ANALYSIS AND CLASSIFICATION OF ERRORS MADE IN TYPEWRITING BY SECRETARIAL STUDENTS

BY

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DELCARATION

I hereby declare that this thesis has been written by me and that it is a record of my own research work. It has not been presented in any previous application for a higher degree. All quotations are indicated by quotation marks or indentation and the sources of information are specifically acknowledged by means of references.



Ebitimi Clarence Perekpo

CERTIFICATION

This thesis entitled "ANALYSIS AND CLASSIFICATION OF ERRORS MADE IN TYPEWRITING BY SECRETARIAL STUDENTS' by Ebitimi Clarence Perekpo meets the regulations governing the award of the degree of Master of Education (Business Education) of Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

Dedicated to my Mother Mrs. Justina Tukeyei Perekpo and elder brother Mr. Patrick Yelaimi Perekpo.

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Words are really inadequate to express my gratitude to all those who contributed to my academic progress. However, I would want to place on record the contributions made by my former supervisors, late Dr. J. A. Oladebo and Late Mr. O. Olu-Audu. May their souls rest in peace.

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ABSTRACT

The research study is an analysis and classification of errors found in typescripts of graduating NCE (Nigeria Certificate in Education) Secretarial Students in Post-Secondary institutions in Borno and Yobe States of Nigeria. A total of one hundred and ten students constituted the study. However, twenty-nine (29) error types in accordance with the conventional error pattern category across the participating institutions were identified. The study showed that none of the errors analyzed were peculiar to particular sex, institution, or group of students. Errors in the basic knowledge and understanding and the stroking techniques were pre-dominant across all the institutions of learning involved in the study. This was strongly evident in misspelling and adjacent keystroke error types. The research study explains that the students committed errors owing to lack of keyboarding mastery, deficiency in linguistic and communication skills, and their inability to type with good basic technique. As a measure to enable our graduating NCE students to effectively handle our JSS students as contained in the Minimum

Standard for Teacher Education, areas of greater emphasis should cover development of communication skill, use of teacher demonstration in teaching keyboarding skill, correct form and typewriter usage. The implications of these findings and suggestions is that teachers should be able to modify the contents of their scheme of work for typewriting instruction to incorporate materials and methods relevant to the development of both linguistic and refinement of skills. Likewise, institutions should provide the instructional media (audio-visual for the teaching and learning process.

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Definition of Terms

The following terms are defined strictly in the context of this study.

1. Post Secondary: refers to Colleges of Education and Polytechnics that award Nigeria Certificate in Education and National Diploma Certificates respectively.
2. Shoulder Punch, Stiff-finger Jabbing stroke - refers to a situation where improper striking occurs between typing keys.
3. Glancing stroke – refers to a typographic problem emanating from striking between keys.
4. Adjacent-key error - refers to a typographic problem caused by tenseness, eg. Typing 'r' for 't'.
5. Transposition Error - refers to a situation where for example 'og' is typed instead of 'go'.

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6. Same-Finger-Opposite-Hand-Error – refers to a situation where for example, "Koor" is typed instead of 'door'
7. Shadow (missing) character Error – refers to a situation for example, a 'ay' is typed instead of 'May'
8. Anticipating Errors – means failure to feed the fingers with the strong correct impulses to type while reading ahead.
9. Vertical Reach Error – refers to a situation where for example, 'e' is typed instead of 'd'
10. Finger- out-of-position – refers to a situation where for example, "I, au gp" is typed instead of "I may go".
11. Missyllabication error - refers to a situation where for example, "excises" is typed instead of "exercises"
12. Mangled Error - refers to a situation where for example "Letters" is typed instead of letters".
13. Word-Division Error refers to a situation where for example, "ne-wsletter" is typed instead of "news-letter"
14. Overtyping Error – refers to a situation where for example, "sas" instead of "as"
15. Mailable Letter – refers to letters typed for posting with about 98% degree of accuracy.

16. Secretarial student – refers to an individual taking short-hand and typewriting as a major course of study in the College of Education or Polytechnic in Nigeria.

17. Speed and Accuracy Task – is a typewriting practical task aimed at achieving a specific goal expressed in a number of words at a given time usually calculated in minutes for speed and calculation based on percentage usually 95 – 98% level for accuracy.

