use it to develop flow diagrams and concept maps.

Introduction

This chapter presents information on the methodologies used to answer the research questions under the following sub headings; research design, research sites, target population, sample and sampling procedures, research instruments, data collection procedures,

data analysis, ethical issues and limitations of the study.

3.1 Research Design

This study used a cross sectional survey design (Kumar, 1996). It is also known as one short or status studies that investigate things such as the prevalence of a phenomenon, situation, problem, attitude or issues by taking a cross-section of the population. The design gives an overall picture of the problem under study as it was at the time of study.

3.2 Research Sites

The study was undertaken in Lusaka District on the Lusaka Province of Zambia at three selected secondary schools.

3.3 Target Population

The target population was all teachers of commerce who taught e-commerce in secondary schools in Lusaka District. Information will also be obtained from pupils and heads of business studies departments.

3.4 Sample and Sampling Procedures

The sample was made up of a total of 9 teachers of commerce drawn from three selected secondary schools in Lusaka District. Purposive sampling method was used in order to choose participants who would provide the best information to answer the research questions (Kumar, 1996; Creswell, 2003) and to include male and female teachers of commerce.

3.5 Research Instruments

The following research instruments was used to collect data: Open ended Questionnaires, interview guides.

3.6 Data Collection Procedure.

Data collection was take place in the second term of 2017 academic year in May and June.

3.7 Data Analysis

Data collected was analyzed using qualitative content analysis. Qualitative content analysis has been defined by Hsieh and Shannon (2005:1278) as: "*A research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns.*" Mayring (2000:2) defined qualitative content analysis as; "*an approach of empirical, methodological controlled analysis of texts within their context of communication following content analytic rules and step by step models, without rash quantification.*" The process of qualitative content analysis involves the following set of systematic and transparent procedures for processing data; Preparing the data for analysis, defining the unit analysis, developing categories and a coding scheme, testing the coding scheme on a sample of questionnaires, coding all the text, assessing the coding consistency and drawing conclusions from the coded data (Weber, 1990; Kumar, 1999; Creswell, 2003).

3.8 Limitations of the Study

This study will be carried out in three selected secondary schools Lusaka.

Results

Studies on E-commerce Education done in Zambia

Studies carried out in Zambia show tha*t e-commerce was perceived as a* difficult topic for many pupils and teachers. Data on what topics in business studies and commerce in particular they found difficult to learn was collected from

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pupils using questionnaires. The study reported that in commercee-commerce was one of the difficult topics identified by pupils to learn because of itsabstract and complex nature. Pupils cannot actually see what happens in the crosses that are discussed. Hence, it was suggested that to teach the topic successfully pupils could be given "web-sites" created online and letting them perform the re-creation of online business, adding products and services and analyse the results. The study concluded that the theoretical approach to e-commerce is sometimes made worse by the use of many textbook. One of the objectives ofthis study was to find out if pupils can find difficult to create online business and evaluate at high schools in Zambia. According to this study, one of the topics that teachers and heads of departments said were difficult to teach in commerce was e-commerce. In addition, the largest number of teachers who participated in this study indicated that they were more comfortable to teach e-commerce. The heads of departments (HODs) who participated in this baseline survey recommended that the teachers neededhelp to be more effective in teaching this topic. A descriptive sample survey design was used. The research instruments used were interview guides and self-completion questionnaires. The study revealed that one of the topics that teachers and pupils found difficult to teach and learn respectively was e-commerce. Questionnaires were used to collect data from former grade 12 pupils. The study found that the factors which contributed to pupils finding it difficult to understand e-commerce were: lack of internet facilities, inability byteachers to explain clearly, the topic not taught at all, topic taught near examinations by some teachers, belief by pupils that e-commerce is difficult to learn, lack of appropriateteaching aids, inadequate time allocated to teaching the topic and unfriendly

teachers. This research used questionnaires only but no lesson observations were done. The current study used lesson observation to determine how e-commerce is taught in secondary schools in Lusaka District.

