

EVALUATION OF THE PRINTING TECHNOLOGY OPTION OF THE
PUBLISHING STUDIES PROGRAMME IN RELATION TO THE DEMANDS OF
THE PRINTING INDUSTRY IN GHANA

by

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DECLARATION

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

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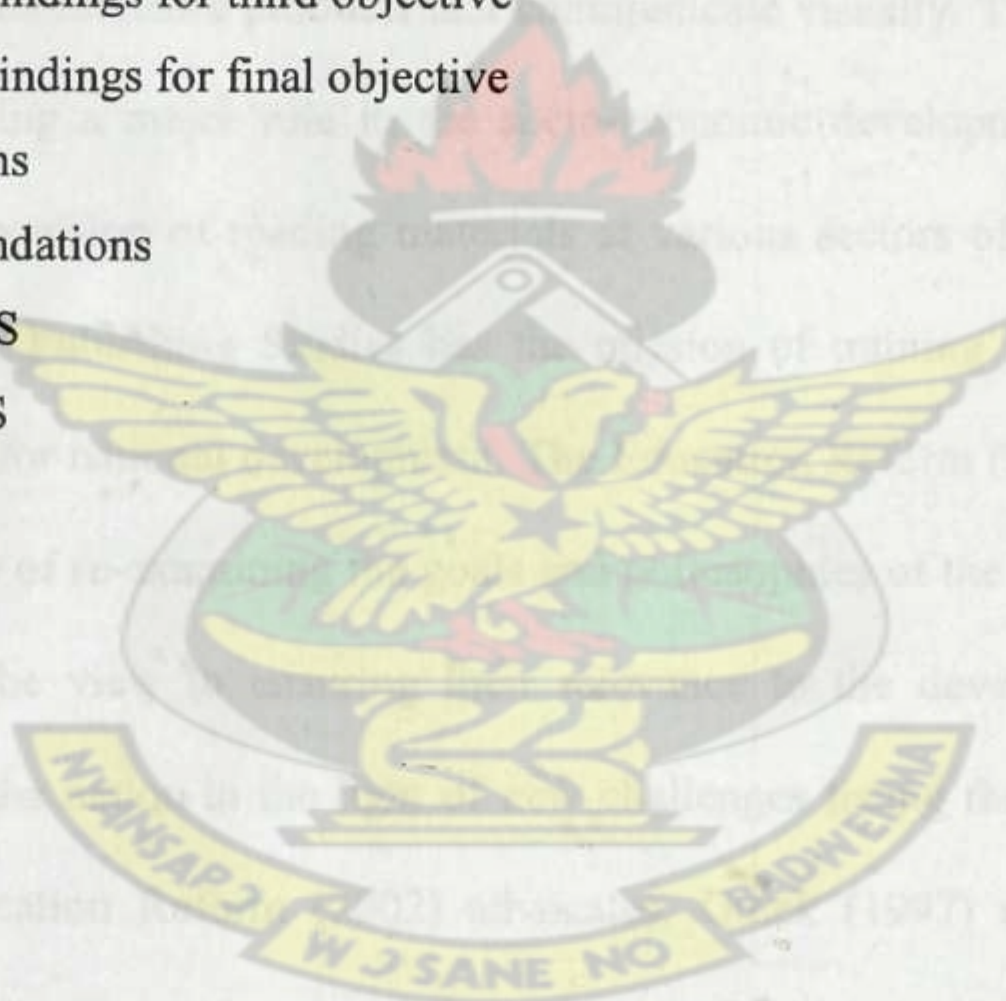
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ABSTRACT

The focus of this study was mainly to evaluate the course content and structure of the printing technology option of the publishing studies in order to ascertain its worth in relation to the Ghanaian printing industry demands. Printing technology has long been a powerful tool for social change. Bulwer-Lytton wrote, "the pen is mightier than the sword" as cited by Adams, Faux, Rieber (1988). The statement by Bulwer-Lytton assumes that the pen records and distributes ideas. These ideas recorded by the pen are best distributed to reach much audience by printing. Hird (1991) also adds to the argument by asserting that the primary purpose of the printing industry is to create and manufacture products that communicate visually. The printing industry has been playing a major role in the socio-economic development of the country through the provision of reading materials at various sectors of the economy. The Department of Publishing Studies has the mission of training and developing the book industry for national development. The Education Reform (2002) was based on the philosophy of re-examining the goals and philosophies of the present educational system with the view to ensuring their relevance to the development of human resources for the nation in the light of new challenges facing the nation. Adding to what the Education Reform (2002) advocates, Gutek (1997) makes reference to Dewey by saying that, education helps to create the sense of community. In other words, Dewey's work in philosophy and education emphasized the social role of the school as one of the important agencies working to generate community. Consequently, an evaluative effort in the printing technology option of the publishing studies programme is a step in the right direction, considering the demands in the printing industry both locally and globally so that graduates of this option will meet the needs of the printing industry as well as society. This research was a qualitative

one where descriptive and evaluative approaches were employed. The descriptive and evaluative analysis helped to reveal strength and weaknesses of the printing option in this research study. The main data collection instruments were questionnaires and interviews. The geographical scope of the study was Accra Metropolis and Kumasi Metropolis, specifically printing firms in Accra and Kumasi. The study was however limited to evaluating the Printing Technology Option of the Publishing Studies Programme in terms of its structure, content, objectives, teaching staff and strategies. The study was divided into five chapters. Chapter one was the introduction to the study. Chapter two dealt with a review of related literature available to the study. Chapter three talked about the methodology the researcher employed. Chapter four dealt with the analysis and interpretation of data collected. Chapter five dealt with the summary of findings, conclusions and recommendations. This research study is beneficial to both academia and industry and finally revealed that the course content is still relevant to the needs of the printing industry although there are some shortcomings.



CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Printing technology has long been a powerful tool for social change. Bulwer-Lytton wrote, "the pen is mightier than the sword" as cited by Adams, Faux and Rieber (1988). The statement by Bulwer-Lytton assumes that the pen records and distributes ideas. These ideas recorded by the pen are best distributed to reach many audiences by printing. In other words, without printing few would read the ideas, and the pen would become a rather weak weapon.

Hird (1991) also adds to the argument by asserting that the primary purpose of the printing industry is to create and manufacture products that communicate visually. As an example, most businesses would be unable to function without some form of graphic communication. The need for graphic communications is basic in a technological society.

Moreover, everyone is a consumer of printed products in one way or the other. One becomes a consumer of printing when reading a newspaper or magazine, when buying food wrapped in printed containers, when reading the instruments in the automobile, using electrical devices, or filling out an application form for employment.

The social importance of printing is too obvious to be over emphasized - simply put, printing and hence printed products are indispensable regardless of the field of specialization or operation

The Republic of Ghana can boast of at least four public universities excluding the numerous private ones springing up with the passage of each day. Kwame Nkrumah University of Science and Technology (KNUST) is the only university running a programme in Publishing Studies to the attainment of Masters, Postgraduate Diploma and Bachelor of Art Degree in Ghana and West Africa at large. This creates a critical demand on KNUST to produce the right graduates for this industry bearing in mind that one of the objectives of tertiary education (Education Reform, 2002) is to develop people with intellectual and analytical mind and enable them to use the knowledge acquired for the benefit of society.

The Department of Publishing Studies is under the Faculty of Industrial Art and College of Art and Social Science, the largest college among the six colleges at KNUST.

The Department of Publishing Studies has a mission of training and developing the book industry for national development. Therefore the mission to educate men and women is more relevant than ever today as the nation seeks to reach middle income level in the foreseeable future.

The vision of the department is to be the best Publishing and Print Media training centre in Africa where men and women are trained to be innovative, entrepreneurial and dynamic leaders in a rapidly changing world.

The Education Reform (2002) was based on the philosophy of re-examining the goals and philosophies of the present educational system with the view to ensuring their relevance to the development of human resources for the nation in the light of new challenges facing the nation.

As recognition for the challenges of the world evolving rapidly into a global village, the committee for the Education Reform (2002) appealed to Ghanaians to engage continually in critical reflection on the education system and the training that will prepare them to confront the socio-cultural, industrial, economic and political challenges facing them.

Adding to what the Education Reform (2002) advocates, Gutek (1997) makes reference to Dewey by saying that, education helps to create a sense of community. In other words, Dewey's work in philosophy and education emphasized the social role of the school as one of the important agencies working to generate community.

Thus an evaluative effort in the printing technology option of the publishing studies programme is a step in the right direction, considering the demands in the printing industry both locally and globally so that graduates of this option will meet the needs of the printing industry as well as society.

1.2 Statement of the Problem

The Department of Publishing Studies, formerly known as the Department of Book Industry was established in 1984 with UNESCO assistance. It is the first of its kind in West Africa. The Publishing Studies Department runs a 4-year degree programme in Publishing Studies under the following three major areas of specialization namely:

- Publishing Administration
- Printing Technology, and
- Book Design and Illustration.

Students who undergo the Publishing Studies Programme successfully graduate with a BA (Hons) Publishing Studies under one of the above three areas of specialization.

The Printing Technology option is run with the intention of training students to be experts and professionals who can manage and perform well in any sector of the printing industry. With this aim, graduates of Publishing Studies (Printing option) are expected to be trained to meet the needs and demands of the printing industry in Ghana and West Africa at large.

Printing has gone through many evolutionary changes and trends. These trends date back to the use of pictographs, ideographs and phonetic symbols through to the Guttenbergs's era up to the digital era.

Today, printing is still undergoing tremendous changes with the current global focus on high-technology printing as Hird (1991) simply puts it – printing is a growth industry.

Hird (1991) further argues that digitization of equipment and workflow has brought about new options for producing print products in the printing industry. There is gradually a paradigm shift from conventional printing which involves cumbersome and tedious ways of production and much human intervention to more sophisticated methods of printing which embraces fast, efficient and high levels of quality production methods globally. Ghana however is at a very slow pace compared to what is happening internationally.

There has been some evaluation research done on the Publishing Studies programme but there has not been any evaluation done on the areas of specialization. It is in this direction that an in-depth evaluation needs to be done on the curriculum for teaching the printing technology option, considering the current demands of the printing industry.

The possible questions one may ask then are:

How adequately does the content and structure of the current curriculum for training and teaching students the printing technology option meet the current demands of the printing industry in Ghana? Are there adequate facilities as well as competent staff available in teaching the course? What are the emerging demands of printing in Ghana? Is there a case for an alternative or updated curriculum in ensuring quality and meeting the demands of printing in Ghana?

In an attempt to answering these probing questions, there is the need to evaluate the curriculum of the printing technology option to ascertain whether the department is meeting the current needs and demands of the printing industry in Ghana.

1.3 Research Questions

The study is guided by four major research questions.

- What has been the trend of printing activities in Ghana?
- What subjects constitute the printing technology option and how are they structured?
- What is the current focus of the printing industry in Ghana?

- What number of the graduates of Publishing Studies (Printing Technology option) is working in the industry?
- What are some of the challenges faced by graduates of Publishing Studies (Printing Technology option) working in the industry?

1.4 Objectives of the Study

- To trace the history of the Printing Technology Option of the Publishing Studies Programme and printing activities in Ghana.
- To study and evaluate the main content and structure of the Printing Technology option of the Publishing Studies programme.
- To identify the current demands and needs of the printing industry in Ghana.
- To identify graduates who major with the printing technology option and some of the challenges they face in the industry.

1.5 Delimitation

The geographical scope of the study was Accra Metropolis and Kumasi Metropolis, specifically printing firms in Accra and Kumasi.

The study was however limited to evaluating the Printing Technology Option of the Publishing Studies Programme in terms of its structure, content, objectives, and teaching staff and strategies as well as ascertain the views and challenges of the graduates who major in this option and are working in the printing industry.

1.6 Limitation

The major limitation of this study was the inability to readily identify graduates working in the printing industry. This took a great deal of time yet the estimated sample size was not achieved.

1.7 Importance of the Study

The study will be beneficial to the Department of Publishing Studies for the effective and efficient teaching and training of students who offer the Printing Technology Option.

Secondly, the study will be beneficial to the printing industry in Ghana, in that the graduates produced will meet the needs of the industry.

Again the study will be beneficial to students currently on the programme and prospective ones, because they will be fully equipped and confident for the job market.

With implication to Art Education as a department, the evaluation procedures used in conducting the research could serve as material for teaching the course 'Evaluation, Test and Measurements'.

Lastly the study will serve as a reference material for further research works.

1.8 Definition of Terms

The definitions given were contextual meanings as they applied in the research.

i. Publishing Studies Programme: The B.A. degree programme offered by the Department of Publishing Studies for duration of four years.

ii. Printing Technology: The processes/methods used in performing printing activities such as film making, plate making, impression making, etc.

iii. Printing Technology Option: It is one of the major areas of specialization under the Publishing Studies Programme. Students who choose this option do it for three years out of the four years of the programme and there are a number of subjects/courses studied under the printing technology option.

iv. Printing is described as the process of transferring ink onto paper (or another substrate) with or without an image-carrying medium (printing plate) with the aim of manufacturing multiple copies of graphics, images or text in repeatable form to assist in transmitting information.

v. Industry: The people and activities involved in one type of business

vi. Printing Industry: The people and activities involved in printing. For this research, it means the printing houses or establishments.

vii. Course: A set of classes or study periods on a particular subject, consisting of reading, writing or practical activities in addition to teaching, and usually resulting in an exam or qualification.

viii. Curriculum: The organized experiences that a student has under the guidance and control of the school or the systematic sequence of courses or subjects that forms the school's formal instructional programme.

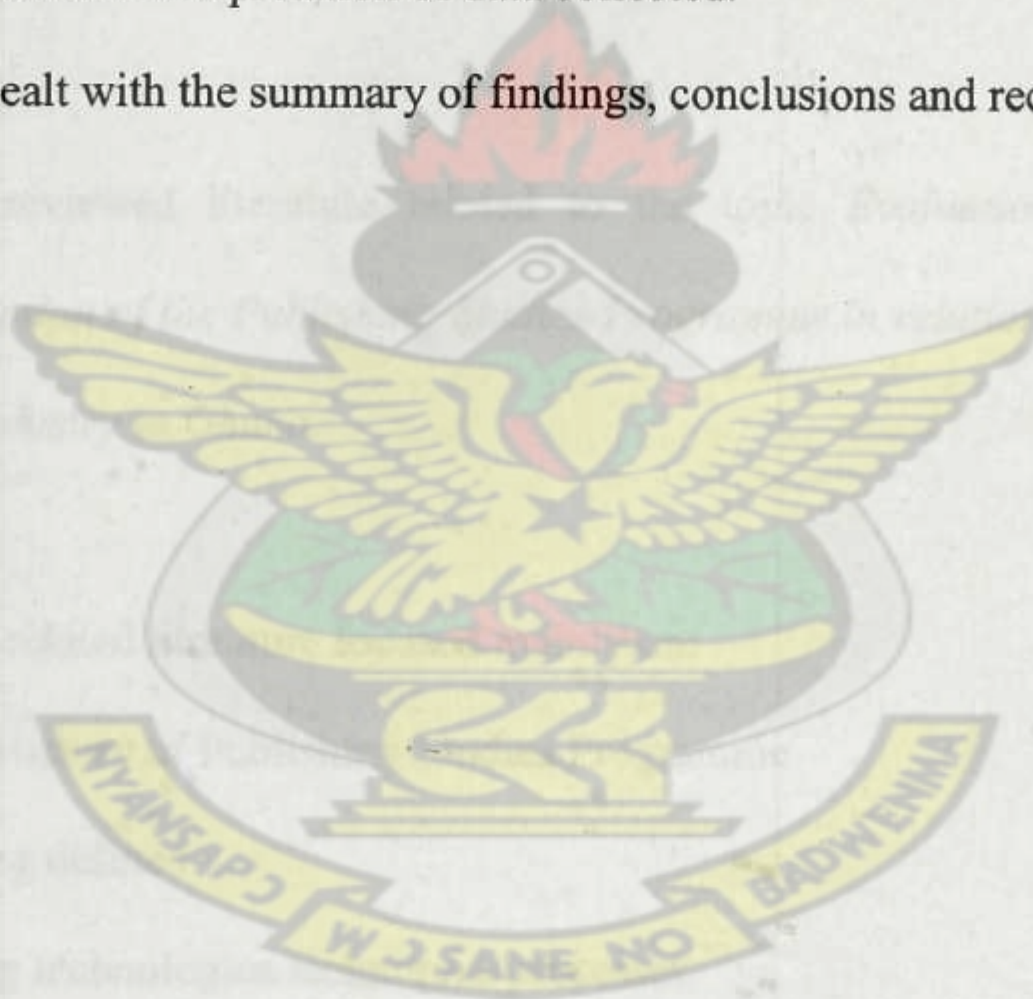
1.9 Organization of the rest of the Text

The study was divided into five chapters. Chapter one was the introduction to the study. It entailed the background to the study, statement of the problem, the objectives of the study, research questions, importance of the study, delimitation of the study, definition of terms, organization of the work and some references.

Chapter two dealt with a review of related literature available to the study. This chapter reviewed literature mainly on evaluation and printing.

Chapter three discussed the methodology the researcher employed. Chapter four dealt with the analysis and interpretation of data collected.

Chapter five dealt with the summary of findings, conclusions and recommendations.



CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Overview

For every research work, it is incumbent upon the researcher to consult related material or works previously done in the intended area of study. In fact, literatures that serve as sources of reference ought to be reviewed to help show the additions and/or subtraction made by the current scholar. It is in the light of this that this chapter is relevant.

The chapter reviewed literature related to the topic *Evaluation of the Printing Technology Option of the Publishing Studies Programme in relation to the demands of the printing industry in Ghana*.

The review of related literature focused mainly on:

- 2.2 Brief History of Publishing Studies Programme
- 2.3 Printing defined
- 2.4 Printing technologies/techniques/processes
- 2.5 Importance of printing
- 2.6 Evolutionary trends in printing globally.
- 2.7 Evaluation
- 2.8 Types of evaluation.
- 2.9 Importance/purposes of evaluation

2.2 Brief History of Publishing Studies Programme

Just like any other project, the Publishing Studies Programme formerly known as Book Industry Department begun as a dream in the mind of some individuals. This dream however, did not materialize in just a day but had to go through processes.

The independence of Ghana brought in its trail rapid socio-economic growth and educational expansion. The year 1961 brought in its wake the introduction of compulsory and fee-free education backed by free supply of school textbooks in 1963. With time, the establishment of libraries, bookshops and efficient distribution systems to meet the rapidly growing demands of books in the early sixties became necessary. It also became imperative for Ghana to start producing her own textbooks and hence in 1965, the Government Printing Press, "Victoriabog" was expanded into the Ghana Publishing Corporation at Tema and was charged with production of textbooks for schools.

Ghana Publishing Corporation among her objective were:

- a) to print, publish, distribute, and market books and other reading materials for schools, higher educational institutions and the general public.
- b) to explore the markets of neighbouring African States and the markets of other countries with a view to exporting on a commercial basis any of the products of the Corporation and to effect such efforts.

Obviously these objectives could not be achieved by machines alone but also with well-strained manpower, which was not readily available. There was need therefore for

Ghanaian Writers, Editors, Designers, Printers and Illustrators to produce and prepare manuscript for production.

The year 1965 also saw the establishment of the Ghana National Book Development Council, now Ghana Book Development Council (GBDC) whose responsibility among others was to promote the Book Industry and the use of books in the country. [Hassan (1981) as cited by Tsagbey-Foliba (1999)]

The need for training manpower of and for the Book Industry continually increased to the extent that in 1978 a nine-week long Book Production Course was mounted successfully at the College of Art, University of Science and Technology (UST), Kumasi from October 10th to December 8th 1978. Subsequent training programmes were held to take participants through book illustration, bookbinding, printing and typography activities. These training programmes pre-empted the need for establishment of the degree programme by UNESCO to train manpower for the publishing industry.