18. Production Task – refers to a typewriting task, which is made up of manuscripts (letters) straight-copy educative material (partly typewritten) requiring knowledge and application of correction signs.

CHAPTER I

INTRODUCTION

1.1 Background Information

The need for office skill is vastly growing, and has continued to be accorded due recognition. Sawyer (1965) shows that typewriting ability is the most used skill of the office worker. This was also the view of Harms (1949) when he observed that "the ability to type is perhaps the most important asset in obtaining an office work..." Nowadays, the typewriter has become one of the media of written expression, Smith (1959) lends credence to this thus:

> The typewriter is used full-time in some jobs on a part-time in some jobs, incidental to this major work in some positions, contributes a great deal in getting the jobs done effectively in others. In considering the many uses of the typewriter, one could say that in many instances there are career in typewriting or typewriting in careers.

Expressed in vocational perspective, Connely (1949) and Willins (1971) concluded that today demands more speed and greater output from typing and

clerical employees. To meet this challenges, the National Board for Technical Education (NBTE, 1990) re-emphasized that the terminal goal of typewriting instruction for the National Diploma (ND) in the Polytechnics, will remain "to equip the students with the ability to type effectively various office jobs and also to acquire a copying rate of 50 words a minute on passages not below 1.45 syllabic intensity with 98% accuracy.

The filling of secretarial job openings in most organizations nowadays involves a measure of applicants competence on the job. The best measure usually employed for determining standard is to insist that applicants take some kind of test to show their typing expertise. This test may be a simple timed-writing or typing some common business pages that will be marked for both speed and accuracy – accuracy being accorded more priority while appraising applicants work competence in office skill.

Writing on the performance of applicants wishing to fill secretarial positions during employment interview, Towe (1988) observed that "Employers, for example, the office of the Head of the Civil Service of the Federation frowned and described the National Diploma students as ill-baked for the job because of the failure rate they have always recorded in interview tests and in the National Secretarial Examination"

Likewise internal/external examiners, as well as external moderators of typewriting examinations have been complaining bitterly about the poor performance of students in typewriting examinations. For instance, Mshelbwala (1990) commented in respect of National Diploma students' fourth semester performance in typewriting in one of the Polytechnics sampled for the study thus: "The students seem not to have gained from this course..." This is also the view Aransiola (1989) when he said then that "... a large number of people fail to qualify in the Secretarial profession because of their inability to secure a pass in either typewriting or shorthand".

Nwokedi's (1988) analysis of West African Examination Council's (WAEC) Annual Report of 1980 – 1982 shows that "In typewriting, 1980 and 1981 recorded 79.4% and 76% failure rates respectively..." This is evidence of how generally poor the results of typewriting examinations have been, over the years in Nigeria.

The National Secretarial Examination's (NSE) Chief Examiner Report for Typewriting in respect of Professional Secretarial Examinations taken by students of Secretarial Studies in Nigerian Polytechnics showed that with the exception of the year 1986 in which the lowest failure rate of 29% was recorded, 1984, and 1988 recorded 45% and 42% respectively.

Therefore, in 1988, the National Secretarial Examination Board became more concerned about the students failure rate in its examinations and flouted the idea of a National Seminar and Workshop under the theme "Innovation in the Techniques of Teaching Secretarial Studies for National Manpower Development in Nigeria" so as to examine causes of failure in Secretarial subjects and develop remedies.

Since the theme of all efficiently run offices is productivity, the worth of any typist to a business can be determined, to a greater extent, by the ability of that typist to run out volumes of acceptable work. This, however, as already observed, has not been the case; as most office workers find it difficult to satisfy such requirements. Canning (1976) reported findings on office skill areas of employees that militating against office typists' ability to measure to the required standard include: slowness at work, inability to spot errors, poor knowledge of words, incorrect spelling and typewriting inaccuracies; as well as inability or non-disposition to hard work.

It can safely be inferred then that on aggregate, while productivity in the factory worldwide has tended to be increasing, productivity in the office has tended to lag behind. If a letter or a memo of average word length takes an hour to get into the final form for the boss's signature, it is more likely to contribute to low office productivity.