Discussion

Theoretical Framework

This study is guided by the constructivism theory of learning based on the idea that learners construct and build their own knowledge of the world around them through experience (Piaget, 1970; Vygosky, 1978; Driver, 1988). Constructivists believe that the construction of new understanding is a combination of prior knowledge and new information. Active learners construct their knowledge with teachers acting as facilitators (Ratanaroutal and Yutakom, 2006). A distinction can be made between cognitive constructivism about how the individual learner understands things in terms of developmental stages and learning styles, and social constructivism, which emphasizes on how meanings and understandings grow out of social encounters. Social constructivism views each learner as a unique individual with unique needs and background (Creswell, 2003). Social constructivists encourage the learner to arrive at his or her own version of the truth, influenced by his or her background and culture. Social constructivists take into account the background and the culture of the learner throughout the learning process. The learner's background helps to shape the knowledge and truth that the learner creates, discovers and attains in the learning process (Creswell, 2003). The learner has a responsibility for his or her learning (Petty, 2009). Teachers who are constructivists are aware of the role of prior knowledge in students' learning, recognizing that students are

not blank slates or empty vessels waiting to be filled with knowledge. Instead, they believe that students bring with them a lot of prior experiences, knowledge, and beliefs that they use in constructing new understandings (Jones, 2002). This influences the pedagogical skills they employ to teach problematic topics such as e-commerce. These skills include group work, discussions, practical work, role play, work sheets, work cards, games and songs. These strategies engage the learners to construct knowledge by themselves. Student preconceptions have been shown to be very resistant to change. Preconceptions are based on a child's early experiences, intuitions and form a filter for later learning. In order for understanding to take place, teachers must elicit students' prior concepts and build on these concepts during instruction. The teacher must provide educational experiences that will confront prior conceptions or provide a cognitive conflict in order to promote conceptual development. The use of a cognitive conflict involves placing a student in a position in which the application of his or her own understanding of a problem leads to cognitive difficulties which the student must then resolve (Jones, 2002).

In addition, Jones (2002) stated that constructivism offers teachers instructional approaches that are in line with current research on learning. By viewing learning as an active process, taking students prior knowledge into consideration, building on preconceptions, eliciting cognitive conflict, teachers can design instruction such as group work, role play, practical work, problem solving, computer simulation, videos, case studies, brain storming and debate that goes beyond rote learning to meaningful learning that is more likely to lead to deeper, longer lasting understanding. Constructivist teaching fosters critical thinking

and creates motivated and independent learners. According to Mohan (2010), social constructivism emphasizes the importance of the learner being actively involved in the learning process. Jones (2002) and Creswell (2003) agree that learners do not simply mirror and reflect what they read but they construct their own understanding. Social constructivist scholars view learning as an active process where learners learn to discover principles, concepts and facts for themselves. Learners are also active in the construction rather than passively receiving information. Social constructivists believe that reality is constructed by our own activities and people as members of a society, invent the properties of the world. Knowledge is a product of human beings and is socially and culturally constructed. In the classroom constructivist teachers usually encourage learners to use active learning techniques such as practical work, pairing, group discussions, brainstorming, role play, video games, simulations, slides and real-life problem solving to create knowledge by reflecting on what they are doing and talking about what they are doing. The teacher ensures he or she understands the learners' prior knowledge and guides the activity to address the prior knowledge. Since learning occurs through learners' experiences, it is important that the teacher must prepare class activities that engage the learners in the lesson. The learners must be given opportunities to work independently this can be done by giving exercises that they can do individually or in pairs or in groups such as summarising the main points of a lesson. They must also be given minds-on activities such as discussions, problem solving and case studies that promote analysis, synthesis and evaluation of what has been learnt. In addition, hands-on activities such as practical work and project work must be given to the learners so as to enable them to verify the

scientific laws and principles. The teacher should use a variety of learner centred methods of teaching in order to help them to retain what has been learnt.

Conclusion

E-commerce has become a significant element in the modern global economic environment. It represents the use of a computer network, primarily the Internet, to buy and sell products, services, information, and communication. E-commerce is also an application of technology using the Internet. In addition, it is a tool for increasing efficiency and lowering costs in organizations. Having reviewed the types of e-commerce system, their architecture, advantages, disadvantages, legal and ethical issues, the next section of this report investigates the research methods to be used in requirements gathering for the development of the proposed DFs system. From the literature review it is clear that many studies have been done on e-commerce education outside Africa, in Africa and in Zambia which shed some light on difficulties experienced by learners in e-commerce. The researchers used interviews and questionnaires to collect data from participants. As observed in the literature reviewed no study has been done in Zambia to observe how e-commerce was taught in secondary schools particularly in Lusaka schools. There is a knowledge gap which this study attempted to contribute to. This made the current study necessary.

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