In 1981, UNESCO sent down a consultant by name, Abu Hassan, an author, and special advisor on books in India, with a long professional experience in book development in India and the Asia region, to Ghana. He toured the length and breadth of the country, studying the history and state of the local book industry among others. At the end of the day, Abu Hasan's comprehensive report got UNESCO more convince that the UST was the ideal institution geographically, scientifically and technologically to provide a B.A. Degree programme in Book Industry not only for Ghana, but also for Africa, South of the Sahara.

In his report, Abu Hassan(1981) stated that

He was commissioned by UNESCO to undertake a mission to Ghana to advise on the project for the establishment of a three-year degree course in book publishing at the University of Science and Technology in Kumasi. The duration of the mission was two and a half months starting from 16th March, 1981, the first 61 days were to be spent in Ghana, while the remaining 12 days were reserved for debriefing at the UNESCO headquarters in Paris.

Several other meeting of experts in Book Development in Africa were convened by UNESCO in Accra. At one of such meetings, Hassan (1989), opined, this Accra meeting recommended the formation of regional centres for the dual purpose of undertaking research on problems which are common throughout the region and to remedy, through training courses, the drastic shortage of skilled manpower in the book industries of African countries more effectively than could be done through occasional courses.

This marked the commencement of the Book Industry Programme now Publishing Studies Programme. Suggestions were made for the improvement of the draft scheme for the programme designed by the UST (now KNUST), and a recommendation was made that the book industry programme should be established. The final recommendation for the establishment of the Book Industry programme in Ghana at the College of Art, UST in Kumasi was made in 1981 but the programme actually took off in October, 1984.

Adarkwa (2002) reveals that the Publishing Studies Programme (formerly Book Industry Programme) was established under the Department of Design and General Art Studies of the College of Art in 1984 under the programme title, BA Book Industry. This was after the College has successfully run a ten-week residential course in book

Ministry of Education on the other hand was skeptical about employment openings for the graduates of the programme and how they could market their skills.

Mr. Djoletto of the Ghana Book Development Council strongly advised that a good majority of the personnel working in publishing, production and marketing in the book industry had no formal training and that the Publishing Studies programme was therefore to serve the purpose.

Fourteen Art students in the year when the programme begun expressed the desire to be pioneers of the programme after much education and persuasion was done by the then head of department of Design and General Art Studies. Out of this number, nine students graduated successfully.

The Book Industry Programme was initially run for a period of three years. However in 1995, the programme was restructured to last for four years when the programme attained a department status.

The programme initially had difficulty with teaching staff as is peculiar to the commencement of most new programmes. Personnel from the industry, lecturers from other faculties such as the social sciences helped with the teaching initially but at present the department can boast of 10 permanent lecturers.

The ideals for which the publishing studies programme was set up and the efforts put in by the various corporate bodies and individuals are indeed plausible. The history of the department clearly explains the extent to which the industry is linked with the department. In other words, it was the industry that gave birth to the Publishing studies

programme with the help of UNESCO. Thus the evaluation of the printing technology option of the publishing studies programme in relation to the demands of the industry is a step in the right direction.

2.3 Printing defined

Kipphan (2000) describes printing as the process of transferring ink onto paper (or another substrate) via a printing plate. Romano et al (1999) describes printing as the method adopted by a system to transfer the image on to a substrate.

Hird (1991) defines printing as the process of manufacturing visual products that are intended to communicate a message through permanent graphic images. Printing places an inked image, like text onto a substrate such as paper, plastic, metal, glass, or cloth.

Adams, Faux and Rieber (1988) also opine that printing is the process of manufacturing multiple copies of graphic images. They further went on to say that although most people think of printing as ink on paper, printing is not limited to any particular materials or inks. The embossing process uses not ink at all, and all shapes and sizes of metals, wood and plastics are common receiver of printed messages.

Bruno (1979) adds his opinion by asserting that printing is something which can be seen, perceived with our eyes and reproduced in quantity. Further he adds that regardless of the many possible differences, all printed products have one thing in common; the result is always a quantity of the same visible image.

Merging the above definitions of Printing, the following conclusion can be drawn:

- Printing results in the production of multiple copies of the original (images, graphics, text, etc). In other words printing is a reproduction process.
- Printing can be done with or without the use of ink
- Printing involve the transfer of an original onto a another medium called substrate (ie the material receiving the print). The substrate can either be paper, metal, wood, plastic etc.
- The transfer of the original can be done with or without an image-carrying medium or master. The image-carrier or master may be a metal, plastic or paper.

The above basic truths about printing gives rise to the various printing technologies or techniques that the world is seeing today. The various printing technologies/processes are discussed briefly subsequently.

2.4 Printing Technologies/Processes

When discussing printing technology, one major aspect that brings about the various technologies or processes is the printing press or machine. According to the American Heritage® Dictionary of the English Language a *printing press* is defined as a machine that transfers lettering or images by contact with various forms of inked surface onto paper or similar material fed into it in various ways.

Kipphan (2000) also defines *printing press* as the equipment with which the printing process is performed.

Thus another fact about printing is that it uses a printing press or machine that aids in the reproduction processes. The press can be either automated or manual. Kipphan (2000) opines that the production of printed products can be described as an information-processing system, within which the information specification and the information carrier change. The type of information carrier employed depends on the printing technology used. Subsequent discussion will throw more light on this assertion.

NB: The term Printing technologies or printing processes are the same and can be used interchangeably.

Adams, Faux and Rieber (1998) share the opinion that there are four *major* printing processes or technologies and they are:

- Relief printing
- Intaglio or recessed printing
- Screen printing
- Lithographic printing.

Bruno (1979) also shares the same opinion that printing technologies can be categorized into four. He describes the four processes as: letterpress, gravure, offset-lithography and screen. He further explains that letterpress is *relief*, gravure is *intaglio*, lithography is *planographic* and screen is *screen* or *stencil* printing. Bruno adds that some duplicating and electrostatic printing use modifications of these methods.

Romano et al (1999) asserts that the printing industry recognizes five major processes/technologies. These are:

- Relief printing (Letterpress, flexography)
- Planographic printing (Offset lithography)
- Recess printing (Gravure/intaglio)
- Stencil printing (Screen)
- Digital printing (toner and inkjet)

Kipphan (2000) adds another dimension by dividing printing technologies into two main areas:

- Conventional Printing (printing with a master/intermediary)
- Non-Impact Printing (printing without a master/intermediary)

He then elaborates that conventional printing includes: Screen printing; Letterpress/Flexographic (relief) printing; Lithographic (Offset) Printing and Gravure (intaglio/recess) printing.

Under Non-Impact Printing are: Electrophotography; Lonography; Magnetography; Inkjet; Thermography and Photography.

The geographical scope of the study, will allow the review to elaborate on the conventional or four major technologies. However, because the study is performing an evaluation vis-à-vis the emerging demands in the printing industry, the review will briefly touch on Digital / Non-Impact Printing.

Kipphan (2000) gives explanations to these printing processes as:

Relief Printing: The relief printing was the earliest form of printing and remained dominant for a very long time. It includes *letterpress* printing, *flexographic* printing, and all other methods of transferring an image from a raised surface. The non-image or non-printing area of the image carrier is below the printing surface. Once a major

process in the printing industry, letterpress printing has been largely replaced by other printing processes. Most relief printing done today is done with flexography. The difference between flexography and letterpress is material with which the image-carrier or master is made of. Letterpress is made of metals whilst flexography is made of a polymer. Flexographic printing is used extensively in the packaging industry for printing on corrugated board, paper cartons, and plastic films. Today flexography is also becoming a significant process for printing newspapers, catalogues and directories.

Intaglio/Recess Printing: Unlike relief printing where the image-carrier is raised, intaglio is the opposite. An intaglio image is transferred from a sunken or *depressed* surface. Copper plate etching and engraving are two intaglio processes. One type of industrial intaglio printing is **gravure**. Gravure is used for extremely long press runs. Cellophane and aluminum foil candy bar wrapper are two common packaging materials printed with gravure printing.

Screen Printing: Screen printing uses a stencil attached to a porous mesh to form the image carrier. Ink is forced through this mesh and onto the substrate surface to print the image. This is the process that is used by many artisans for short-run jobs. It is such a less expensive process that many screen printing units are operated out of small joints such as garages. It is a pretty simple process to understand and operate however it offers quality printing. One unique feature about this process of printing is it allows printing on three-dimensional objects too, something that the other processes cannot

offer. This process transfers an image by allowing ink to pass through openings in a stencil that has been applied to a screen mesh.

Planographic Printing: This process also known as *lithographic* printing accounts for over 60% of the global printing market and people take lithographic printing to be synonymous with colour printing and indeed is the most dominant process of printing in Ghana.

Lithography works on the principle that oil and water do not mix. The image areas (printable areas) also known as oleophilic or oil-loving and non-image areas (non printable areas) also known as oleophobic or oil repelling are on the same plane surface. This principle gives this process the term 'planography' unlike the other processes where some are raised, bsunken or stencil.

Digital Printing: It is any printing on paper using spots, dots and pixels, from digital files. This usually involves toner-based printers (inkjet too). Digital printing can produce fully variable printing and books printed one at a time. Presses may handle short runs, but every piece is the same.

Kipphan (2000), Romano (1999), Hird (1991) as Adams, Faux and Rieber all share the opinion that all the various printing process or technologies or better still all printing activities can be categorized under three (3) stages with regards to the production of the printed products. The stages are:

1. *Prepress Stage:* The preparatory stage – any work done prior to the actual printing of multiple copies on a press or a printer is technically called prepress.

This means from artist's thumbnail sketches, to photo transparencies, to the imaging of the printing plates. As name implies prepress- before press.

2. *Press/Printing Stage*: This is the stage where the actual production of multiple copies is done. The proper terms is making *impressions* ie making copies of the original.
3. *Postpress/Finishing Stage*: As the name implies postpress – after press. All the activities done on the printed product to put it into a refined and acceptable form. For example single leaflets of printed sheets are bound together to make a book. The 'binding' becomes a postpress activity

2.5 Importance of Printing

Hird (1991) says that the purpose the printing industry is to create and manufacture products that communicate visually. As an example, most businesses would be unable to function without some form of graphic communications. The need for graphic communications is basic in a technological society.

Eisenstein (2005) says that when the art of printing was unknown, only a few people were able to read and write, and all book knowledge was confined to church officials and to those who were teachers in the universities of those days. During the period when printing was invented there was a general desire for learning throughout Europe, and this invention, while it made books cheaper, also made it necessary to possess at least the ability to read. So in order to gain knowledge, people began to learn to read; and in order to communicate with others who were not within talking

distance, they were compelled to learn to write. Thus, printing is important because it caused knowledge to be spread among the many instead of keeping it confined to the few.

The development of printing has made it possible for us to use our ability to read, because books on hundreds of different subjects, magazines, and newspapers are published at prices that are within reach of most of us. The development of public libraries, where books may be drawn out free of charge, is also the result of the invention of printing which has made possible the rapid production of many copies of single books. Thus knowledge has been placed within the reach of all who care to gain possession of it. Science, art, and literature are no longer the mysteries they were in bygone days; and the news of the current happenings all over the world is handed to us almost within a few hours after their occurrence through the medium of the daily newspapers. The monthly and weekly magazines and the newspapers not only print the news of the day, but they also publish stories and articles discussing a wide range of topics which are written in such a manner as to make them intelligible to all. The invention of printing, therefore, has aided in the movement to spread knowledge among the many.

In the olden days, before printing and some of the other modern inventions were discovered, people in one community knew very little about those in other places because the means of communication were lacking. This resulted in ignorance and a lack of understanding between peoples. The situation is quite different today. Due to books, magazines, and newspapers, among other things which were made possible by the invention of printing, people in one part of the world can make themselves

understood by others. Thus they are brought closer together and are able to make use of all the things which are devised, invented, and thought of in all parts of the world. The members of this industry call printing the "art preservative of all the arts." This is due to the fact that with the aid of this invention we are able to make permanent records of current events and of the progress that is being made in all lines of endeavor from day to day. Thus we are able to hand down to future generations' accurate and trustworthy accounts of our activities in contrast with the distant past when most records were transmitted by word of mouth. The people who are engaged in the work of printing or the preservation of these accounts are therefore rendering an important service to the communities in which they live. It can be deduced that the main importance of printing is to communicate visually. However the communication could be for different purposes such as educational, social, entertainments, economical, religious, medical etc.

2.6 Evolutionary trends/changes in printing globally.

The evolution of printing before the Guttenberg's invention and era (prehistoric printing) continue to raise a lot of controversies especially with issues such as when (dates) and where (places) printing began.

According to Bruno (1979), man's earliest known attempt at a visual record of his life and times dates back 30,000 years. These were wall drawings called pictographs, superseded by the more complex ideographs. They in turn were succeeded by the Persian's cuneiforms, and then by hieroglyphic, perfected by the Egyptians around 2500 B.C. Ten centuries later the Phoenicians used the first formal alphabet. But these

are art forms and not printing as it is usually defined. Evidence of the first example of printing from movable type was discovered in 1908 by an Italian archaeologist on the Island of Crete. He found a clay disc in the ruins of the palace of Phaistos in a stratification dated about 1500B.C. Printing from movable type appeared in China and Korea in the 11th century. In 1041, a Chinese, Pi-Sheng, developed type characters from hardened clay. Type cast from metal in Korea was widely used in China and Japan, and by the middle 1200's type characters were being cast in bronze. The oldest text known was printed from such type in Korea in 1397 A.D.

Romano (1999) also gives the account that evolution of printing can be traced back to the year of 105AD with the invention of paper. In 1931, Swedish archaeologist Folke Bergman discovered in China an example of a piece of printed paper dated from 105AD. He again says that Pi Sheng of the Northern Sung dynasty had invented type between the periods 1040 and 1048. These were movable types that were made of clay and hardened by baking them.

Citing just the above authors' accounts of prehistoric printing brings out the inconsistencies as mentioned earlier on. However, most authors on the history of printing agree that Guttenberg (father of printing) invention marked a major turning point in printing.

Johann Guttenberg is known as the father of printing because of his great invention of the movable type press which was used to print the 42 line Bible in the mid fifteen century. This fact about Guttenberg is shared by most authors of printing.

This is what Kipphan (2000) says that Gutenberg's final technical developments in letterpress printing (c. 1440) heralded a new era of communication, replacing the hitherto handwritten one-off texts which required rewriting in order to be passed on.

Romano (1999) opines that Johann Gutenberg who is believed to be the inventor of printing process was born in Mainz, Germany. The 'Guttenberg Bible', was printed in Mainz around 1455 with his movable type press.

Guttenberg around the middle of the century developed the technique of producing a number of individual letters or 'types' which could be assembled to form a page of 'writing'. A page of letters could be inked and impressed upon skin or paper in less than a minute and a team of two or three men could ink and impress a hundred or more papers in an hour.

Bruno (1979) version also sounds, half a century later in 1440, probably unaware of the crude type developed in the Orient, Johann Gutenberg brought the West up to date with his invention of movable type. Until Gutenberg's system of separate characters for printing on a press with ink on paper, all books were laboriously hand written by scribes.

Guttenberg's invention was modifies, refined, adapted and improved steadily. Despite all this, the basic technique of letterpress printing did not change fundamentally for the next 400 years. What did occur during the four centuries of hand press dominance was that typefaces were gradually evolved to suit the needs of the process and to aid legibility, while at the same time creating a pleasing image for the reader to enjoy.

It was not until the nineteenth century, for instance that the first iron press was built. The iron press in itself did not change the basic process of letterpress printing, but it was a sign of things to come.

By the middle of the 19th century, the 'rotary' press had been invented, with the type or printing plate being held on one cylinder, which printed on to paper held on an opposing impression cylinder.

Automatic typesetting machines were developed towards the end of the century, enabling lines or columns of type to be produced.

There were by this time, other printing processes becoming established:

Intaglio or recessed printing was typified by copperplate engraving in which the image was cut into a metal plate by hand. 'Etching' techniques were also in vogue, in which the printing plate was covered with an acid resistant wax coating, the image scribed into the resist, and an acid applied to etch into the metal, forming an intaglio image.

Hirst (1991) had this to say that, toward the end of the 19th century, the lithographic or offset press based on the Alois Senefelder discovery was developed. This process could produce delicate shades and tints unobtainable by any other medium and was steadily refined and developed for the production of artwork, book illustrations and posters.

Lithography continued to improve its quality for printing on metal and coloured illustration work around the first half of the 20th century. Multicolour printing became more common as the colour halftone process was developed and refined, and multicolour presses became more common as a result.

The second half of the 20th century saw automated devices perfected to set type, operate cameras, make plates or cylinders, run presses and control equipment for finishing the product. The leaps include:

- *Photocomposition* of type where the need to produce individual letters of lead, and two-dimensional page make-up to replace physical three-dimensional assembly began.
- *Scanning* devices could look at graphic copy to be produced and separate a coloured image into the various elements required for printing, as well as altering the sizes, shapes and tonal qualities at the operator's will.
- *Planning*, make-up and platemaking all became automated to a degree.
- Printing presses improved to the stage where it was possible to print more than 200 full-size multicolour sheets per minute – 100, 000 or more copies in a day. Web-fed presses became capable of even greater volume via multiweb, multiunit installations which could produce millions of copies of a newspaper or magazine in a matter of hours
- Offset lithography established itself as the major printing process with the adoption of photocomposition for text production.
- Letterpress in the 'lead type' sense virtually ceased to exist, except in a few specialized instances.
- Gravure cylinders were produced by electronic engraving, without the need for complicated film planning or chemical etching.
- Flexography developed into a major printing process in its own right.

Finishing processes had to keep pace with the increasing rate of production, and therefore automated finishing, gathering, collating and binding lines were developed to ensure the efficient flow of work from press to dispatch. This need gave birth to the digital era.

Romano again opines that the digitization of images for both text and graphic input, as a result of computerization, has allowed flexible patterns of access and reproduction of images so that text and graphics can be managed and manipulated with greater freedom, coupled with faithful reproduction of the most minute and subtle detail. In recent years it is computer and information technology that has had the most lasting impact on the printing industry and printing technologies, and this trend is continuing. The printing industry as a whole has generally been undergoing enormous structural and technological change for several years. Apart from the changes affecting the traditional printing sector, the integration of new media (e.g., CD-ROMs, online services) into existing product offers the greatest challenge to the graphic arts industry in the years to come.

The trend now is towards the “*one-man press*” which has resulted in increasing automation of all the steps in the process of a printing. This has created an enormous potential for innovation in the field of machinery and equipment but also in processing in the coming years. The best example of this is in the area of prepress, where technological developments mean that the average expected product life cycle of the equipment is only eighteen months. Printing processes are being increasingly controlled and adjusted electronically, which leads to consistent high quality and

greater productivity. *Digital workflow* also means that productions are completed more rapidly. Hence more than half of the orders for commercial printers arrive in digital form. All printing companies are expected to offer greater *flexibility* in the processing of a large variety of substrates, inks, and methods of print finishing. The use of computer to film, computer to plate and computer to press systems is already widespread and is undergoing continuous growth. In order to achieve a smooth flow of digital data from prepress via press to postpress, the integration, networking and digitalization of all processing steps is essential. Over forty leading manufacturers in the graphic arts industry are cooperating on an international scale to develop a standard for data flow through the so-called "CIP3 concept" (CIP3 international cooperation of prepress, press and postpress. Practical application and world-wide expansion are well on the way.

Beside the classical areas of activity – the production of print media – other services are becoming more important. As the Internet continues to grow, the sale of goods and services via data networks is increasingly regarded as a new method of generating sales by many businesses. Hence, from the point of view of the user, there is no indication that the Internet will cover substantial parts of the print markets. History has demonstrated that the "new media replace old media" theory did not hold true in the past:

- During the 1920s: ~~Radio was to replace printing.~~
- 1950s: Television was to replace printing.
- 1980s: The computer was to replace printing.
- 1990s: The Internet was to replace printing.

The fact is that print is still a dominant medium and is continuing to grow.

Press release issued by Cox Target Media indicates that as currently as May 09, 2008, Print the year's Offset and Beyond 2008 Con latest developments regarding the implementation of JDF (Job Definition Format) and JMF (Job Messaging Format) technologies. By combining the very latest automated prepress, printing, finishing and distribution JDF/JMF technology has created the world's most automated offset printing plant. This process has helped the company create a clean manufacturing production model that both lowers the cost of print and shortens the production cycle. JDF and JMF messages harmonize the workflow in its new plant by maximizing the management of buffers (storage of signatures between press and the bindery), eliminating over production and optimizing resource activity.