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The emerging trend in the Nigeria business environment will soon tend towards increased demand for the use of computer and word processing machines. In supporting this assertion, it was reported in the Financial Post (1989) the recent surging demand and growth of the roles now played by computers, word processors and electronic typewriters in some Nigeria business organizations towards enhancing office productivity. Thus, the need for good mastery and efficient operation and manipulation of the keyboard becomes indispensable to secretarial workers.

Canning (1979) researched into the extent to which keyboarding skills exerts influence on performance in respect of shorthand and typewriting in two professionally examined papers (Royal Society of Arts and Pitman Examinations). The outcome of his study was the findings that "inability to transcribe Shorthand scripts with sufficient accuracy has contributed more to failure of students than any other factor". Towe (`1988), writing on the quality of trained Nigerian Secretaries, stated that "the general complaint by employers had been that the National Diploma students couldn't write and transcribe accurately".

Despite the tremendous amount of work teachers have put in towards making the acquisition of skill of typewriting less tasking, performance rate has continued to be a disappointing phenomenon. This unsatisfactory result has

been lowering the morale and enthusiasm of students. In addition, its concomitant effect on office productivity of those now in paid employment cannot be over-emphasized.

1.2 Statement of The Problem

The researcher's field experience spanning over ten years, and as an office skills teacher has provided insight into the implications associated with productivity and job advancement in vocational typewriting. Besides, performance of students in typewriting examinations has consistently been poor, as a result of errors made in typewriting for instance, overtyping of letters, incorrect indentation, etc. Also, colleagues at different periods show concern as to why little progress is being recorded at improving this trend; bearing in mind the time lost by student-in-training either in getting typed scripts corrected or ready with minimum errors. Therefore, the implication of carelessly typed job cannot be over-emphasized.

The present day office is being revolutionized by office technology; however, persistency of faulty typewriting techniques cannot be said to have been overcome. Sterm (1979) observed that "more often, erroneous computer output is a result of human error".

Pitfield (1980) emphasized that:

> One of the most significant developments in recent years has been word processing; the justification for which is the high cost of typing. A skilled typist is capable of producing 60 to 70 words a minutes, but it is estimated that on average she produces only 45 words a minute. There can be a variety of reasons for this. For example, the incidence of typing errors must obviously, reduce output... word processing considerably reduces the effect of such incidents.

Therefore, it is the view of this researcher that for a clear view of the nature of the problem involved, an analysis and classification of errors becomes necessary. The frequency distribution of errors which students are likely to make could help towards proposing some remedial measures that may reduce such level of frequency. This study therefore addresses the issue of frequency distribution pattern or errors made by students of typewriting. Furthermore, attention will be focused on identifying the errors, classifying them into error patterns based on the following conventional categories of error pattern: stroking, basic knowledge and understanding, manipulation of Reading.

1.3 Objectives of the Study

The objective of this study therefore, is to:

(1) .find out the frequency distribution of errors made by male and female students in speed and accuracy tasks.

(2). Find out whether the error frequency distribution patterns of male and female students are the same in production typing tasks.

(3) Find out the patterns of error frequency distribution of the students of the four institutions under study in speed and accuracy tasks.

(4). Find out the pattern of error frequency distribution of the students of the four institutions under study in production typing task.

(5). Find out the perception of teachers and students about errors and their effects on typescripts.

1.4 Research Questions.

The study has the following research questions:

(1) What are the frequency distribution of errors made by male and female students in speed and accuracy tasks?

(2) What are the frequency distribution of errors made by male and female students in production typing tasks?

(3). What are the patterns of error frequency distribution of the students of the four institutions under study in speed and accuracy tasks?

(4) What are the patterns of error frequency distribution of the students of the four institutions under study in production typing tasks?

(5). What are the implications of errors as perceived by both teachers and students?

1.5 Null Hypotheses

(1). There is no significant difference between the mean errors made by male and female students in speed and accuracy tasks.

(2). There is no significant difference between the mean errors made by male and female students in production typing tasks.

(3). There is no significant difference in the mean errors made by the students in the four institutions under the study in speed and accuracy tasks.