Source: www.WhatTheyThink.com.-

The history of printing technology has indicated that printing has gone through many evolutionary trends and changes. These trends continue to emerge as a result of the need to meet the industry demands and improve upon existing ways of operations. As Hird (1991) puts it, the printing industry is constantly developing more efficient ways to meet the needs of our growing population. These trends and changes have been reviewed to know how globally they affect the emerging needs of the Ghanaian industry. The study is looking at evaluating the current Printing Technology Option of the Publishing Studies Programme in relation to the emerging demand of the printing industry in Ghana. The global trends and changes that printing has gone through

helped the study to compare and contrast with the history of printing activities in Ghana as well as the emerging demands of the printing industry in the course of the research. It could be deduced that the pace of development in printing occurring globally is very fast as compared to that which has happened and continue to happen in Ghana.

2.7 Evaluation

There are countless definitions and opinions about evaluation by various evaluation experts. However, this review will take a look at very few of these definitions.

Alkin (1970) as cited in Urevbu (1999) defines evaluation as the process of ascertaining the decisions to be made, selecting related information, and collecting and analyzing information in order to report summary data useful to decision makers in selecting among alternatives.

Rowntree (1982) also views evaluation as means whereby we systematically collect and analyse information about the results of students' encounters with a learning experience.

According to Shipman (1979), evaluation is a method of increasing the effectiveness of schooling by providing the information necessary to ensure continuity of education from all sources.

Mary Thorpe as cited in Ellington, Percival and Race (1993) say evaluation is the collection of, analysis and interpretation of information about any aspect of a programme of education or training as part of a recognized process of judging its effectiveness, its efficiency and any other outcomes it may have.

Combining the definitions given above, it can be deduced that:

- Evaluation provides information on performance that will help in decision-making but does not determine the decisions.
- Evaluation is a basic management tool that can be used in all organizations including schools.
- Is time-consuming and has to be concentrated where it will have most effect.
- Judgments derived from evaluation are based on dependable data.

The Nature of Evaluation

Shadish (1998) indicates that the discipline of evaluation is devoted to the systematic determination of merit, worth, or significance. It is divided into fields according to the type of entity evaluated—for example, program evaluation, or personnel evaluation and there are more than twenty of these recognized fields of evaluation. Some specific aspects of evaluation methodology have been developed to solve problems of evaluation in only one or a few of these fields (e.g., bias control in panel selection, systematic side-effect identification in program evaluation, road-testing techniques in product evaluation). However, the underlying logic of the process of evaluation for example, the difference between merit and worth, or between grading and ranking and a substantial portion of its general methodology (e.g., techniques of measurement,

causality determination, applying the requirement of informed consent) are shared across all or many of these fields. But the logic of evaluation has been developed for and applies only to evaluation; and the field-specific methodologies of evaluation must also be mastered in order to deal with evaluation in the fields to which they apply.

2.8 Types of Evaluation

There are many different types of evaluations depending on the object being evaluated and the purpose of the evaluation.

Perhaps the most important basic distinction in evaluation types is that between *formative* and *summative* evaluation.

According to Scriven (1980) as cited in Erant (1989), formative evaluation is conducted during the development or improvement of a program or product. It is an evaluation conducted for in-house staff and normally remains in house, but it may be done by an internal or external evaluator or preferably a combination. In other words, formative evaluations strengthen or improve the object being evaluated - they help form it by examining the delivery of the program or technology, the quality of its implementation, and the assessment of the organizational context, personnel, procedures, inputs, and so on.

Formative evaluation includes several evaluation types:

- *Needs assessment* determines who needs the program, how great the need is, and what might work to meet the need

- *Evaluability assessment* determines whether an evaluation is feasible and how stakeholders can help shape its usefulness
- *Structured conceptualization* helps stakeholders define the program or technology, the target population, and the possible outcomes
- *Implementation evaluation* monitors the fidelity of the program or technology delivery
- *Process evaluation* investigates the process of delivering the program or technology, including alternative delivery procedures. (<http://PAREonline.net>)

Summative evaluation according to Scriven (1980), on the contrary is conducted after completion of a programme (or a course of study) and for the benefit of some external audience or decision makers (eg. Funding agency or future possible users) though it too may be done either by an internal or external evaluator or by a combination. Summative evaluations, examine the effects or outcomes of some object, they summarize it by describing what happens subsequent to delivery of the program or technology; assessing whether the object can be said to have caused the outcome; determining the overall impact of the causal factor beyond only the immediate target outcomes; and, estimating the relative costs associated with the object.

Summative evaluation can also be subdivided into:

- *Outcome evaluations* investigate whether the program or technology caused demonstrable effects on specifically defined target outcomes
- *Impact evaluation* is broader and assesses the overall or net effects intended or unintended of the program or technology as a whole

- *Cost-effectiveness and cost-benefit analysis* address questions of efficiency by standardizing outcomes in terms of their dollar costs and values
- *Secondary analysis* reexamines existing data to address new questions or use methods not previously employed
- *Meta-analysis* integrates the outcome estimates from multiple studies to arrive at an overall or summary judgement on an evaluation question.

(<http://PAREonline.net>)

Gronlund (1981) , Ebel and Frisbie (1991) as cited in Adentwi (2000) also share the same opinion of Scriven (1980) by pointing out that formative evaluation takes place during instruction, while summative evaluation typically comes at the end of a course (or unit) of instruction or even at the end of a whole cycle or stage of learning.

Scriven (1980) cited by Erant (1989) continue to point out that, the difference between formative and summative evaluation adheres to the view that there is not basic logical and methodological difference between formative and summative evaluation. Both are intended to examine the worth of a particular entity, and so it is evaluating the Printing Technology Option.

It is helpful to delineate and design programme evaluations. McCaslin (1990). Firstly, it will be necessary to decide the type of evaluation to be carried out. This may be formative, summative or both. In answering this question, both formative and summative types of evaluation will apply to this study in the following direction: Formative evaluation because the Printing Option of the Publishing Studies programme is still ongoing. Current students, teaching staff as well as the courses

studies under the option will be studied. The summative aspect applies because the performance of end products (printing technology option graduates) will be accessed.

Secondly the purpose of conducting the evaluation must be spelt out.

Finally, decision has to be made regarding the extent of the evaluation. Once the type and the extent of the evaluation have been decided, the components of the evaluation must then be chosen. The sources of types of information to be collected have to be identified, then the required information collected and analysed, interpreted and a report prepared. (McCaslin,1990).

2.9 Importance/Purposes of Evaluation

According to Botchwey (1999) and Agyedu (2000), evaluation of a course or programme as viewed by Stufflebeam and Gephart (1974) consists of four elements – context, input, process and product. Context evaluation deals with whether or not to offer a programme and, if so, what its parameters should be. It includes focus, goals and objectives. Input evaluation too concerns decision on what resources and strategies to be used to achieve the course/programme goals and objectives. The process evaluation also focuses on determining what effect the programme had on students in school. Product evaluation deals with examining the programme's effect on former students. The context and input evaluation are used as the programme is being initiated and structured. These two elements focus on gathering information and making decisions related to the course planning. On the other hand, the process and product evaluation deal with course assessment.

The main purpose of process evaluation based on this study is to detect weaknesses in the course content or operation strategies of the printing technology option of the Publishing Studies Programme. The overall process of evaluation, according to Wentling (1980), is to identify and monitor on a continuous basis the potential source of failure. It therefore covers items such as interpersonal relationship among staff, the performance of teachers in a teaching situation, communication channels, logistics, the extent to which students are involved in and affected by the programme in agreement with its intent, adequacy of resources, the physical facilities, staff and the time schedule. Wentling (1980) gives some reasons why evaluation is conducted. These are:

1. To aid in planning:

Information obtained from evaluation provides measures of resources limitations probabilities, which are necessary for establishing and assessing objectives. It can be of use in developing plans. Such data can also help teachers to determine the worth of an on-going programme or plan. Indeed it helps to determine whether the overall plan has been successful and the goals achieved or otherwise.

2. For making decisions

Information obtained from evaluation is used in making and justifying decision on a programme.

3. To improve programme for students

Evaluation assesses the outcome of an activity and at the same time helps the evaluator to identify strengths and weaknesses, and corrective measures to be

taken. The action taken to correct deficiencies go to improve the programme for the students.

McCaslin (1990) opines that the major purposes that evaluations address include the following:

- (a) to find out if there is the need for the programme.
- (b) to determine if the goals and objectives of the programme have been achieved.
- (c) to decide if the ways in which a programme operates are adequate.
- (d) to see if a programme operates in the way that it was intended.
- (e) to determine the outcome of a programme.

Shipman (1979) opines that the purpose of evaluation is to increase the effectiveness of schooling. Effectiveness is judged by the degree to which objectives have been attained.

Bloom, Hastings and Madaus (1971) opine that the purpose of evaluation, as it is most frequently used in the existing education system, is primarily the grading and classifying of students. This study's purpose of evaluating however will differ from what this assertion by Bloom, Hasting & Madaus.

Nayman and Napier (1975) as cited by John D. (1980) believes that primary purpose or emphasis of evaluation should be on clarifying the discrepancies that exist between goals and practice (intent and actuality) and on providing methods for removing these

discrepancies. Thus, there is the need to find out the objectives of the Printing Technology Option, if a purposeful evaluation is to be done.

2.10 Summary of Literature Review

The review compared and contrasted varying theoretical perspectives on the topic as well as described the general trends and identified general themes that run through the literature reviewed.

The literature reviewed highlighted on issues such as brief history of Publishing Studies Programme; printing defined; Printing technologies/techniques/processes; importance of printing; evolutionary trends in printing globally; evaluation defined; types of evaluation and importance/purposes of evaluation.

Concerning the brief history of the Publishing Studies Programme, trends in the development of programme were reviewed. The literature threw light on what printing and printing technologies/process are. Again literature revealed the trends and changes that printing activities have gone through globally over the years as well as locally.

Finally, the reviewed literature showed what evaluation is about, looked at the main types of evaluation and concluded with the importance/purposes of evaluation.

CHAPTER THREE

METHODOLOGY

3.1 Overview

Research is the formal, systematic application of scientific and disciplined inquiry approach to the study of problems (Gay and Airasian, 2003).

Since research in itself uses carefully planned and not haphazardly approach to solving problems, a methodology showing and explaining how the research was conducted becomes very imperative in every research write up.

A methodology shows how research questions are articulated with questions asked in the fields. Its effect is a claim about **significance** (Clough and Nutbrown, 2002). It is to explain the particularity of the methods made for a given study. Methodology purpose is to show not how such and such appeared to be the best method available for the given purposes of the study, but how and why this way of doing it was unavoidable – was required by – the context and purpose of this particular enquiry.

It is therefore the system or ways of doing the research, that is the process of collecting data, the tools and procedures employed as well as the research method adopted.

This chapter reveals the methods and procedures used in retrieving and analyzing of data of the research study. It was organized as follows:

Research design

Library research

Population, sampling design, the sample

Data collection instruments

Validation of instruments

Administration of instruments

Primary and secondary sources of data

Data collection procedures

Data analysis plan

3.2 Research Design

Research design can be thought of as the *structure* of research. It is the "glue" that holds all of the elements in a research project together. A research design is a specific plan for studying the research problem (Trochim, 2006).

This research was a qualitative one where descriptive and evaluative approaches were employed. The descriptive approach involved the description, recording, analysis and interpretation of what pertains in the printing industry. The evaluative approach involved a procedure in making value judgments on the effectiveness of the printing technology option of publishing studies programme. The analysis revealed the strength and weaknesses of the printing option.

Qualitative research is more concerned with the quality of a particular activity than in how often it occurs or how it would otherwise be evaluated. It investigates the quality of relationships, activities, situations or materials.

The qualitative approach is a way to gain insights through discovering meanings by improving our comprehension of the whole. Qualitative research explores the richness, depth, and complexity of phenomena. Qualitative research, broadly defined, means

"any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification" (Guba and Lincoln, 1994).

Qualitative research relies heavily on rich verbal, interpretive descriptions in their research methods rather than on numerical, statistical, quantitative descriptions. Because qualitative research rely heavily on verbal description, researchers are their own main instrument of data collection, interpretation and written narrative, that is "the researcher is the research method"

It emphasizes the importance of looking at variables in the natural setting in which they are found. Interaction between variables is important. Detailed data is gathered through open ended questions that provide direct quotations. The interviewer is an integral part of the investigation (Gall et al 2003). This differs from quantitative research which attempts to gather data by objective methods to provide information about relations, comparisons, and predictions and attempts to remove the investigator from the investigation (Krefting, 1991).

A major strength of the qualitative approach is the depth to which explorations are conducted and descriptions are written, usually resulting in sufficient details for the reader to grasp the idiosyncrasies of the situation. Other strengths are that qualitative research produces more in-depth, comprehensive information and uses subjective information and participant observation to describe the context, or natural setting, of the variables under consideration, as well as the interactions of the different variables in the context. It seeks a wide understanding of the entire situation.

The ultimate aim of qualitative research is to offer a perspective of a situation and provide well-written research reports that reflect the researcher's ability to illustrate or describe the corresponding phenomenon (Myers, 2002).

Descriptive research focuses on telling what is or what exist. Information regarding the present condition of event(s) is the target. As such, efforts are channeled at finding out the make-up of a situation, as it exist at the time of study. This is then connected to the variables or conditions in a situation. The simplest descriptive studies measure a single variable. They may involve no more than reporting the frequency of some event (Ary et al, 1990). This method will be used to explain findings of the research data collected.

The survey method was used as an aspect of the research to collect data. Survey studies assess the characteristics of whole populations of people or situations. Survey involves acquiring information about one or more groups of people about their characteristics, opinions, attitudes, or previous experiences by asking them questions. This method was used to ascertain the opinions of employees in the printing industry about the current trends and demands of the industry as well as their expectations of printing graduates produced by the Publishing Studies Department. Again this method was used for the student body to ascertain their opinions about the procedures and methods employed in teaching the content of the printing technology option.

3.3 Library Research

The library research formed a greater part of the study. A sizeable number of libraries were visited to obtain secondary data or information. Libraries visited include:

KNUST main Library

College of Art Library

Department of Publishing Studies Library

Department of General Art Studies Library

University of Education Winneba (Kumasi Campus) Library and

Tema Technical Institute Library

The library research was very useful in the review of related literature. It also helped the researcher gather information to place the topic in perspective, find out what has already been done on the topic and suggest methods for carrying out examination of the topic.

3.4 Population, Sampling design, Sample

3.4.1 Population: A population is the group of interest to the researcher (Gay & Airasian, 2003). The population the researcher would ideally like to generalize included:

- Students currently specializing in printing technology as well as lecturers teaching the printing technology option.
- Graduate students who majored in printing technology and are working in the printing industry.

- Employees in the printing industry in Accra and Kumasi.

3.4.2 Sampling Design

Sampling is the process of selecting a number of participants for a study in such a way that they represent the larger group from which they were selected (Gay and Airasian, 2003).

For this research, the non-probability sampling approach was used. In non-probability sampling, the researcher has no way of forecasting or guaranteeing that each element of the population will be represented in the sample. Furthermore, some members of the population have little or no chance of being sampled. Specifically, the types of non-probability sampling used in this study were:

- Convenience sampling, also referred to as accidental sampling and haphazard sampling
- Purposeful Sampling (Judgment Sampling)

Convenience Sampling: As the name suggest convenience/accidental sample, the sample includes whoever happens to be available at the time of sampling. The researcher has no control over the sample size. This sampling design was used for the printing graduates because their locations were not readily known to the researcher. The researcher had to search for them and was not guaranteed the number that could be located.

Purposive Sampling: In purposive sampling, we sample with a *purpose* in mind. We usually would have one or more specific predefined groups we are seeking. The researcher selects a sample based on his experience and prior knowledge of the group

to be sampled. Purposive sampling can be very useful for situations where you need to reach a targeted sample quickly and where sampling for proportionality is not the primary concern. With a purposive sample, you are likely to get the opinions of your target population. This sampling method was used for the lecturers, printing technology option students currently on the course as well as the employees in the printing industry.

3.4.3 Sample

A sample comprises the individuals, items, or events selected from the population (Gay and Airasian, 2003). Tryfos (1996) shares that, a sample is a part drawn from a larger whole. Almost always a sample is taken in order to learn something about the population from which it is drawn. In most cases, a sample is selected because it is impossible, inconvenient, slow or uneconomical to monitor the entire population.

A sample of 138 respondents was selected for current printing technology options students in 2nd year to 4th year. This is because specialization starts in second year. Another sample of 150 respondents was reached for employers and employees in the printing industry in Kumasi and Accra. The 150 respondents were selected from 100 printing firms in Kumasi and Accra. Out of the 150 questionnaires given out for employers and employees in the industry, 129 were retrieved. For the lecturers teaching the printing technology option, no sample was taken. The entire population was used; in other word a census was conducted. This was due to the small number.

A sample of 100 printing technology option graduates was estimated. The period for the research allowed for only 78 to be located and all 78 questionnaires were retrieved giving a 100% response. The researcher had to search for graduates respondents because their locations were not readily known.

In addition to the above samples, 7 practicing experts in the printing industry (Kumasi and Accra) were also interviewed. These experts were selected based on their rich exposure in the industry both locally and internationally and also because of the link they have the publishing studies department.

3.5 Data Collection Instruments

The researcher primarily employed questionnaires and interview as tools for collecting data for the study because they were the most convenient for the study.

3.5.1 Questionnaire: A questionnaire is a means of eliciting the feelings, beliefs, experiences, perceptions, or attitudes of some sample of individuals. As a data collecting instrument, it could be structured or unstructured. The questionnaires used for this study were the structured type. A questionnaire is most frequently a very concise, preplanned set of questions designed to yield specific information to meet a particular need for research information about a pertinent topic. The research information is attained from respondents normally from a related interest area. The use of questionnaires as a tool for collecting data has got some merits. A few of these merits are:

- *Economy*: Expense and time involved in training interviewers and sending them to interview are reduced by using questionnaires.

- *Uniformity*: Each respondent receives the same set of questions phrased in exactly the same way. Questionnaires may therefore yield data more comparable than information obtained through an interview.

One major demerit with questionnaires is that unless a random sampling of returns is obtained, those returned completed may represent biased samples. Respondent's motivation is difficult to assess, affecting the validity of response. This demerit was however curtailed because most of the questionnaires were answered in the presence of the researcher.

Questionnaire can be classified as:

- a. *Closed or restricted form* – This calls for “yes” or “no” answers, short response, or item checking. It is fairly easy to interpret, tabulate, and summarize.
- b. *Open or unrestricted form* – This calls for free response from the respondents; allows for greater depth of response; is difficult to interpret, tabulate, and summarize.

Both close and open forms were employed in designing the questionnaires for this study.

3.5.2 Interview: Interview is a direct face-to-face attempt to obtain reliable and valid measures in the form of verbal responses from one or more respondents. It is a conversation in which the roles of the interviewer and the respondent change

continually. The use of interviews for obtaining data has advantages such as:

- a. it allows the interviewer to clarify questions further.
- b. it allows the informants to respond in any manner they see fit.
- c. it allows the interviewers to observe verbal and non-verbal behaviours of the respondents.

Training interviewers, sending them to meet and interview their informants, and evaluating their effectiveness all add to the cost of the study and this is a disadvantage.

There are two kinds or forms of interview namely;

- *Structured interviews* (are rigidly standardized and formal) and
- *Unstructured interviews* (are flexible and have few restrictions.)

Personal interviews (structured) were conducted for the seven (7) experts selected from industry. These personnel were: Mr. Bennette Hanson, Mr. Anderson, Mr. Coby Asmah, Mr. Cobblah, Mr. Agyare, Mr. Ato Hagan, Mr. Michelle.

Reference to a sample of the Interview Guide used can be seen under Appendix E

3.6 Validation of Instruments

As a form of ethical issue and quality assurance, validation of instruments used in a research study is very imperative. Validity is concerned with the appropriateness of the interpretations made from test scores. Gay and Airasian (2003). It is the most important characteristic a test or measuring instrument can possess. Leedy and Ormond (2005) also argues that validity of a measurement instrument is the extent to which the instrument measures what it is actually intended to measure.

The research employed two main sets of questionnaires namely:

- a. *Academia Questionnaires*: One questionnaire designed for lecturers and another one designed for students of Printing Technology Option (PTO). The first draft of the student questionnaires were given to twenty (20) PTO students randomly picked from years two to four to answer. This sample of twenty students was dispersedly placed to answer the questionnaire and students were advised to do so independently. Before a student submitted a questionnaire after completion, the student was asked if he had any difficulty and ambiguity with any of the items on the questionnaires. Suggestions and comments from students were noted down and checked vis-a-vis the objectives of the research. The necessary changes were incorporated into the final questionnaire. A similar approach was employed for the questionnaires designed for lecturers. National service personnel (TAs) were given this questionnaire to ascertain its clarity. The necessary comments and suggestions were noted and incorporated in the final draft of lecturers' questionnaire.

Detailed description of the final copy of the Questionnaire for the Lecturers and students can be found under Appendices C and D.

- b. *Industry Questionnaires*: Two sets were developed. One for employers/employees in the printing industry and another for graduates of PTO also working in the printing industry. A sample of five printing houses was randomly picked and two employees selected from each printing house to answer the questionnaires to test for clarity. Here a lot of adjustments were made especially with the level of

language. Testing the validity of the questionnaire for PTO graduates in industry was a bit difficulty because no sample could be selected because the locations of respondents were not readily known. The final inputs of all the sets of questionnaires were made after conferring with the supervisor for the study.

Detailed description of the final outcome of the Questionnaire for the Employers/Employees and Graduates can be found under Appendices A and B.

3.7 Administration of Instruments

Four sets of questionnaires were administered in this research for the following groups of respondents:

- i. Students currently pursuing the Printing Technology Option.
- ii. Lectures teaching the Printing Technology Option. Four questionnaires were given to four lectures and one questionnaire to one technician. All five questionnaires were retrieved.
- iii. Employers/employees in the printing industry: Hundred and fifty questionnaires were administered to employers and employees in hundred printing houses in Kumasi and Accra. Out of this number, hundred and twenty-nine representing 86% were retrieved.
- iv. Printing Technology Option graduates working in the printing industry. In all 78 questionnaires were administer to graduates of PTO working in the industry. All 78 questionnaires were retrieved.

All questionnaires were personally administered by the researcher to the respondents instead of the mail method of administration.

Personal interviews were conducted with individuals in the printing industry who has a lot of experience and are on the forefront locally and internationally. Five of such individuals from Accra and two from Kumasi were interviewed.

3.8 Primary and secondary sources of data

Information obtained from questionnaires and interviews conducted constituted the primary data for this study. Secondary data was obtained from books, articles and documents as well the internet.

3.9 Data Collection Procedures

The researcher used questionnaires and interviews as tools for collecting data for this study.

Questionnaires were prepared in four sets (refer to Appendices) for students, lecturers, employees and graduates in industry. Students and teachers views on the progress, strength and weaknesses of the printing technology option were sought.

Questions vital to thesis were asked on background, study/work schedule for students and teacher respectively, teaching competencies, the appropriateness of the methods used in teaching the printing technology option among others. Copies of the questionnaires were administered and retrieved by the researcher

Best (1981) states that, interview is an oral questionnaire. It provides primary data. People are usually more willing to talk than to write. Moreover, after an interview, the researcher gains rapport or a relationship with respondents. For the purpose of this study an interview guide was prepared and administered to respondents prior to the interview date. This was to enable them prepare for the interview. Moreover, due to their busy schedules, the researcher had to give them prior notice.

The interview guide had ten (10) items/questions, all about the views of respondents on the current demands of the printing industry as well as the relevance of the course content to these demands, the necessary skills printers should possess as professionals, what subjects and skills a printing technology syllabus must emphasize

All the questions on the guide were appropriately responded to. The researcher scored the data relevant to the study by assigning symbols to represent responses. This enabled her to organize the different view-points for analysis. The interview was conducted personally by the researcher.

3.10 Data Analysis Plan

The data collected were assembled, organized and analyzed. Results were interpreted using tables by describing the relationships between the variables. The analysis was more qualitative in nature. The analyses of data were done separately for questionnaires and interviews.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

This chapter presents results and the discussions of the study. Analysis was made of the views of all the respondents; printing lecturers and students, printing graduates, employers in the printing industry as well as printing experts. The analysis was dealt with according to the manner in which the questions appeared on the questionnaire. Responses to the questionnaire were analysed, using tables and responses to the interview guide were analysed by describing and interpreting the data in words.

Assembling the data

Gay and Airasian (2003) assert that there are five steps in analysing and interpreting qualitative data: data managing; reading; describing; classifying and interpreting. For the purpose of analysis, the researcher gathered all the recorded data and organized them. Data obtained from the use of questionnaires were separated from the information given by interviewees.

Analysing and interpreting the Data

Data have been analysed using tables and percentages. Data gathered from the questionnaires administered to the printing lecturers were analysed followed by those given to students, then the data obtained from graduates and employers in the industry and finally interview schedule.

4.1 Analysis of Lecturers

4.1.1 Gender of Lecturers

It can be concluded from Table 1 that lecturers teaching the printing technology option are made up of only males. Reasons for this phenomenon could be attributed to a number of factors; however the obvious one could be the fact that printing is perceived to be a male dominated profession both locally and globally. Regarding the student population, the male to female ratio was 67.4% to 32.6% respectively. The male to female ratio (88.7% to 11.3%) of the number respondents in the industry also confirmed this assertion. The gender imbalance of the lecturers also followed this perception.

Table 1 Gender of Lecturers

Gender	Number of lecturers	Percentage (%)
Male	4	100%
Female	0	0%

4.1.2 Educational Background of Lecturers

The educational background of lecturers revealed that three (3) representing 75% out of the four lecturers have a Masters degree as their highest level of educational qualification. (Table 2b) The remaining one representing 25% of the total number of lecturers hold a PhD as the highest level of educational qualification. The unfortunate issue here is that none of the lecturers have their highest level of qualification in

Printing Technology. It was however revealed from *Table 2a* that the highest level of educational training of lecturers in Printing Technology is the Post graduate diploma followed by first degree and even with this only one (25%) out of the four lecturers is with this qualification. This means that the remaining three are teaching the course with the first degree knowledge in printing. As suggestions to improve the knowledge base of the lecturers, lecturers should constantly abreast themselves with what is happening in the industry and also other institutions that are teaching printing.

Table 2a Highest Level of Educational Qualification

<i>Area of qualification</i>	<i>Qualification level</i>	<i>No. of lecturers</i>	<i>Percentage</i>
Art Education	Masters	2	50%
Education	Doctor of Philosophy	1	25%
Small Enterprise/Business	Master	1	25%

Table 2b Highest Level of Qualification in Printing Technology

<i>Level of Qualification</i>	<i>Number of Lecturers</i>	<i>Percentage</i>
Degree	2	50%
Post Graduate Diploma	1	25%
Master	0	0%
PhD	0	0%

4.1.3 Working Experience of Lecturers

Table 3 reveals that the minimum teaching experience of lecturers in printing technology is at least five years and the maximum being twenty years. Though the data revealed none of the lecturers have a direct masters degree in printing technology, they have handled the course for some number of years. This could mean that lecturers have acquired enough experience throughout the years to handle the course effectively. There is also the probability that lecturers during these numbers of years of teaching have interaction with industry a lot and this could also inform their teaching. The rich experience of lecturers with regard to the number of years of teaching is an advantage for the course.

Table 3 Working Experience of Lecturers

<i>No. Of Years of lecturing</i>	<i>No. Of lecturers</i>	<i>Percentage</i>
1 – 5 years	1	25%
6 – 10	2	50%
11 – 15	0	0%
16 – 20	1	25%

4.1.4 Course Load and Schedule of lecturers

The course load or schedule of lecturers is evenly shared and it is a manageable one (Table 4). Two out of the four lecturers which represent 50% handle three courses each making a total of six courses. The other 50% also handle six courses but this time one handles four courses while the other handles two courses. From the table the course schedule of lecturers is fairly share and not loaded. Another issue with work schedule

of lecturers has to do with lecturer to student ratio but the questionnaire for lecturers did not specifically look at that aspect.

Table 4 Course Load and Schedule of lecturers

<i>No. Of courses</i>	<i>No. Of lecturers</i>	<i>Percentage</i>
1	0	0
2	1	25%
3	2	50%
4	1	25%

4.1.5 Strengths of the Printing Technology Option

Lecturers are of the opinion that the following are some of the strengths of the option.

- i. The option is taught to help students understand the art and science of printing as well as printshop management. The art and science aspect makes students appreciate and understand what is done in industry and the business aspect or printshop management propel students to start their own firms.
- ii. Students are exposed to all aspects of the course which make them ready for industry. They are given practical assignments that compel them to visit the press before they can execute their work. There are also planned visits to press houses which give students the opportunity to ask questions which demand the application of the classroom theories.

- iii. Students are given theoretical explanations to the constituents and properties of the materials such as paper, ink, films that are used in industry. This help students understand how these material behave and should be handled. With this basis students are able to offer some solution to common printing problems found in the industry.
- iv. The uniqueness of the course. It is the only printing course taught up to the degree level in the country and West African. Students who therefore take this course have a great advantage in relation to employment. This means graduates of this option can easily get jobs because the market is big. But I am of a different opinion in reference to this point as strength of the course. I believe because people are accepted in the industry to work without necessary having a degree, makes it rather very difficult for graduates to get employed, because the employers mostly go for the cheaper labour, in this sense those without degree in printing.

4.1.6 Weaknesses of the Printing Technology Option.

The major weakness associated with the teaching of the printing option is the insufficient hands on practical exposure for students. This is a major weakness because there is lack of machines and infrastructure facilities for the practical components of the course structure. Lecturers try their best to organize internal and external field trips once in a while for students to have the practical exposure but it is not enough because the course components of the printing technology option have specified time (credit hours) allocated for practical work.

The other weakness associated with the course is the fact that the objectives are not distinct for the printing technology option. The lack of distinct stated objectives for the option, make it difficult to define what graduates are expected to be made of.

4.1.7 Challenges and difficulties faced by lecturers in the teaching of the option.

- i. Student number is too large sometimes. This is dependent on the number of students who choose to do printing option at a particular academic year and lecturers have no control over this. This makes it difficult for lecturers to organize practical sessions, exercises often and also have detailed knowledge of the students they teach. In other words lecturer-student ratio is sometimes overwhelming.
- ii. Speed of global technological advancement in the printing industry is another challenge to the teaching of the option. However, Ghana is a bit behind when it comes to the technological advancement. This creates a conflict as to what lecturers are to teach with new findings they obtain from research works.
- iii. Lack of commitment and seriousness on the part of most students is also a challenge to lecturers in the teaching of the option. This is sometimes due to the fact some students are not interest in the option they undertake but had no choice than to pursue.
- iv. Lack of teaching aids to simplify some of the technicalities involved in the teaching of the option. This is a great challenge because most of the students who come to pursue the publishing programme and hence choose to do the printing option know almost nothing about printing in their secondary school education.

4.1.8 Observable skills and abilities expected of graduates

Regardless of the fact that the objectives of the printing option is not distinct, lecturers were asked to identify some skills and abilities they expect to be evident in students who completes the printing option from what they teach.

In all seven skills and abilities were suggested. Lecturers however were required to rank the seven skills to indicate which of them should be paramount with the number 1 as the top most with the subsequent numbers following. Table 5 shows the order of ranking.

Table 5 shows clearly that lectures are of the view that the ability to take initiative is the number one skill every student should possess if they want to be successful in the industry. The ranking follows with the ability to plan and estimate jobs, practical skills of solving problems etc. The last in the ranking is the ability to operate a printing machine. The results of the ranking suggest that majority depends on the student. The remaining six skills could be obtained from the course content but the top most one is dependent on the student. It can also be said that the ability to operate a printing machine is the least skill that is expected of a graduate of the printing option. This could be interpreted that training students to operate the printing machine is not the focus of the option yet it is condemned. Therefore, if a student possesses that skill, that student stands at an advantage.

Table 5 *Ranking of expected skills and abilities of graduates*

<i>Skill/Ability</i>	<i>Ranking</i>
Ability to take initiative	1
Ability to plan and estimate jobs	2

Practical skills of solving problems	3
Equal knowledge of theoretical and practical skill	4
Managerial/personnel skills	5
Damage control skills	6
Ability to operate a printing machine	7

4.1.9 Mechanisms in place to ensure that the observable skills are achieved.

The researcher sought to find out the checklist in place to ensure that the envisaged skills are being achieved in students that are produced each year. Interestingly, two out of the four printing lecturers answered this question while the other two failed to answer. This could mean that 50% of the lecturers are of the opinion that there are some checklists whilst the other 50% opine that there are no checklists.

The two lecturers who answered this question were of the opinions that:

- i. The very nature of the printing option courses equips students for industry by the end of the programme. However much depends on the lecturer's approach and commitment as well as the student's will to learn.
- ii. Examinations, practical projects and various assignments given to students are tailored in a manner to test for these skills.
- iii. The one semester industrial internship for students is also one way of ensuring that students acquire some of these envisaged skills.

Aside the industrial internship which may be peculiar to the publishing programme and hence the printing option, the rest are the everyday requirement/practice of most university programmes. This probably could be the reason why the other two

lecturers failed to answer the question. On the other hand, though examinations, assignments etc are common to all university programmes the approaches could be different hence making one effective than the other. It can be argued that perhaps the approach adapted by the printing lecturers makes it a checklist to ensure that these skills are achieved in students.

4.1.10 Aspect of the printing option which needs emphasis and improvement.

The researcher enquired from lecturers, the specific course/subject areas of the printing option which needs improvement.

Three out of the four respondents were specific in the subject areas that should see improvement. The specific areas are:

- i. Non-Impact Printing: The respondents were of the opinion that this subject is not well outlined in the course content of the printing option. It is taught under some courses as modules/subtitles. Specific example is that non-impact printing is treated under the course title trends in printing technology and much emphasis is not placed on this area of printing which dominating the printing industry worldwide. The concept of impact printing has almost given way to non-impact printing. It is therefore imperative that the printing option take a critical look into this area.
- ii. Printing Science: This has specifically to do with the courses; Materials Technology and Printing Technology. The respondent is of the view that

much emphasis should be placed on both courses because they form the backbone of printing.

iii. Job planning, estimation and colour printing: The third respondent opined that these three course areas should be improved upon. These courses should be made more practical and much time should be allocated to them. The reason being that these three areas are very important keys to a successful running of any printing firm.

The fourth respondent who was not specific in the subject/course area feel that more practical sessions should be organized for the students but was silent on the areas which should receive more practical attention. I am in total agreement with this opinion. I believe Printing is a more practical subject and in my opinion the one semester industrial attachment is not enough.

4.1.11 General suggestions to improve the delivery of the printing option

Table 6 revealed that all respondents (100%) agree that two of the listed suggestions on the questionnaires will help improve the delivery of the printing option. The two suggestions are:

- i. Occasionally personnel from industry should be invited to handle some courses.
- ii. Lecturers should also intermittently go for training to be abreast with industrial trends and changes.

However 50% of the respondents opine that the other two suggestions provided by the questionnaire will help improve upon the delivery of the printing option.

This could be interpreted as the 50% of the respondent who did not failed to select the other two suggestions feel that perhaps these two suggestions are being done unofficially because some students go on industrial internship during semester breaks and also some students solicit for jobs and print for both money and experience (what is commonly called 'kome')

The other 50% of the respondents who opted for these suggestions probably feel that it should officially be included as part of the course structure for the printing option just as there is an official one semester internship for all publishing students.

Table 6 General suggestions to improve the delivery of the printing option

Suggestions	No. Of lecturers	Percentage
Personnel from industry should occasionally be invited as resource persons to handle some courses.	4	100
Lecturers should intermittently go for training to be abreast with industrial trends and changes.	4	100
Industrial internship for printing students should be extended to one academic year for more practical exposure.	2	50
Printing students should be given real production projects to embark on as part of their training.	2	50

4.2 Analysis of Students

Respondents were second to fourth year printing students. This is because specialization of the three major options under the publishing studies programme (of which printing technology is one) starts from second year. In all hundred and thirty-eight students responded to the questionnaires.

4.2.1 Gender of Students

One hundred and thirty-eight (138) students responded to this question (Table 7). Out of these respondents, ninety-three were males representing 67.4% and forty-five were females representing 32.6%. This means that more male students choose printing technology than their female counterparts. This trend is in confirmation with the fact that the printing industry is dominated by males. Both the global and local history of printing made no mention of any female contribution. The male dominations however do not mean that there are no female contributions in the industry. The trend of male dominance is gradually changing though at a very slow pace. This explains why some female students also find it interesting to venture into the printing industry.

Table 7 Gender of Students

Gender of students	No. Of respondents	Percentage (%)
Male	93	67.4%
Female	45	32.6%

4.2.2 Age Range of Students

A total of 135 students responded to this question. The table reveals that the dominating age range of printing technology students is 21 – 25 years and it represents 74.1% of the total respondents. This could be attributed to the education system in the country. The education system allows majority of students to enter into tertiary institutions from 18years and above. Adding the age range 15 – 20 years together with the 21-25 age range gives a total of 104 out of the 135 respondents which represents 77.1%. These two age ranges fall within the perceived age of 18years and above for tertiary students. This means that most of the students on the course during the period of the study are influenced by the education system in Ghana hence the dominant age range. Again the age ranges 31 – 35 and 36 upward together gave 23 respondents representing 17%. This age range represents the mature applicants on the course. The age range of students who pursue printing technology is promising for the printing industry if students receive the right training and practice what they are taught in the industry.

Table 8 Age Range of Students

Age Range (years)	No. Of Respondents	Percentage (%)
15 – 20	4	3.0%
21 – 25	100	74.1%
26 – 30	8	5.9%
31 – 35	12	8.9%
36 above	11	8.1%

4.2.3 Educational Background of Students

All 138 respondents responded to this question (Table 9). Due to the open entry requirement of the publishing studies programme, the Table revealed all the areas of study at the senior high school are on the course. This gave the background of students who pursue the printing technology option

Table 9 Educational Background of Students

Area of Study	No. Of Respondents	Percentage (%)
Elective Science	1	0.7%
Business	81	58.7%
Visual Arts	23	16.7%
General Arts	22	16.0%
Agric Science	1	0.7%
Home Economics	10	7.2%

4.2.4 Highest Level of Educational Qualification of students.

According to Table 10, all 138 respondents responded to this question. The majority of respondents of 110 representing 79.8% possess the SSSCE/WASSCE as their highest of qualification before enrolling on the programme. This is followed by 13 respondents which represent 9.4% who possess the GCE A or O’level as their qualification. The next down the line is those with diploma in teaching representing 6.5% of the total respondents. The remaining totalling 6 and representing 4.3% of the respondents have

qualifications including HND, first degree in other fields aside publishing. This scenario again explains the unrestricted nature of the course.

Table 10 Highest Level of Educational Qualification of students

<i>Education Level</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
SSSCE/WASSCE	110	79.8%
GCE A or O'Level	13	9.4%
HND	2	1.4%
Diploma Teaching	9	6.5%
First Degree (other field)	1	0.7%
Others	3	2.2%

4.2.5 Factors that influence the Choice of the Printing option

All 138 respondents answered this question (Table 11). Seventy five respondents representing 54.3% chose the printing technology option because of their interest in the area. This representing more than half of the respondents is a good aspect for the printing option most especially if all such respondents remain in the industry.

43 respondents (31.2%) chose the printing option because of influence and advice from senior course mates as well as 16 respondents (11.6%) being influenced by the department lecturers. This can be interpreted that students at least make enquiries to be sure they are taking the right paths based on their individual strength before choosing their area of specialization. Being well informed before making a decision about anything makes one responsible for the choice made.

Table 11 Factors that influence the Choice of the Printing option

<i>Factors Influencing choice</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
Orientation from department lecturers	16	11.6
Influence from guardians	4	2.9
Special Personal Interest of students	75	54.3
Influence/advice from senior course mates	43	31.2
Easiest Option out of the three perceptions	0	0

4.2.6 Students Knowledge of the Goals and Objectives for Printing Option

There was a total response to this question (Table 12). This question was asked to find out from respondents if they have an idea of what they are being trained to become at the end of the programme. Glatthorn (1994) puts it that educational goals are the learning destinations you hope the students will reach. The objectives or aims of a programme defines the courses/subject that should be taught and to what extent in order to achieve them. In this case if students are well aware of the overall objectives/aims of the printing technology option right from the year of specialization, it helps them get oriented with what they will become at the end of the training.

Majority of the respondents (108) representing 78.3% answered yes to this question. However when students were asked to state the objectives, they could not provide the objectives for the printing technology option but rather stated the overall objectives for the publishing programme.

The thirty (30) responded no to this question. Though they formed the minority, they understood the question and therefore answered rightly.

Specific objectives should be coined or developed out of the overall objectives of the publishing studies programme for the printing technology option

Table 12 Students Knowledge of the Goals and Objectives for Printing Option

<i>Knowledge about goals and Objectives</i>	<i>No. of Respondents</i>	<i>Percentage (%)</i>
Yes	108	78.3
No	30	21.7

4.2.7 Provision of Course Outline for Specific Courses

One hundred and thirty seven respondents responded to this question. This question was asked to check for the appropriate delivery of the course content of the printing option. A course outline contains the major ideas, components, or topics of the subject you are planning to teach (Posner & Rudnitsky, 1986). Having a course outline for every course taught under the printing option can be likened to having a map for a journey being made. This practice demonstrates some factors which facilitate teaching and learning. Posner & Rudnitsky (1986) put it that having outline will help in making sure there are no gaps in the presentation of the subject matter, in making decisions about audience appropriateness, in identifying intended learnings and in organizing the course content. Glatthorn (1994) also says that unit planning is much more significant in the learning process because it is best for showing problem solving at work. In a nutshell it demonstrates the ability of the lecturer to organize and plan course content and

gives students opportunity to also read on the areas that are expected to be studied and hence contribute to the teaching process.

Table 13 depicts that 95 respondents (69.3%) answered yes meaning that lecturers provide course outline for the courses taught. 42 respondents representing 30.7% answered no to the question which means that lecturers do not supply students with course outline for the courses taught. Since majority of the respondents answered yes to the question, it can be deduced that majority (more than two-thirds) of the lecturers provide course outline for their respective courses.

Table 13 Provision of Course Outline for Specific Courses

<i>Provision of Course Outlines</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
Yes	95	69.3
No	42	30.7

4.2.8 Extent of Completion of Course Outline

Ninety six respondents answered this question which is a follow-up of the preceding question (Table 14). Five (5) responded to 21 – 40% coverage of course outlines with none responding to 1 – 20% coverage. Twenty three responded that lecturers are able to cover 41 – 60% of the course outlines. This range represents good coverage. Sixty out of the 95 representing 63.2% responded that there is 61 – 80% coverage of the course outline given for a course. Adding the 7 respondents who answered that there is 81 – 100% coverage of course outline gives a total of 67 (70.6%) responding that there is 61 – 100% coverage of course outline. This number of respondents represents more than half of the total respondents and hence

proves that majority of the course contents are achieved by the majority of the lecturers.

Table 14 Extent of Completion of Course Outline

<i>Extent of Coverage (%)</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
1 – 20	0	0
21 – 40	5	5.2
41 – 60	23	24.2
61 – 80	60	63.2
80 – 100	7	7.4

4.2.9 Measurement of Lecturer's Performance

Students were required to measure the performance of their lecturers in terms of the categories listed in Table 15 using the scale excellent to poor. Table 15 reveals that students are very satisfied with lecturers' performance in all the categories provided. As high as 104 respondents rated lecturers excellent for knowledge base with 98 respondents rating lectures excellent for practical demonstration. Quite insignificant number of respondents rated lecturers average and poor for all the five categories. This means that lecturers are performing very well in these areas.

Table 15 Measurement of Lecturer's Performance

<i>Category for measurement</i>	<i>Excellent</i>	<i>Very Good</i>	<i>Good</i>	<i>Average</i>	<i>Poor</i>
Knowledge base	104	23	11	0	0
Application of knowledge	87	41	7	3	0
Organization of thoughts	83	45	9	1	0
Ability to set and achieve course Intended Learning Objectives (ILOs)	71	46	13	6	2
Practical demonstration abilities	98	31	9	0	0

4. 2.10 Appropriateness/Suitability of applied teaching methods

One hundred and thirty three students responded to this question. Fifty eight respondents representing 43.6% are of the opinion that the teaching methods used for the printing technology option are appropriately/suitably good. Thirty eight respondents (28.6%) feel that the teaching methods for printing technology option are very good with 7 respondents (5.3%) saying the teaching methods are excellent. Two respondents and 28 respondents believe the teaching methods are poor and average respectively with none responding to very poor.

Since majority of the respondents, that is 103 representing 77.5% answered good, very good and excellent to the appropriateness/suitability of the teaching methods,

it can be interpreted that the teaching methods used are appropriate for the course content of the printing technology option.

Table 16 Appropriateness/Suitability of applied teaching methods

Level of Appropriateness/Suitability	No. Of Respondents	Percentage (%)
Very Poor	0	0
Poor	2	1.4
Average	28	21.1
Good	58	43.6
Very Good	38	28.6
Excellent	7	5.3

4.2.11 Inadequacies in the Structure and Delivery of Course Content

Respondents were asked to identify some inadequacies present in structure and delivery of the course content.

From Table 17, 126 respondents which represent 91.3% out of the 138 are of the opinion that there is inadequate practical exposure with the delivery of the course although some lecturers from their personal experience try as much as possible to practicalize the teaching of the course. One hundred and seven respondents (77.5%) say that there is repetition/overlapping of topics in the structure and

delivery of the course content. Ninety nine students (71.7%) responded that teaching facilities and materials are lacking.

Forty eight respondents responded that there is surface treatment of topics of the course content. This number of respondents represents less than half (34.8%) of the total respondents and so can be said that this inadequacy in the course content is not absolutely true or strong.

Forty two respondents (30.4%) and 24 respondents (17.4%) are of the opinion that lecturers are incompetent and assessment methods are inappropriate respectively. Again these figures are less than half the total number of respondents and hence can be interpreted that the two are not strong inadequacies found in the structure and delivery of the course content of the printing technology option.

Table 17 Inadequacies in the Structure and Delivery of Course Content

<i>Inadequacies/Shortcomings</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
Repetition/Overlapping of units/topics	107	77.5
Lack of Teaching Facilities /Materials	91	71.7
Incompetence of lecturers	42	30.4
Inappropriate assessment methods	24	17.4
Inadequate practical exposure	126	91.3
Surface treatment of topics.	88	34.8

4.2.12 Areas of Option that need much attention and improvement

Respondents were asked to identify some inadequacies present in structure and delivery of the course content.

According to Table 18, 126 respondents which represent 91.3% out of the 138 are of the opinion that there is inadequate practical exposure with the delivery of the course although some lecturers from their personal experience try as much as possible to practicalize the teaching of the course. 107 respondents (77.5%) say that there is repetition/overlapping of topics in the structure and delivery of the course content. 99 students (71.7%) responded that teaching facilities and materials are lacking.

Forty eight respondents responded that there is surface treatment of topics of the course content. This number of respondents represents less than half (34.8%) of the total respondents and so can be said that this inadequacy in the course content is not absolutely true or strong.

Forty two respondents (30.4%) and 24 respondents (17.4%) are of the opinion that lecturers are incompetent and assessment methods are inappropriate respectively. Again these figures are less than half the total number of respondents and hence can be interpreted that the two are not strong inadequacies found in the structure and delivery of the course content of the printing technology option.

The researcher sort to find out from respondents specific course areas of the printing option that need improvement with regards to method of teaching as well as time allocation.

Four out of the thirteen course areas had more than half (majority) of the respondent claiming the need for much attention/major improvement. These four areas are: Printing Technology with 81 respondents representing 58.7% of total respondents; Materials Technology with 79 respondents representing 57.2%; Bookwork and Imposition with 94 respondents representing 68.1% and lastly Print Production and Estimation with 99 respondents representing 71.7% of the total respondents.

The remaining nine (9) course areas had less than half (minority) of the respondents claiming the need for much attention/major improvements. This means that for these nine courses respondents are satisfied with the teaching method applied as well as the time allocation.

Table 18 Areas of Option that need much attention and improvement

Course Title	No. Of Respondents	Percentage (%)
Introduction to Printing	36	26.1
Typography for printers	40	28.9
Print Product & Process	41	29.7
Printing Technology	81	58.7
Product Design & Development	49	35.5
Materials Technology	79	57.2
Print Finishing	30	21.7
Bookwork & Imposition	94	68.1
Print Production & Estimation	99	71.7
Print Quality Management	35	25.4

Colour Printing	45	32.6
Printing Plant Management	33	23.9
Trends in Printing	23	16.7

4.2.13 Methods to improve the teaching of Printing Option

Respondents were asked to suggest possible ways of improving upon the teaching of the printing technology option.

With reference to Table 19, 110 respondents out of the 138 which represents 79.9% are of the opinion that personnel from industry should occasionally be invited to handle some of the courses taught under the printing option. 108 respondents out of the 138 (78.3%) suggests that students who choose printing technology option should be allowed to go on one year (two semesters) industrial attachment instead of the current one semester.

95 respondents representing 68.8% of the total respondents opine that lecturers should intermittently go for training to be abreast with the changes that pertains in industry. Lastly 89 respondents representing 64.5% opine that printing students should given practical production projects to embark on as part of course requirements and assessment.

Table 19 reveals that in each instance, more than half of the respondents agree to the ways of improving upon the teaching of the option. This means that majority of the students opine that all four ways will help improve upon the teaching of the printing option if implemented.

Table 19 Methods to improve the teaching of Printing Option

Ways of Improvement	No. Of Respondents	Percentage
Personnel from industry should be invited as resource persons to handle some aspects of the course	110	79.7
Lecturers should intermittently go for training to be abreast with changes pertaining in industry.	95	68.8
Industrial attachment programme should be made two semester for printing students for practical exposure	108	78.3
Printing students should be given production projects to embark on as part of course requirements and assessment.	89	64.5

4.2.14 Prospective field of employment for students after school

The employment prospective of current students of the printing option was sampled to find out at least an estimate of the students who intend to remain in the industry and practice what they have acquired from the programme.

A total of 113 out of the 138 respondents answered this question (Table 20). A total of 66 respondents out of the 113 representing 58.4% have the intention of remaining in the printing industry either as an employer or employee. The remaining 47 respondents which represent 41.6% of the 113 respondents have the intention of seeking employment in other fields such as teaching and financial institutions. This trend is no surprise as the entry requirement is open to all fields. However, it is

consoling to find out that more than half of those who responded to this question intend to remain and contribute to the printing industry.

Table 20 Prospective field of employment for students after school

<i>Prospective Field of employment</i>	<i>No. Of respondents</i>	<i>Percentage (%)</i>
Printing/Publishing establishments	49	43.4
Financial Institution	23	20.4
Self employed (printing)	17	15.0
Self employed (different field)	14	12.4
Teaching	10	8.8

4.3 Analysis of Graduates

In all seventy-eight (78) respondents were identified and given questionnaires during the time of the data collection. All 78 questionnaires were retrieved.

4.3.1 Gender of Graduates

The ratio of male to female from the *table 21* can be said to be 2 : 1. This could be interpreted that as two male graduates seek employment in the printing industry, you can get only one female doing the same. The gender ratio is no surprise at all since printing is again seen to be a male dominated field. On the contrary, this gender ratio is even encouraging as compared to the one revealed by the lecturers

Table 21 Gender of Graduates

Gender of Respondents	No. Of Respondents	Percentage (%)
Male	52	66.7
Female	26	33.3

4.3.2 Graduates' Year of Completion

The researcher tried to identify the number of graduates who have taken up responsibilities in the industry as employers over the years.

Table 22 revealed that most of the respondents who were reached completed the programmed between the years 1996 to 2009.

Twenty-six respondents representing 33.3% completed between 1996 – 2000, followed by 25 respondents representing 32.1% completed between 2001 –2005 and finally 24 respondents which represent 30.8% completed between 2006 – 2009.

Between the years 1985 – 1990, which was the year range where the pioneer students of the publishing programme passed out, only one respondent (1.3%) was identified still working in the printing industry. This number could be attributed to the possibility of small number of students enrolling on the programme at the said time.

Between the years 1990-1995, four respondents were (5.1%) were identified. The same reason of small numbers of student who enrolled on the programme at that time could be assigned for the number of respondents.

On the contrary, majority of the respondents were between the years 1996-2000. These were the initial years where the programme had changed from being three years to four

years. The number of respondents between these years could probably be that majority of the graduates who passed out chose to remain in the industry.

The researcher anticipated about 70 – 75% of the respondents will be between 2001 – 2009 because the numbers of students passing out each year between these years had increased because the programme had gained recognition by then. On the other hand the total respondents' percentage for these years was 62.9%. This probably means that quite a large number of graduates between these years found themselves in other disciplines of employment instead of the primary printing industry.

Table 22 Graduates' Year of Completion

<i>Year of completion</i>	<i>No. of Respondents</i>	<i>Percentage (%)</i>
1985 – 1990	1	1.3
1991 – 1995	4	5.1
1996 – 2000	26	33.3
2001 – 2005	25	32.1
2006 – 2009	24	30.8

4.3.3 Employment Positions occupied by Graduates.

The printing option is bent on training students who graduate to occupy supervisory and managerial positions in the printing industry. This question intended to find out if this objective was being achieved in graduate. All the options provided by the questionnaire as depicted by the table range from supervisors, managers to chief executive officers. It is heart-warming to know that there are some graduates

occupying positions at each of the ranging options provided by the questionnaires. This again means that graduates are also estimated to have something good to offer that is why they are placed at supervisory and managerial positions.

Table 23 reveals that 41.1% of the total respondents occupy supervisory positions. This probably could mean that when graduates are employed at the various printing houses, they are not given the top most positions right away but are placed at appropriate level for them to climb up ladder by proving their worth through work output. The position of operations/production manager is occupied by 30.8% of the respondents followed by 12.7% who occupy positions as estimators.

7.7% of the respondents work as general managers with 2.6% being chief executive officers. The remaining 5.1% of the respondents which occupy other positions aside the options given on the questionnaires were basically positions like sales executives and operations assistants. The intriguing thing is that none of the respondents worked as a machine operator. This emphasizes the fact the training given to students is not that meant for them to operate printing machines.

Table 23 Employment Positions occupied by Graduates

<i>Employment Position</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
CEO	2	2.6
General Manager	6	7.7
Production/Operations Manager	24	30.8
Supervisor/Sectional head	32	41.1
Estimators	10	12.7
Others	4	5.1

4.3.4 Years of Working Experience

The impact of graduates working in industry was measured using their years of working experience. The number of graduates identified during the period of the research compared to the number of graduates produced over the years is not encouraging. However, the few that were identified had worked for quite appreciable number of years. This could probably mean that the few graduates are contributing effectively to the industry in whatever capacity they occupy.

Table 24 reveals that 30 respondents (38.5%) have worked in the industry within 1 – 5 years. In addition, 40 respondents (51.2%) have worked between 6 – 10 years in the industry with 6 respondents (7.7%) having worked between 11 – 15 years. Almost 98% of the respondents have worked between 1 – 15 years in the industry. The period of 15 years reflect the years (1994) after the programme was changed from three years to four years and also the introduction of specialization. This means that most of the respondents are graduates after this period. It is however unfortunate to know that only 2.6% of respondents have worked between 16 – 20 years with none (0%) of the respondents having worked between 21 – 25 years. This means the researcher could not identify most of the graduates who completed the programme before it was changed from three years to four years.

Table 24 Years of Working Experience

<i>Years of working experience</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
1 – 5	30	38.5
6 – 10	40	51.2
11 – 15	6	7.7

16 – 20	2	2.6
21 – 25	0	0

4.3.5 Degree of Course Content Relevance to Industry Needs

Opinions of Graduates working in the industry were inquired about the extent to which the course content is relevant to what pertains in industry. Percentage range was used as the scale of measuring the degree of relevance of the course content to industry needs.

Table 25 revealed that none of the respondent were of the opinion that the course has 0% - 20% relevance to industry needs. This means the extent of relevance to industry is above 20%. Two out of the 78 respondents (2.6%) believe that the course content is 21 – 40% relevant to industry needs. Majority of the respondents forming 59.0% opine that the degree of course content relevance to industry is 41- 60%. The 50% score fall within this range which could be explained that the course content at least satisfy half or 50% of industry needs though this could be more or less.

24 out of the 78 respondents (30.7%) which form about one-third were of the opinion that the degree of the course content relevance to industry ranges between 61% - 80%. Six respondents representing 7.7% were of the view that the course content is 81-100% relevant to the needs of industry.

It can be said from the table's results that the course content is relevant to industry needs though there is a probability for improvements. This is because 76 which represent 97.4% of the total 78 respondents agree that the relevance of the course content to industry range from 41 – 100%.

Table 25 Degree of Course Content Relevance to Industry Needs

<i>Degree of Course Content Relevance</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
0%	0	0
1 – 20%	0	0
21 – 40%	2	2.6
41 – 60%	46	59.0
61 – 80%	24	30.7
81 – 100%	6	7.7

4.3.6 Appropriateness of Teaching Methods of Course

Graduates were asked to rate how appropriate the teaching methods and strategies used for the printing option are using the range from very poor to excellent. The teaching methods used for a course plays a key role in the overall end results. In writing units of study for teaching and learning, Glatthorn (1994) lists seven issues that need to be addressed. One of them is the learning and teaching strategies that will be appropriate. He puts it that learning and teaching strategies are the mental operations that help in the problem-solving process. Some are generic and some are subject-specific. Glatthorn further asserts that evaluating a curriculum has to do with managing policies and procedures used to support the curriculum. Goodlad (1963) also add his view that the organizing centre (teaching methods) is a focal point for teaching and learning. It is

instructional flesh on curricular bones. It may consist of a picture to look at, a book to read, an idea to contemplate, an issue to resolve, a place to visit. The organizing centre may be useful for a few minutes, hours, days or even weeks but it is unavoidable.

Table 26 revealed that none (0%) of the respondents rated the teaching methods to be very poor or poor. Seven respondents (9.0%) however were of the opinion that the teaching methods applied are averagely appropriate. Twenty-seven respondents (34.6%) believe that the teaching methods applied are good with 34 respondents (43.6%) rating the teaching methods as very good. Lastly 10 respondents (12.8%) believe that teaching methods are excellent. It can be deduced from the table that the teaching methods used are appropriate for the course content of the printing option since 91% of the total respondents rated them between good and excellent

Table 26 Appropriateness of Teaching Methods of Course

<i>Level of Appropriateness/Suitability</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
Very Poor	0	0
Poor	0	0
Average	7	9.0
Good	27	34.6
Very Good	34	43.6
Excellent	10	12.8

4.3.7 Inadequacies in Course Structure and its delivery

Respondents in answering this question were not restricted to choosing only one option but were allowed to select as many inadequacies that they observed within the course content and structure. Each option provided on the questionnaire was therefore analyzed as 100%. Table 27 revealed that 54 respondents (69.2%) identified that some topics/units repeats and overlap with others. 63 respondents (80.8%) opine that the course content lack the needed teaching resources and materials with another 69 respondents (88.5%) saying that there is inadequate practical exposure. Lastly 46 respondents (59%) share the view that there is surface treatment of topics/units. It can be deduced that the inadequacies found with the course content and structure are repetition/overlapping of topic, lack of teaching materials, inadequate practical exposure and surface treatment of topics/units since in each more than 50% responded. On the other 16 respondents (20.5%) believe that lecturers are incompetent with 24 respondents (30.8%) saying that assessment method are inappropriate. Incompetence of lecturers and inappropriate assessment methods cannot be concluded to be inadequacies within the course content since in each case less than 50% responded.

Table 27 Inadequacies in Course Structure and its delivery

<i>Inadequacies</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
Repetition/Overlapping of topics/units	54	69.2
Lack of Teaching Resources /Materials	63	80.8

Incompetence of lecturers	16	20.5
Inappropriate assessment methods	24	30.8
Inadequate practical exposure	69	88.5
Surface treatment of topics.	46	59.0

4.3.8 Specific Areas of the course content which help Graduate Performance at work

This question tried to identify specific areas that are strengths of the course content which help graduates perform well in the industry. Table 28 revealed that print quality management ranked the number one with 71 respondents (91.0%) followed by print products and estimation. The ranking follows on with trends in printing being the last (9th) in the ranking with 41 respondents (52.6%). All the areas/aspects listed help graduates perform in the industry because all respondents were above 50% with even the last in the ranking (trends in printing) having 52.6%. Trends in printing which deals with the technological changes that are occurring in the printing industry was ranked last by graduates probably because the trends that are discussed happening globally are quite different or at a distance with what is happening locally, hence it is not quite used by graduates.

Table 28 Specific Areas of the course content which help Graduates Performance at work

<i>Aspect of course content</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>	<i>Ranking</i>
Machine knowledge/operations	61	78.2%	3
Materials Technology	54	69.2%	5
Print Finishing	47	60.3%	8
Bookwork & Imposition	61	78.3%	3
Print Product & Estimation	67	85.9%	2
Print Quality Management	71	91.0%	1
Colour Printing	49	62.8%	7
Printing Plant Management	53	67.9%	6
Trends in Printing	41	52.6%	9

4.3.9 General Skills acquired through the course training

Graduates were asked to identify specifically some of the skills and ability that have been acquired as a result of the training received through printing technology course.

Specific skills prevalent among the answers given by graduates were:

- i. Ability to handle printing procedures.
- ii. Ability to estimate print production.
- iii. Ability of job planning and path analysis of jobs.
- iv. Ability to manage stock and time.
- v. Quality management skills.
- vi. Discipline and innovative skills.

Others skills which were not prevalent include colour scheme management; print finishing management and presentation skills.

This question wanted to identify if graduates could identify some skills that were acquired at the end of the three years training in printing technology. Again it was also to compare with the skills employers expect graduates they employ to exhibit.

The answers given by respondents revealed that graduates are able to identify some key skills that the training has given them. This is one of the strengths of the course training. Though it is not stated specifically what the objectives of the printing technology options are, yet some key skills which help graduates to perform in the industry are acquired at the end of the training.

4.3.10 Degree to which skills acquired help graduates' job performance

This follow up question, sort to find out the extent or degree to which the skills acquired by graduates aid them in the execution of their job descriptions. It can be seen from Table 29 that 36 respondents (46.2%) answered that the skills acquired aid them 61 – 80% with regard to their job performance. Twenty one respondents (26.9%) believe 81 – 100% the skills acquired through the training help in executing their jobs. 18 respondents (23.1%) say the skills acquired help them 40 – 60% in the execution of their jobs. It can be deduced that majority of the respondent ie 57, forming 73.1% of the total number of respondents believe that the skills acquired contribute 61 – 100% to their ability to perform at work. The degree range (61-100%) represents more than

half and so can be said the skills acquired by graduates are very relevant to industry needs

Table 29 Degree to which skills acquired help graduates' job performance

<i>Degree of job performance</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
1 – 20%	0	0
21 – 40%	3	3.8
41 – 60%	18	23.1
61 – 80%	36	46.2
81 – 100%	21	26.9

4.3.11 Employable skills graduates are expected to possess readily.

Respondents were asked to identify some employable skills that their employers expected to exhibit readily once they were employed. This was also to compare with the skills graduates acquire at the end of their training to ascertain if the training given to students meet the needs of industry. According to *Table 30*, the ability to take initiative ranked the highest on the table with 68 respondents representing 87.2% of the 78 respondents. The next employable skill is job planning and estimation with 64 respondents (82.1%). Personnel management, critical path planning and production management ranked the next with 60 respondents (76.9%) each. In comparison, it was realized that the skills acquired by graduates are equally or almost the same to the one required by employers in industry. Ability to handle printing procedures is equally the same as production management. Ability to estimate print production is the same as

job planning and estimation. Ability of job planning and path analysis of jobs are equally the same as critical path planning of jobs. Quality management skill is a bigger umbrella of damage control skills. Discipline and innovative skills is equally the same as ability to take initiative. The only lacking skills which graduate did not bring out but which employers expect is personnel management.

The number one need of employer is the ability of graduates they employ to take initiative in every aspect. This lies majorly on the student.

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Table 30 *Employable skills graduates are expected to possess readily.*

<i>Employable skills</i>	<i>No. Of Respondents</i>	<i>Percentage (%)</i>
Job planning and estimation	64	82.1
Damage Control skills	51	65.4
Personnel Management	60	76.9
Critical path planning skills	60	76.9
Production management	60	76.9
Ability to take initiative	68	87.2

4.3.12 Challenges faced by graduates in industry.

Respondents were asked to identify some of the challenges they face with their work in industry. Ranging the challenges in order of the one with the highest occurrence to the least, the following were the challenges faced by graduates in industry:

- i. Difficulty in human resource/personnel management

- ii. Inadequate practical skills especially in solving technical problems
- iii. Inadequate knowledge of computer application programmes and usage.
- iv. Contradictions and confusion between how estimation is taught in school and how it applies on the field.
- v. Marketing skills and customer relations.
- vi. High performance expectations of both employers and employees.

4.3.13 Current trend/demands of the Ghanaian Printing Industry

Table 31 revealed that demand for quality output by customers is the number one demand of the industry with 72 respondents (92.3%). This is followed by ability to delivery jobs on schedule with 71 respondents (91.0%) and good customer care/reception with 69 respondents (88.5%). Sixty respondents (76.9%) opined that there is an increase in product knowledge by customers. Fifty-eight (74.4%) and 51 respondents (65.4%) opined that high technology intensive and labour intensive respectively are demands of the industry. It can be deduced from the percentages in the number of respondents for each of the options all options are demands/needs of the printing industry currently. It is however interesting to note that the printing demands of the country are both high technology intensive and labour intensive at the same time.

Table 31 Current trend/demands of the Ghanaian Printing Industry

<i>Current Trends/demands</i>	<i>No. Of respondents</i>	<i>Percentage (%)</i>
Demand for quality output by customers	72	92.3
Good customer care/reception	69	88.5
On schedule delivery of jobs	71	91.0
Increased product knowledge by customers	60	76.9
High technology intensive	58	74.4
Labour (manpower) intensive	51	65.4

4.4 Analysis of Employers/Employees in Industry

Every effective manufacturer who seeks the best/maximum patronage for his products has the end user in mind right from the commencement of production. This scenario applies to the training given to the students and the printing industry as the end users of the products from department. The targeted respondents for this questionnaire were employers/employees occupying supervisory and managerial positions. The purpose for employers/employees analysis is to find out the current needs/demands of the printing industry as well find out their expectation from the graduates who complete with printing technology option. Again employers/employees have had acquaintances with students especially when they go on attachment training. Their opinions are therefore very paramount since the printing industry is primarily the area that is to absorb graduates from the department.

A total of 150 questionnaires were given out to 100 sampled printing presses in Kumasi and Accra. Out of the 150 questionnaires 129 were retrieved from 91 printing

houses in Kumasi and Accra. This represents 86% out of the 150 respondents and 91% out of the 100 press houses.

4.4.1 Year of Establishment of Press Houses

From Table 32 there is an increasing trend in the number of press houses with each passing year. Majority of the presses were established between 1991 and 2009. A total of 67 press houses (75.9%) were established between 1991 and 2009. The year range (1981 – 1990) in which the publishing programme started had nineteen (20.9%) press houses established. Three out of the 91 press houses which represents 3.3% were established between 1971 and 1980. The programme which was established to train publishers to manage the infant publishing needs of the country was changed in 1994 from three years to four years in order to allow specialization because of it was realized that the publishing activities in Ghana was turning more into printing activities. The increasing number in press houses as revealed by the table confirms this decision that was taken.

Table 32 Year of Establishment of Press Houses

<i>Year of Establishment</i>	<i>No. Of Press Houses</i>	<i>Percentage</i>
1971 – 1980	3	3.3
1981 – 1990	19	20.9
1991 – 2000	32	35.2
2001 – 2009	37	40.6

4.4.2 Form of Business Ownership of Press Houses

Table 33 revealed that 43 (47.3%) press houses are registered as sole proprietorship with 40 (43.9%) as limited liability companies. Only one press house had it form of ownership as partnership. Two (2.2%) press houses are owned by the government and five (5.5%) presses belong to churches. It can be concluded from the table that the printing industry in Ghana is a private industry. The government's involvement in this industry is very minimal now. The printing industry in Ghana started with the colonial rule and later gave in to the government after our independence. It is however surprising to note that the trend has changed giving way to private individuals to run the industry.

Table 33 Form of Business Ownership of Press Houses

<i>Form of business ownership</i>	<i>No. Of Press houses</i>	<i>Percentage (%)</i>
Sole Proprietorship	43	47.3
Limited Liability	40	43.9
Partnership	1	1.1
Government	2	2.2
Church	5	5.5
NGO	0	0

4.4.3 Positions of Respondents in Firm

This question was targeted at employers from middle management to top management. The researcher realized from the time of testing the validity of questionnaires that these were the level of people in the various press houses that could understand and

were willing to answer the items on the questionnaires. Table 34 shows that 73 (56.6%) out of the 129 respondents occupied the position as supervisors/sectional heads with 47 (36.4%) respondents as production managers and lastly 9 (7.0%) respondents being chief executive officers/general managers.

Table 34 Positions of Respondents in Firms

<i>Position in firm</i>	<i>No. Of respondents</i>	<i>Percentage (%)</i>
Supervisor/Sectional head	73	56.6
Production Manager.	47	36.4
CEO/General Manager	9	7.0

4.4.4 Years of Working Experience of Respondents

The researcher needed to find out from respondents how much experience they have working in the printing industry. Respondents experience has a much bearing on how they see the trends/demands of the industry. Fifty-eight respondents (45.0%) representing the highest have between 6 – 10 years of working experience. This is followed by 42 respondents (32.6%) who have between 1 – 5 years of working experience. Fifteen respondents (11.6%) have between 11 – 15 years of working experience with nine respondents (7.0%) having 16 – 20years. Five respondents (3.9%) have working experience 20 years and above.

Table 35 Years of Working Experience of Respondents

<i>Years of working experience</i>	<i>No. Of respondents</i>	<i>Percentage (%)</i>
1 – 5	42	32.6
6 – 10	58	45.0
11 – 15	15	11.6
16 – 20	9	7.0
20 and above	5	3.9

4.4.5 Current trend/demands of the Ghanaian Printing Industry

Table 36 revealed that demand for quality output by customers is the number one demand of the industry with 124 respondents (96.1%). This is followed by ability to delivery jobs on schedule with 121 respondents (93.8%) and good customer care/reception with 108 respondents (83.7%). Ninty-three respondents (72.1%) opined that increase in product knowledge by customers is another demand of the industry. Eighty-five (65.9%) respondents said that industry is high technology intensive with 51 respondents (39.5%) having the opinion that labour intensive is another demand of the industry. It can be deduced from the percentages in the number of respondents for each of the options that all item listed on the table are demands of the printing industry currently except labour intensive. This analysis is the same with what graduates provided. The only difference is in the labour intensive demand. Graduates are of the view that labour intensive is a demand of the industry while employees disagree. It is however interesting to note that one industry (printing) could have both high technology intensive and labour intensive as demands at the same time. An industry

which is high technology intensive is expected to have little human labour involvement but strangely it is not like that with the printing industry in Ghana.

Table 36 Current trend/demands of the Ghanaian Printing Industry

<i>Current Trends/demands</i>	<i>No. Of respondents</i>	<i>Percentage (%)</i>
Demand for quality output by customers	124	96.1
Good customer care/reception	108	83.7
On schedule delivery of jobs	121	93.8
Increased product knowledge by customers	93	72.1
High technology intensive	85	65.9
Labour (manpower) intensive	51	39.5

4.4.6 Employable Skills expected of Graduates

Table 37 revealed that with the exception of damage control skills, all the other skills listed on the table are expected of graduates to exhibit readily. This means that training given to students who pursue the printing option should be geared towards the attainment of these skills. One other prominent skill which respondents (111) suggested graduates be well vexed in is graphic design application skills. This could be a conflict of interest because some students also specialize in design and illustration which is one of the three options of the publishing studies programme and they are expected to be well vexed in graphic design applications. Regardless of this however,

efforts should be made to help students acquire this skills during their training since it is expected of them.

Another skill graduates are expected to exhibit is marketing. Respondents opine that it is very necessary for graduates to have some marketing skills in addition to their training.

Table 37 Employable Skills expected of Graduates

Employable Skills	No. Of respondents	Percentage (%)
Job planning and estimation	117	90.6
Damage control skills	34	26.4
Personnel management	77	60.0
Critical path planning	103	79.8
Production management	119	92.2
Ability to take initiative	122	94.6

4.4.7 General impression of the Ghanaian Printing Industry

Table 38 shows the general impression of the Ghanaian printing industry. The industry has a low level of professionalism (81.4%), is a competitive industry (93.0%) and a prospective one (70.5%). Because the industry is dominated by the private individual and there are no checklist governing the setting up of a printing house, any person who has enough capital can easily establish a press house. This again explains why there is low level of professionalism and high competitiveness in the industry. The departments of publishing studies and other associations within the sector have also

not been able to develop any mechanisms to check for professionalism in the industry as can be said of other industries as it pertains in the pharmaceutical and medical. The government has also not helped in contributing to this effect. Again the government awards contract to foreign printing industries. This has also created another challenge for the industry and encourages some publishers to also do the same.

Table 38 General impression of the Ghanaian Printing Industry

<i>General impression</i>	<i>No. Of respondents</i>	<i>Percentage (%)</i>
Low level of professionalism	105	81.4
Competitive industry	120	93.0
Prospective industry	91	70.5

4.4.8 Suggestions from employers/employees in industry

Employers were asked to make suggestions that will help improve upon the teaching of the printing option. The following were the major suggestions given by respondents

1. Design software application programmes should be included in the course content and it should be practically oriented
2. Emphasis should be placed on Job Planning and estimation.
3. Marketing training, customer service, quality control at all levels of production oriented courses should be emphasized.
4. Seminars should be organized for students with those in industry to have a fore knowledge of the challenges in industry often before students pass out of school.

5. Major Stakeholders in the printing industry should be consulted when drawing and reviewing syllabus for students.
6. Students should be attached to press houses for the period on the course.
7. More attention should be given to industrial attachment by increasing the period to a year.
8. Students should be introduced to management courses such as management information systems, human resource management and organizational behaviour methods.

4.5 Discussion of Interview Results

Interviews were conducted with seven people in the industry. Five out of the seven were in Accra and two in Kumasi. The seven interviewees were selected based on their rich experience in terms of the number of years working in the industry, the immense contributions they are making in the industry as well as their exposure to international trends in the printing industry. The interviewees were:

1. Mr. Cobblah, Production Manager of Graphic Communication Group, Accra
2. Mr. Bennette Hanson, Print Media Consultant, Accra.
3. Mr. Anderson, Production Manager of Innolink Company Limited, Accra
4. Mr. Coby Asmah, CEO of Type Company Limited, Accra
5. Mr. Agyare, CEO of Smartline Publishers and president of Ghana Book Publishers Association, Accra.
6. Mr. Ato Hagan, CEO of New Era Press, Kumasi and President of the northern sector of the Ghana Printers and Paper Converters Association (GhaPPCA)

7. Mr. Michelle, CEO of Vytal Press, Kumasi.

A ten-itemed interview guide was used for the interviewees and the following were the findings.

1. Three out of the seven interviewees were graduates from the department of publishing studies. The remaining four interviewees had their training outside the department of publishing studies. It is however interesting to note that two of the four also had their training in graphic communication. The last two had their basic training outside the country.
2. A follow-up question for those who completed from the department to state how relevant the courses studied are to industry needs. The three interviewees out of the seven stated that all courses are relevant and provide a firm foundation for further learning however the onus lies on the graduate to make an impact in the industry with the foundation. Interviewees again suggested that the courses should have more practical components than theories. This is because printing is such that it is understood and appreciated better when practiced.
3. All interviewees had been working in the printing industry for fifteen years and above with the least number of years being fifteen and highest thirty-one years. This number of years confirms the rich experience interviewees possess.
4. The general impression of interviewees concerning the industry is that standards are low and the proliferation of Presses doing the same jobs has made the industry competitive. The most successful Presses are those that are

dependent on government for jobs. The few who are successful without government contracts have to carve niche markets in commercial printing. Job volumes in packaging have dropped due to the varied products on the market and due to massive imports. Most of the industry's performance and impact is concentrated in Accra leaving other regions of the country behind. The industry is again challenged by competition from advanced technology countries such as China because of the 'cheap' cost of print production.

5. Interviewees when asked to compare the Ghanaian printing industry with what is happening globally opined that our industry is about a century behind in terms of technological advancement. There is also a wide gap in the levels of professionalism in the industry. In terms of speed of print production, the Ghanaian industry is miles behind what is happening globally.
6. Interviewees opined that there are many challenges in the industry. However, the human resource needs of the industry are that more Production Managers and Controllers/ Estimators are trained who understand in details the production process and also appreciate time, quality output and good customer service to increase the professionalism level of the industry. The industry is also in need of technical people who appreciate technological changes/advancement that are gradually occurring. These are people who are able to manage and operate the new sophisticated printing machines that are being introduced gradually into the Ghanaian printing industry.

7. Interviewees were asked if they have had an opportunity to work with any of the printing students or graduates. All interviewees answered positively to this question meaning that all interviewees have experienced working with the department's students and graduates (printing option). Interviewees were asked a follow-up question to give their general impression about students and graduates. All interviewees agreed that most depended on the students attitudes. Depending on attitude they normally fit well in the industry if they are ready to learn and do not assume they know all. The basic training they receive is a good foundation for them but there is the need allow oneself for more grooming and learning in the industry and this should be the student's initiative and attitude. Interviewees opined that graduates are tempted to rate/esteemed themselves too high when they are employed into the industry instead of learning to grow gradually.
8. Interviewees were requested to outline some of readily skills they expect from printing graduate from the department of publishing studies and state the capacity in which they will place them for employment. Most Interviewees (6) said they will place graduates as production supervisor or managers and estimators. In addition to this the only divergent view said graduates should be placed in charge of getting jobs for the firm. Interviewees said the readily skills should be in consonance with the position they are likely to occupy such as ability to take initiative based on informed choices, firm knowledge materials and operations involved in the printing trade. Graduates should also learn some personnel management skills since they are usually employed in supervisory positions.

9. Interviewees were asked to give suggestion as to what can be done to improve the teaching and training of the Printing Option of the Publishing Programme so as meet the needs and demands of the industry. The suggestions could address issues on infrastructure, lecturers, students, the course content and any other area.
 - Introduce focused degrees in Print Technology. The department should to introduce sandwich Printmedia programmes for professionals already in the field. More emphasis should be placed on getting people in industry with no formal training to receive some short courses, diplomas etc in Printmedia. Industrial attachment programme should be well articulated in terms of its aims and objectives to suit each of the areas of specialization.



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Study

The thesis was carried out to evaluate the printing technology option of the publishing studies programme. It aimed at finding out if what is being taught at the department is meeting the current need and demands of the printing industry in Ghana.

Chapter one was an introduction to the study.

Chapter two examined what printing is all about as it pertains to Ghana and the international world. It also examined the concepts of evaluation and importance of evaluation.

Chapter three described the main approaches/Methodology used in obtaining data for the research. Chapter four outlined the analysis and interpretation provided from the data collected. The main issues were analysed and major findings discussed. Chapter five provides the summary, conclusion and recommendations made for the improvement of the printing industry.

5.2 Summary of Findings

The study evaluated the performance of the printing technology option of the PSP. It sought to address the following issues:

- a. To trace the history of the Printing Technology Option of the Publishing Studies Programme and printing activities in Ghana.

- b. To study and evaluate the main content and structure of the Printing Technology option of the Publishing Studies programme.
- c. To identify the current demands and needs of the printing industry in Ghana.
- d. To identify graduates who major with the printing technology option and some of the challenges they face in the industry.

5.2.1 The Findings for the first objective

- i. The study revealed that the printing technology option was introduced along with the other two areas of specialization (Publishing Administration and Design and Illustration) of the publishing studies programme ten years after the commencement of the programme in 1984. The decision to introduce the three specialization areas and thus for the printing technology option was due to the trend the publishing industry had taken. It was realized that specializations were taking place in the publishing industry where printing firms were being set up to handle mainly the physical production of book ideas and other publications. There was therefore the need to train personnel to handle this need/trend that was emerging in the industry.
- ii. The current state of printing activities in Ghana began with the missionaries and colonial administrators. It gave way to the government of Ghana after independence. The first government saw the need to develop the publishing industry because of the need to produce textbooks for the free compulsory education which began in 1961. After this giant step by the then

government, individuals also started getting involved in this industry. The publishing industry saw more of printing activities than the art of publishing itself with each passing. More press houses kept on springing up until currently where there close to three (300) printing houses both in Accra and Kumasi. The state of the printing industry in Ghana is dominated by individuals (about 95%) with little government involvement.

5.2.2 Findings for the second objective

The study further revealed that the course content and structure of printing technology option of the publishing studies programme are foundationally suitable to the current industry needs. However there are some weaknesses associated with the course content and structure which needs to be addressed. The major weaknesses associated with the course content and the delivery are:

- i. Repetition/overlapping of topics or teaching units.
- ii. Lack of teaching resources and materials.
- iii. Inadequate practical exposure
- iv. Surface treatment of topics or teaching units.

The strengths of the printing technology option include:

- i. Teaching methods applied by lecturers are appropriate for the course content.
- ii. Course content is relevant to industry needs because the skills acquired by graduates help them to perform well.
- iii. Lecturers are very competent with what they teach though none of them has a direct masters degree in printmedia technology.

iv. Course content are covered as stated for each semester and for the three years that the printing technology option is taught.

Reference to a detailed description of the course content (syllabus) of the Printing Technology Option can be seen under Appendix F.

5.2.3 Findings for the third objective

The study again revealed that there are some current demands of the printing industry in Ghana which are generally competitive, prospective and have low professionalism level. These demands are:

- i. Demand for quality output by customers
- ii. Demand for good customer care
- iii. Demand for on schedule delivery of jobs
- iv. Increased product knowledge by customers
- v. Demand for high technology usage.

To be able to satisfy the above demands, the industry needs more production managers and controllers (professionals) who are quality conscious oriented and possess the following readily skills:

- i. Job planning and estimation skills
- ii. Personnel management skills
- iii. Production management skills
- iv. Critical path planning skills
- v. Waste management/damage control skills
- vi. Initiative taking abilities.

5.2.4 Findings for the final objective

Finally the study revealed that most of the graduates with the printing technology specialization are not working in the traditional area of employment which is in the printing press. This is because during the period of study, the researcher could not identify the 100 sample size estimated but identified 78. In comparing this number (78) with the number of graduates which have been produced by the department over the years, it is not encouraging. This means that graduates find themselves in other fields of employment aside the printing industry and this could primarily be attributed to the open-ended entry requirements to pursue the programme. Regardless of this, the few graduates that were identified are doing well by taking up responsible positions at their various places of employment.

Graduates are faced with challenges in the industry such as:

- i. Difficulty in human resource/personnel management
- ii. Inadequate practical skills especially in solving technical problems
- iii. Inadequate knowledge of computer application programmes and usage.
- iv. Contradictions and confusion between how estimation is taught in school and how it applies on the field.
- v. Marketing skills and customer relations.
- vi. High performance expectations of both employers and employees.

Graduates have to take the initiative in dealing with some of these challenges but are optimistic that in an attempt to improve upon what is taught in the department some of these challenges will be dealt with by introducing courses to solve them.

5.3 Conclusions

In conclusion every formal educational Endeavour should be geared towards solving or meeting a need in society as believed by the pragmatic philosophers. Dewey puts it that the rise of an industrial, urban and technological society had created a number of socio-educational problems that schools needed to address.

The publishing industry in Ghana gave birth to the publishing studies programme. Likewise the springing up of many press houses (printing industry) in Ghana called for specialization in the publishing studies programme and thus the birth of the printing technology option. This means that the printing technology option training is primarily to meet/serve the printing industry needs of the country. It is in the light of this that there was the need to evaluate the printing technology option of the publishing studies to ascertain if it is really meeting the needs of the printing industry in Ghana. It is however heart-warming to come to the conclusion that the printing technology option training is still on track meeting the needs of the industry with the caliber of graduates produced regardless of the fact that there are some shortcomings and room for improvement.

5.4 Recommendations

The researcher recommends the following to help improve upon the training and teaching of the printing technology option of the publishing studies programme.

1. The printing option should be upgraded to a degree programme level. However if the three specializations will still be maintained, then the entry requirements

for pursuing the publishing studies programme should be reconsidered to probably give preference to areas such as science, visual arts and business where the science students specialise in printing, visual art students specialize in design and illustration option and business students specialize in publishing administration option.

2. Clearly defined objective(s) should be stated separately for the printing technology option. The objective statements should outline specifically what graduates are expected to possess after completion of the programme. As an example, graduates should at the end of the study be able to solve most of the practical problems that occur on the field. As Posner and Rudnitsky (1986) puts it "course planning begins with and is based on three things: a clearly recognized motivation or source....."
3. A printing laboratory should be set up to facilitate the practical aspect of the course content. The university authorities could help in this endeavour.
4. It is recommended that the university should sponsor members of teaching staff specifically printing lectures to pursue a masters degree in printmedia as part of staff development. In addition to this lecturers should intermittently go for training in the industry to be abreast with industrial trends and changes. The second thing as stated by Posner and Rudnitsky (1986) is a recognition of the capacities, needs and interests of the students, as well as a familiarity with

current approaches to the subject matter. It is in this light this specific recommendation is made.

5. Relevant computer application programmes as well customer care and quality oriented courses be included in the course content and it should be practically focused.
6. Emphasizes should be placed on Job Planning and estimation teaching, ideally it could be made two semesters instead of one. This suggestion was made by almost 94% of the graduate respondents. This is because job planning and estimation is an important and major component in print production in the industry and the one semester does not give them enough exposure on all that is entailed with this aspect of production.
7. Students should be introduced to management courses such as management information systems, human resource management and organizational behaviour methods in addition to the traditional printing courses. Specifically the course title Operations Management which is studies by only publishing administration students should also form a major component of the printing technology option.
8. Major Stakeholders in the printing industry should be consulted when drawing up and reviewing syllabus for students. This is because the stakeholders are

directly or indirectly affected by the outcome (graduates) of the printing option and hence their views on their expectations should be sorted for in designing the curriculum.

9. More attention should be given to industrial attachment for printing students by increasing the period to a two semester and details of expected outcomes should be clearly stated. For example student at the end of industrial attachment should be able to operate basic printing machines, be able to monitor a number (at least three) of print projects from start through to completion, etc.

10. Courses on Non-Impact Printing should be well outlined and given much attention. This recommendation is based on the trend the printing industry is globally. Although this trend is currently not very predominant in Ghana, I am optimistic in the nearest future it will most used printing method because of its immense advantage of speed.

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APPENDICES

SAMPLES OF QUESTIONNAIRE AND INTERVIEW GUIDE



APPENDIX A (3.6b)

TOPIC: EVALUATING THE PRINTING TECHNOLOGY OPTION OF THE PUBLISHING STUDIES PROGRAMME IN RELATION TO THE DEMANDS OF THE PRINTING INDUSTRY IN GHANA.

QUESTIONNAIRE FOR EMPLOYERS/EMPLOYEES IN INDUSTRY

This questionnaire is of dual importance to both the industry and academia. The purpose is to equip the researcher with the requisite knowledge on the current demands of the printing industry to help improve the current course content of the Printing Technology Option of the Publishing Studies Programme. The information gathered will be treated with maximum confidentiality and is sole for academic purposes. Thanks for your cooperation.

The questionnaire is targeted at Employers/Employees in Management Position.. For each of the following items, put 'X' besides the appropriate answer(s) from the options given. Please provide additional information where necessary.

1.Name of firm/organization.....

2. Year of establishment of firm/presshouse.. ..

3.What form of business ownership is the firm?

- | | |
|--|--|
| <input type="checkbox"/> Sole Proprietorship | <input type="checkbox"/> Limited Liability |
| <input type="checkbox"/> Partnership | <input type="checkbox"/> Church |
| <input type="checkbox"/> Government | <input type="checkbox"/> NGO |

4. What position do you occupy in the firm?

- | | |
|--|---|
| <input type="checkbox"/> CEO/Managing Director | <input type="checkbox"/> Production Manager |
| <input type="checkbox"/> Supervisor | <input type="checkbox"/> Head of section |

5. How long have you been working in the printing industry generally?

- | | | |
|--|------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> 1 – 5yrs | <input type="checkbox"/> 6 – 10yrs | <input type="checkbox"/> 11 – 20yrs |
| <input type="checkbox"/> 21 – 30 | <input type="checkbox"/> 31 – 40 | <input type="checkbox"/> 40 above |

6. What are some of the observable trends/demands emerging currently in the Ghanaian Printing Industry? Tick as many as apply indicating with a scale of 1 – 4 with 1 being the highest.

- ☐ Labour intensive
- ☐ Machine Intensive
- ☐ High –Tech Intensive
- ☐ Demand for quality output by customers

Others specify

7. What are the some of the skills you will expect in a Publishing Studies graduate with printing as the area of specialization? *Please tick as many as apply.*

- ☐ Managerial Skill
- ☐ Ability to plan and estimate jobs.
- ☐ Practical Skills
- ☐ Damage control skills
- ☐ Computer Skills
- ☐ Ability to take initiative.

Others --.....

8. What is your general impression of printing activities in Ghana? Please tick as many as apply.

- ☐ Low Level of professionalism.
- ☐ It is a prospective industry
- ☐ It is a competitive and challenging industry.

Others.....

9. Please give some recommendations that can help improve the course content and graduate produced by the Publishing Studies Programme.

.....

.....

APPENDIX B (3.6b)

TOPIC: EVALUATING THE PRINTING TECHNOLOGY OPTION OF THE PUBLISHING STUDIES PROGRAMME IN RELATION TO THE DEMANDS OF THE PRINTING INDUSTRY IN GHANA.

QUESTIONNAIRE FOR GRADUATES (PRINTING OPTION) IN INDUSTRY

This questionnaire is of dual importance to both the industry and academia. The purpose is to find out from graduates of publishing studies with printing technology option the relevance of the course content to what the printing industry demands. The information gathered will be treated with maximum confidentiality. Thanks for your cooperation.

For each of the following items, put 'X' besides the appropriate answer(s) from the options given. Please provide additional information where necessary

1.Name of firm/organization.....

2. Year of establishment of firm/institution

3. What form of business ownership is the firm?

- | | |
|--|--|
| <input type="checkbox"/> Sole Proprietorship | <input type="checkbox"/> Limited Liability |
| <input type="checkbox"/> Partnership | <input type="checkbox"/> Church |
| <input type="checkbox"/> Government | <input type="checkbox"/> NGO |

4. What is your current position in the firm?

- | | |
|---|---|
| <input type="checkbox"/> Production Manager | <input type="checkbox"/> Estimator |
| <input type="checkbox"/> Supervisor | <input type="checkbox"/> Sectional Head |

Others specify.....

5. How long have you been working in the firm?

- | | | | |
|-----------------------------------|------------------------------------|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> 1 – 5yrs | <input type="checkbox"/> 6 – 10yrs | <input type="checkbox"/> 11 – 15yrs | <input type="checkbox"/> 16 – 20yrs |
|-----------------------------------|------------------------------------|-------------------------------------|-------------------------------------|

6. What year did you graduate from the Publishing Studies Programme and what was area(s) of specialization?

Year of Completion

Area of Specialization

.....

.....

7. To what extent do you consider the course content and training of the printing technology option relevant to what pertains in the industry? Indicate the extent of relevance with the percentage scale.

- | | | |
|-----------------------------------|-----------------------------------|------------------------------------|
| <input type="checkbox"/> 0% | <input type="checkbox"/> 1 – 20% | <input type="checkbox"/> 21 - 40% |
| <input type="checkbox"/> 41 – 60% | <input type="checkbox"/> 61 – 80% | <input type="checkbox"/> 81 – 100% |

8. To what extent do you consider the approaches and methods of delivery of the course content appropriate? Indicate the extent of appropriateness with the scale.

- ☐ Very Poor ☐ Poor ☐ Average ☐ Good ☐ Very Good ☐ Excellent

9. Do you find any of the following inadequacies in the delivery and structure of the printing option?

- | | |
|---|---|
| <input type="checkbox"/> Repetition / overlapping of topics | <input type="checkbox"/> Inadequate practical exposure for students |
| <input type="checkbox"/> Lack of teaching aids for reference | <input type="checkbox"/> Surface treatment of topic |
| <input type="checkbox"/> Incompetence of some lecturers in handling certain courses | |
| <input type="checkbox"/> Inadequate preparation on the part of lecturers | |

Others.....

.....

10. What do you suggest should be done to improve the delivery of the course content?

- ☐ Personnel from industry occasionally should be invited as resource persons to handle some aspect of the course.
- ☐ Lecturers should intermittently go for training to be abreast with what pertains in industry.

[] Industrial attachment for printing students should be one year for more practical exposure.

[] Printing students should be given production projects to embark on while still in schools.

Others.....
.....
.....

12. Which aspects of the course content helped you to perform in the field? Please indicate with a scale using 1 as the highest

- | | |
|--|-----------------------------------|
| [] Print Production and Estimation | [] Materials Technology |
| [] Knowledge of machines and their operations | [] Bookwork and Imposition |
| [] Print Finishing | [] Print Quality Management |
| [] Printing Plant Management | [] Trends in Printing Technology |

Others.....
.....

13. What were the challenges and difficulties faced when you were employed in the firm?

.....
.....
.....

14. How were these challenges and difficulties managed?

.....
.....
.....

15. What are some of the skills you have acquired through the option's training?

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.....

16. To what extent do these skills help in the execution of your responsibilities in the firm?

- | | | |
|-----------------------------------|-----------------------------------|------------------------------------|
| <input type="checkbox"/> 0% | <input type="checkbox"/> 1 – 20% | <input type="checkbox"/> 21 - 40% |
| <input type="checkbox"/> 41 – 60% | <input type="checkbox"/> 61 – 80% | <input type="checkbox"/> 81 – 100% |

17. What were some of the skills and abilities your employer expected from you as a printing graduate? Please indicate as many as apply in order of priority with 1 being the top most priority?

- | | |
|--|---|
| <input type="checkbox"/> Job planning and estimation | <input type="checkbox"/> Critical path planning of jobs |
| <input type="checkbox"/> Waste/Damage control skills | <input type="checkbox"/> Production management |
| <input type="checkbox"/> Personnel management | <input type="checkbox"/> Ability to take initiative |

19. What are some of the observable trends/demands emerging currently in the Ghanaian Printing Industry? Tick as many as apply indicating with a scale of 1 – 6 with 1 being the highest.

- | | |
|--|--|
| <input type="checkbox"/> Labour intensive | <input type="checkbox"/> On schedule delivery of jobs by customers |
| <input type="checkbox"/> High –Tech Intensive | <input type="checkbox"/> Demand for quality output by customers |
| <input type="checkbox"/> Good customer care and relation | <input type="checkbox"/> Increased knowledge about products by customers |

Others specify

20. Please give general suggestions that will help improve the delivery and course content of the printing technology option.

APPENDIX C (3.6a)

TOPIC: EVALUATING THE PRINTING TECHNOLOGY OPTION OF THE PUBLISHING STUDIES PROGRAMME IN RELATION TO THE DEMANDS OF THE PRINTING INDUSTRY IN GHANA.

QUESTIONNAIRE FOR STUDENTS (PRINTING OPTION)

This questionnaire is of dual importance to both the industry and academia. The purpose is to find out from students with printing technology option what their opinions are about the delivery and training of the course. The information gathered will be treated with maximum confidentiality. Thanks for your cooperation.

For each of the following items, put 'X' besides the appropriate answer(s) from the options given. Please provide additional information where necessary.

Section A: Demographic Information

1. Gender: Male Female
2. Age (Yrs): ☐ 15 – 20 ☐ 21 – 25 ☐ 26 – 30 ☐ 31 – 35 ☐ 36 upward
3. Current Year of Study:

Section B: Educational Background

4. Which was your area of specialization at the secondary level education?
☐ Elective Science ☐ Business ☐ Visual Arts
☐ General Arts ☐ Agricultural Science ☐ Home Economics
Others.....
5. What was your highest educational qualification before pursuing your current degree?
☐ SSSCE/SHS LEVEL ☐ GCE 'A' LEVEL ☐ GCE 'O' LEVEL
☒ HND ☐ DIPLOMA IN TEACHING ☐ DEGREE (different field)
Others.....

6. What informed your choice of Printing Technology Option as your area of specialization?

☐ Orientation from department

☐ Influence from guardians

☐ Special Personal Interest

☐ Influence and advice from senior student

☐ It is the 'easiest' of the three options perception

Others.....

Section C: Delivery of the Printing Option

7. Are you aware of the goals and objectives of the printing technology option?

☐ Yes

☐ No

8. If yes, do you consider the course structure and content suitable for the goals and objectives? ☐ Yes ☐ No

9. Are you provided with Intended Learning Objectives (ILO) for each course that is treated by lecturers? ☐ Yes ☐ No

10. If yes, indicate to what extent the ILOs or course outline are covered?

☐ 1 – 20% ☐ 21 – 40% ☐ 41 – 60% ☐ 61 – 80% ☐ 81 - 100%

11. How do you rate printing lecturer's performance concerning the following? Please assess **only** lecturers who have taught you before with the scale shown below:

	Excellent	V. Good	Good	Average	Poor	
			Mr. Appiah	Mr. Agbo	Mr. Ralph	Rev. Tetteh
Knowledge base						
Application of knowledge						
Organization of thoughts						
Ability to achieve course ILOs						
Practical Demonstration						

12. Aside the department's official attachment programme, have you undergone any industrial internship? ☐ Yes ☐ No

13. If yes, who/what influenced the initiative? Tick as many as apply

☐ Personal Initiative ☐ Advice from guardians

☐ Advice from lecturers ☐ Advice from colleague coursemates

Others.....

14. To what extent do you consider the methods of teaching printing technology option appropriate?

☐ Very Poor ☐ Poor ☐ Average ☐ Good ☐ Very Good ☐ Excellent

15. Explain your choice in question 14.

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16. Do you find any of the following inadequacies in the delivery and structure of the course?

☐ Repetition/Overlapping of topics

☐ Inadequate practical exposure

☐ Lack of reference materials

☐ Surface treatment of topics

☐ Incompetence of some lecturers in handling certain courses

☐ Inadequate preparation on the part of lecturers.

Others.....

17. Which aspect of the course content do you consider should be given more exposure?

Indicate with a scale with 1 as the highest ticking as many as apply.

- | | |
|---|--|
| <input type="checkbox"/> Introduction to Printing | <input type="checkbox"/> Printing Technology |
| <input type="checkbox"/> Typography for printers | <input type="checkbox"/> Material Technology |
| <input type="checkbox"/> Print Products and Process | <input type="checkbox"/> Product Design and Development |
| <input type="checkbox"/> Bookwork and Imposition | <input type="checkbox"/> Print production and Estimation |
| <input type="checkbox"/> Print Finishing | <input type="checkbox"/> Printing Plant Management |
| <input type="checkbox"/> Print Quality Management | <input type="checkbox"/> Trends in Printing Technology. |
| <input type="checkbox"/> Colour Printing | |

18. What do you suggest should be done to improve the delivery of the course content?

- ☐ Personnel from industry occasionally should be invited as resource persons to handle some aspects of the course.
- ☐ Lecturers should intermittently go for training to be abreast with what pertains in industry.
- ☐ Industrial attachment for printing students should be two semesters for more practical exposure.
- ☐ Printing students should be given production projects to embark on while still in schools.

Others.....

19. Where do you intend to seek employment after school and why?

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APPENDIX D (3.6a)

TOPIC: EVALUATING THE PRINTING TECHNOLOGY OPTION OF THE PUBLISHING STUDIES PROGRAMME IN RELATION TO THE DEMANDS OF THE PRINTING INDUSTRY IN GHANA.

QUESTIONNAIRE FOR LECTURERS

This questionnaire is of dual importance to both the industry and academia. The purpose is to find out from students with printing technology option what their opinions are about the delivery and training of the course. The information gathered will be treated with maximum confidentiality. Thanks for your cooperation.

For each of the following items, put 'X' besides the appropriate answer(s) from the options given. Please provide additional information where necessary.

1. Gender: ☐ Male ☐ Female
2. What is your highest level of educational qualification?
☐ Degree ☐ Masters ☐ PhD
3. Please state the area/field of study for the highest educational level.
.....
.....
4. What is your highest level educational training in printing technology?
☐ Diploma ☐ Degree ☐ Masters ☐ PhD.
5. How long have you been lecturing in printing technology?
☐ 1 – 5yrs ☐ 6 – 10yrs ☐ 11 – 15yrs ☐ 16 – 20yrs
6. Tick as many as apply to the courses you teach currently?

<input type="checkbox"/> Introduction to Printing I & II	<input type="checkbox"/> Printing Technology
<input checked="" type="checkbox"/> Typography for printers	<input type="checkbox"/> Material Technology I & II
<input type="checkbox"/> Print Products and Process	<input type="checkbox"/> Product Design and Development
<input type="checkbox"/> Bookwork and Imposition I & II	<input type="checkbox"/> Print production and Estimation

KNUST

as a lecturer consider are the weaknesses of printing to
n(s) for your answer(s).

9. What are some of the challenges /difficulties that you encounter in the teaching of the course?

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10. What were some of the observable skills and abilities do you expect to be evident in a printing graduate? Please tick as many as apply in order of priority with 1 being the top most priority?

- ☐ Managerial Skills
- ☐ A even blend of practical and theoretical skills
- ☐ More practical approach to solving problems.
- ☐ Damage control skills.
- ☐ Ability to operate a printing machine.
- ☐ Ability to plan and estimate jobs.
- ☐ Ability to take initiative.

Others.....

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11. What are some of the mechanisms in place to measure and ensure that the above skills are achieved in students?

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Others.....

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12. Which aspect of the printing technology option would you like to see major improvements and upgrading?

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13. What do you suggest should be done to improve the delivery of the course content?

[] Personnel from industry occasionally should be invited as resource persons to handle some aspect of the course.

[] Lecturers should intermittently go for training to be abreast with what pertains in industry.

[] Industrial attachment for printing students should be one year for more practical exposure.

[] Printing students should be given production projects to embark on while still in schools.

Others.....

APPENDIX E (3.5.2)

TOPIC: EVALUATING THE PRINTING TECHNOLOGY OPTION OF THE PUBLISHING STUDIES PROGRAMME IN RELATION TO THE DEMANDS OF THE PRINTING INDUSTRY IN GHANA.

INTERVIEW GUIDE FOR SOME EXPERTS IN THE PRINTING INDUSTRY

Thank you for agreeing to talk with me. As made known earlier, this research has the aim of evaluating the current content of the courses taught at the Publishing Studies department for students who major in printing technology in relation to the demands and needs of the printing industry in Ghana.

Please provide elaborate answers to the following questions.

Name:

Firm:

Position:

Date of Interview:

1. Are you a product of the publishing studies programme which area did you specialize in.
2. As a graduate of the department personally, how relevant did you find the courses that you studied to industry?
3. How long have you been working in the printing industry?

4. What is your general impression of printing activities in Ghana?
5. Can you please mention any observable trends or changes that have occurred over the years for printing in Ghana?
6. Do you recognize any particular trend currently in the Ghanaian printing industry as compared to what is happening globally?
7. With emphasis on your rich experience locally and internationally, what in your opinion are the human resource needs of the printing industry in Ghana.
8. Have you had the opportunity to work with any printing graduate? If yes, what was your general impression about their work performance?
9. If you are in the capacity to employ a printing graduate from the department of publishing studies, what are some of readily skills you will expect from such a person and in what capacity will you place him.
10. Please can you give suggestion as to what can be done to improve the teaching and training of the ~~Printing Option~~ of the Publishing Programme so as meet the needs and demands of the industry? The suggestions can address infrastructure, lecturers, students, the course content and any other area.

Thanks for your efforts and time in responding to these questions.

APPENDIX F (6.2.2)

A DESCRIPTION OF THE COURSE CONTENT OF THE CURRENT PRINTING TECHNOLOGY OPTION OF THE PUBLISHING STUDIES PROGRAMME

This part of the study presents a description of the current state of the Printing Technology Option of the Publishing Studies Programme. It focuses mainly on entry requirements, objectives and the major components of the programme among others.

Cronbach (1963), in discussing evaluation for course improvement, emphasizes the need for an evaluation to describe the broadest possible range of course outcomes. On this point Cronbach is in substantial agreement with others such as Scriven (1967), who also emphasize the descriptions of course consequences. Scriven (1967) elaborates further on the range of course outcomes to be examined. It is in this direction that the detailed description of the course content (syllabus) of the Printing Technology Option is important. Again with the detailed description, the researcher as well as the reader will be able to know what is entailed in the Printing Technology Option and also make good judgment in comparison to the findings.

Background and Rationale

A Department under the Faculty of Art, College of Art and Social Sciences was established in 1984 with UNESCO assistance and it is the first of its kind in West Africa and one of the few in Africa. The publishing programmes started as a three year programme but changed to four after a decade of its commencement. The department turned 25 years in 2009.

The programme of study and extracurricular activities gives the students the opportunity to develop the skills and creativity that a modern work place needs. This includes industrial

attachments organized by the Department for every third year student during the second semester which ensures effective linkage between industry and academia.

The Department also focuses on imparting a high sense of moral uprightness into the students through a strong student-lecturer relationship and efficient monitoring and evaluation system.

Alongside developing subject specifications, the student will acquire other skills in teamwork, problem solving and communication, all valuable for the student's future profession and personal life.

The Department has so far produced almost 1000 graduates and the current student population stands at 710 out of which almost 250 are specializing in printing technology.

Aims and Objectives

The Department's vision, mission and values are based on open and honest education for the growth of the book industry in Ghana and Africa as a whole.

Therefore, the aims and objectives of the Programme are to produce graduates who have general and specialized knowledge and skills relevant to the practice of:

Publishing Management

Printing Technology; and

Book Design and Illustration

In specific terms the Department of Publishing Studies has the objectives of:

- Making use of local personnel to train publishing administrators, designers, print media technologists and small-scale business entrepreneurs.

- Conducting research and collecting information on matters relating to the book industry and to disseminate these.
- Helping improve and maintain high standards and to meet the great demand for books for education, entertainment, information, etc.
- Equipping students with the qualities, intellectual and practical that they will need for a successful working life in publishing
- Fostering the techniques of teamwork as an essential attribute of the professional publisher.

Aside this umbrella objectives for the publishing studies programme, there are no specific ones for the areas of specialization and hence for the printing technology option.

Duration of the programme

The Publishing studies programme comprises four (4) academic years which is made up of eight (8) semesters of sixteen (16) weeks each. One year of foundation studies and three years of specialization. Printing Technology which is the focus of study is one of the major specializations under this programme, comprises of three (3) academic years which is made up of six (6) semesters of sixteen (16) weeks each.

Entry Requirements

There are no specific entry requirements for the Printing Technology Option, rather a general entry requirement for the Publishing Studies programme applies to all the three

majors including the PTO. The entry requirement below is the general one to gain admission into the publishing studies programme and it applies to the printing technology option as well.

Senior High School Certificate Examination (SHSCE) Candidates

General University Entry Requirements: Passes in W.A.S.S.C.E Core English, Mathematics and Integrated Science

Departmental Entry Requirements: Three passes in W.A.S.S.C.E not lower than 'D' in the following specializations:

- i. Visual Art :General Knowledge in Art, Picture Making, plus anyone of the following: Graphic Design, Sculpture and Textiles.
- ii. Science :Physics, Chemistry plus either Mathematics or Biology
- iii. Vocational/Home Economics:General Knowledge in Art , Management in Living plus either Food and Nutrition or Clothing and Textiles.
- iv. General Arts: Geography, Economics, Government, French, English, History, etc.
- v. Business: Accounting, Business Methods, Introduction to Business Management, Business Mathematics, Principles of Costing and Economics.

3.5.2 *Mature Applicants*

S.S.S.C.E/W.A.S.S.C.E

Applicants should have passes in three core subjects above including Mathematics, English and Integrated Science and any combination of the electives detailed.

~~GCE~~ 'O' Level and 'A' Level

Applicants should have five passes at the GCE 'O' Level including English, Mathematics and a Science subject.

GCE 'A' Level holders need two passes to qualify.

Applicants must be 30 years or above at the time of applying, must have five (5) years working experience in a related or allied field and have an interest in publishing. In addition applicants must pass a written examination and an interview.

Assessment Requirements

Assessment involves:

- a. Continuous assessment from practical projects, case studies, field report and mid-semester examinations
- b. End-of-Semester written examinations

Requirements for Graduation

The award of a degree in Publishing Studies requires the following

- a. Passing all required courses
- b. Achieving a minimum of 120 credits
- c. Achieving a cumulative average mark of 45% or above

It must be emphasized that every student of publishing studies irrespective of the option done for three years, graduates with a degree BA Publishing Studies.

Career Opportunities

Publishing Studies programme generally provides interesting and varied career opportunities to graduates. Graduates can work in the Publishing industry as editors, designers and illustrators, sales and marketing managers, publishing managers, production managers and

publication officers in public relation offices. NGOs and institutions, especially those within the fields of advertising, journalism, film making, marketing and even administration can easily employ graduates from publishing studies. Graduates can also set up their own businesses. The printing option graduate can occupy supervisory and management positions at the various printing firms in the country aside the ones mentioned above.

Course Structure

- a. Year One: Foundation studies
- b. Years two – four: Specialization in the following optional pathways:
 - i. Publishing Management
 - ii. Printing Techniques
 - iii. Book Design and Illustration

T = Theory hours;

P = Practical hours

C = Credits.

List of Courses

Year One Semester One (Foundation Studies)

Core Courses

		T	P	C
BI 151	Introduction to Publishing I	3	0	3
BI 161	Introduction to Printing I	2	2	3
BI 171	Drawing I	1	3	3
BI 173	Basic Design I	1	3	3
BI 181	Introduction to Desktop Computers I	2	0	2

Allied Courses

DAH 151	Introduction to African Art and Culture	2	0	2
ENGL 157	Communication Skills I	2	0	2

Elective Courses (Anyone of the following)

DAD 157	Introduction to Lettering/Calligraphy I	1	2	2
FREN 181	French for Communication I	2	0	2
MATH 165	Introduction to Statistics I	2	0	2
SOC 151	Basic Concepts in Sociology I	2	0	2
Elective in African and Cultural Studies		2	0	2
Elective in Sports		1	3	2
Total		-	-	18

Year One Semester Two (Foundation Studies)**Core Courses**

		T	P	C
BI 152	Introduction to Publishing II	3	0	3
BI 162	Introduction to Printing II	2	2	3
BI 172	Drawing II	1	3	3
BI 174	Basic Design II	1	3	3
BI 182	Introduction to Desktop Computers II	2	0	2

Allied Courses

DAH 152	History of Art	2	0	2
ENGL 158	Communication Skills II	2	0	2

Elective Courses (Anyone of the following)

DAD 158	Introduction to Lettering/Calligraphy II	1	3	2
FREN 182	French for Communication II	2	0	2
MATH 166	Introduction to Statistics II	2	0	2
SOC 151	Basic Concepts in Sociology I	2	0	2
Elective in African and Cultural Studies		2	0	2
Elective in Sports		1	3	2
Total		-	-	18

Year Two Semester One (Printing Option)

Major Courses:		T	P	C
BI 261	Printing Technology	2	2	3
BI 263	Typography for Printers	2	2	3
BI 265	Material Technology I	2	2	3
Core Courses				
BI 257	Principles of Publishing Management I	2	0	2
BI 281	Language and the Editor I	2	0	2
Allied Courses				
ECON 151	Introductory Economics I	2	0	2
ENGL 263	Literature in English I	1	0	1

Elective Courses (Anyone of the following)

BI 283	Library Studies	2	0	2
DAD 249	Photography	1	3	2
MATH 255	Statistics II	2	0	2
SOC 253	Social Structures II	2	0	2
FREN 281	French for Communication IV	2	0	2
Elective in African and Culture Studies		2	0	2
Elective in Sports		1	3	2
Total		-	-	18

Year Two Semester Two (Printing Option)**Major Courses:**

		T	P	C
BI 262	Print Products and Processes	3	0	3
BI 264	Product Design and Development	1	3	3
BI 265	Material Technology II	1	2	2

Core Courses

BI 258	Principles of Publishing Management II	2	0	2
BI 282	Language and the Editor II	2	0	2
BI 286	Seminar in Book Industry I	2	0	2

Allied Courses

ECON 152	Introductory Economics II	2	0	2
ENGL 264	Literature in English II	1	0	1

Elective Courses (Anyone of the following)

BI 284	Library Studies	2	0	2
DAD 250	Photography	1	3	2
MATH 256	Statistics II	2	0	2
SOC 254	Social Structures II	2	0	2
FREN 282	French for Communication IV	2	0	2
Elective in African and Culture Studies		2	0	2
Elective in Sports		1	3	2
Total		-	-	18

Year Three Semester One (Printing Option)

Major Courses

		T	P	C
BI 361	Bookwork and Imposition I	2	4	3
BI 363	Print Finishing	1	4	3
BI 365	Print Production and Estimation	2	0	2

Core Courses

BI 357	Publishing Law I	2	0	2
BI 359	Media, Publishing and Society	2	0	2
BI 381	Authorship Development	3	0	3
BI 383	Communication Research Methods	2	0	2
Total		-	-	17

Year Three Semester Two (Industrial Attachment)

Modules

		T	P	C
BI 392	Publishing and Print Production	2	12	6
BI 394	Authorship Development	1	5	3
BI 396	Attachment Report	2	5	4
BI 398	Independent Study/Project Report	2	5	4
Total		8	27	17

Year Four Semester One (Printing Option)

Major Courses

		T	P	C
BI 461	Bookwork and Imposition II	1	4	3
BI 463	Colour Printing	1	3	2

Core Courses

BI 455	Publishing Law II	2	0	2
BI 459	Book Trade Resources Management	2	0	2
BI 483	Thesis Writing I / Project	2	4	4
BI 485	Seminar in Book Industry II	2	0	2

Allied Course

MGT 453	Accounting	2	0	2
BI 4 91	Entrepreneurship and Small Business Management	2	0	2
Total		-	-	17

Year Four Semester Two (Printing Option)

Major Courses

		T	P	C
BI 462	Printing Plant Management	3	0	3
BI 464	Print Quality Management	2	2	3
BI 466	Trends in Printing Technology	2	0	2

Core Courses

BI 484	Thesis Writing II / Project	1	4	3
BI 486	Advertising & Book Promotion	2	0	2

Allied Courses

MGT 454	Finance	2	0	2
BI 4 91	Entrepreneurship and Small Business Management	2	0	2
Total		-	-	17

4.9 Course Description - Printing Option

Year Two Semester One

BI 261 Printing Technology (2, 2, 3)

Printing machines, configurations and operations; Darkroom equipment; Optics including electromagnetic radiations and their applications; Electronic scanners and technology; Engineering principles including studies of friction, lubrication, gears and joints; Electrical studies.

BI 263 Typography for Printers (2, 3, 3)

History and development of type and its impact on the communication industry; Study of type – parts, functions, evaluation, design and classification; Designation; System measurements; Type and printing processes; Composing/typesetting systems; Relationship of types to substrates; Psychology of type.

BI 265 Material Technology I (2, 2, 3)

Basic chemical concepts necessary for an understanding of the properties and behaviour of printing materials such as inks and substrates; Properties of materials; The chemical and

physical properties of cellulose and their influence on the manufacture and characteristics of paper.

Year Two Semester Two

BI 262 Print Products and Processes (2,0,2)

Jobbing systems and management; Origination systems; Output devices, laser technologies; Strike-on composition, text input; Presentation of originals, black and white originals, colour originals; Sizing illustrations; Tone and colour reproduction processes; Proofing.

BI 264 Product Design and Development (1, 3, 2)

Presentation from clients; Copy preparation; Text preparation; Illustrations, Camera-Ready-copies; Subediting; Mark-up; House style; Proofreading; Electronic copy preparation, copy transfer, Optical Character Recognition devices and network; Prepress activities.

BI 266 Material Technology II (1,2,2)

Properties and uses of natural and synthetic polymers in ink manufacture; Basic chemistry of colour and classifications of dyes and pigments; Ink composition and ink drying mechanism; Ink mixing and manufacturing processes of adhesives and light sensitive materials such as films; Methods and materials of testing and quality control.

Year Three Semester One

BI 361 Bookwork and Imposition I (2, 4, 3)

Parts of a book; Conventional book work and imposition schemes; Materials, methods and principles of Imposition; Book design, planning and estimation procedures; Projects.

BI 363 Print Finishing (1,3,4)

General consideration, folding, binding, gathering, collating, varnishing and lamination; general binding; saddle-stitching, perfect binding, other techniques; Book binding, edition binding, specialist book binding; Marbling and edge decoration.

BI 365 Print Production and Estimation (2,0,2)

The nature and scope of estimation in printing; Understanding estimation procedures for paper, board, plates, and other material for print production; Planning various types of work for the press applying economy of time and materials.

Year Three Semester Two

BI 392 Publishing and Print Production (2, 12, 6)

Exposure to industrial practices in book industry and communication firms; Assessment is based on an appraisal of student's performance in industry as indicated by supervisor of place of attachment.

BI 394 Authorship Development (1,1,3)

The module encourages students to develop and explore their creative and imaginative potential through writing fictions; Using dialogue and characterization; Using humour, suspense and other literacy devices.

BI 396 Attachment Report (2, 5, 4)

An appraisal of student's work experience as presented in a report.

BI 398 Independent Study/Project Report (2, 5, 4)

An investigation and analysis of a particular problem or case-study by student.

Year Four Semester One

BI 461 Bookwork and Imposition II (1,4,3)

Advanced bookwork techniques; castoff and copyfitting; Text origination; Single colour and multi-colour book planning schemes; Machining and printing faults.

BI 463 Colour Printing (1, 3, 2)

Colour theory and application in printing; Physics of colour reproduction in four-colour printing; Analysis of colour photography and its reproduction; Colour image scanning and manipulation; Electronic and achromatic separations; Printing faults and solutions; Quality assurance mechanism.

Year Four Semester Two

BI 462 Printing Plant Management (3, 0, 3)

Company's objectives, policy and organizational structure; Ownership and financial policy; Supervisory management; Plant layout and infrastructure; Equipment maintenance systems; Sales and marketing; Quality assurance; Planning and control; Management of information system; Health and safety.

BI 464 Print Quality Management (2, 2, 3)

Problems of system analysis in printing operations for the highest quality product; Methods of work study; Tone and colour analysis – a study of the methods and instrumentation necessary for evaluation of printed material and print quality assurance; The optimization and control of the production processes.

BI 466 Trends In Printing Technology (2, 0, 2)

An examination of the environmental and social forces in the development of printing technology to the present time; Present and predictable forces affecting printing technology; the de-skilling of the workforce.