(4). There is no significant difference in the mean errors made by the students in the four institutions under the study in production typing tasks.

(5). There is no significant difference between the mean rating errors of teachers and the students.

1.6 Significance Of The Study

The researcher believes that information collected under non-test and examination condition on the errors made by students may generally increase our knowledge of the problems involved in the teaching and learning of typewriting skills. A knowledge of errors that are recurrent may create conscious effort on both teachers and students on how to reduce the phenomenon of error and this may lead to improvement on the generally high

failure rate being recorded yearly against students offering the course in our institutions.

The teachers of shorthand and Typewriting stand to gain from the result of this study as it would broaden their knowledge of error frequency distribution pattern and provide information on the likely area of the defects of their studies; and thus allow them ample opportunity to develop adequate remedial measures for improving the students' typewriting skills. The students may therefore benefit on common error needing remedial improvement.

Most importantly, the institutions and employers of labour would gain tremendously from the end product of this study in terms of quality of secretaries and secretarial teachers produced and those hired for secretarial tasks. The serving secretaries and teachers may as well benefit from the knowledge of error pattern as it may aid them in knowing where to direct their efforts for self improvement.

Lastly, the result of the study would help textbook authors and writers to develop error remedial manuals/workbooks for the benefit of both the teachers and the students.

1.7 Delimitation

This study shall be restricted in scope to analysis and classification of errors made in typewriting by secretarial students of selected Nigerian

institutions of higher learning that produce secretaries and secretarial teachers in former Borno State now Borno and Yobe States. Other schools outside these states may not be considered in this study.

Limitation

A significant number of the students sampled could not complete the test for data collection within the time duration allotted and so prevented the research work from further information on vital error areas that might have been revealed. In addition, some of the typewriters were not in good working condition as a result, some students were unable to perform to the best of their abilities.

1.9 Basic Assumption

The following assumptions are made for this study:

(1) The post secondary institutions (Colleges of Education/Polytechnics) have similar entry qualifications and syllabi for the training of teachers and secretaries.

(2) The institutions focus their attention at achieving same basic objective of training workers to type accurately and at 98% of achievement.

CHAPTER 2

REVIEW OF RELATED LITERATURE

2.1 Introduction.

This study is carried out in a bit to find out the frequency distribution pattern of the following conventional categories of errors made by students of typewriting: stroking errors, errors in Basic knowledge and understanding, manipulation errors and Reading errors. This review covers areas such as career education, vocational business and office education, business/classroom standards and error tolerance, analysis of errors, sources of typewriting errors, error studies, analysis of letter errors in timed-writing and remedial measures for errors.

2.2. Career Education

Schools of today are confronted with problem of training young people to enter an economic problem of training young people to enter an economic order that demands specific training. Fafunwa (1976) opined that "if education is to take new and dynamic significance it must be aimed at training the child for specific skill" so as to fit into the age of the industrial era that requires youths to be exposed to variety of skills and competencies. This is more so when the

National policy on Education (1981) has emphasized the government's commitment of providing an educational programme that will meet the needs of all youths and make them gainfully employed.

According to Sofolahan (1987) "Nigeria's need for its technological take-off is more for those who can use their hands and heads..." Olorunmaiye (1988) shared the same view when he asserted that "... one of the fundamental steps to a nation's greatness is in the development of mental and manual activities".

Since the modern office is becoming a rapidly changing place, its demands are also becoming diversified in this age of office automation. Huffman (1971) aptly states:

> Enterprises and organizations have grown in size as technology has created a new kind of world. Industry and the office have been computerized and are being managed scientifically. Office work has become specialized, sub-divided, and standardized and it is now composed of repetitive operations, interchangeable activities operations, discretionary assignments.

The imminent challenges then, to teachers interested in preparing students for entry into modern offices is to stress the development of desirable work habits and attitudes as well as high operative skills.

Also, noteworthy, are the dynamic advances in office technology that have defined new roles for the secretary and designed new organizational work habits for office activities. Inevitably, traditional work habits have changed, but this development has not lessened the need for those typing competencies that have always been demanded of a good secretary.

The need for trained manpower in the offices in this present era of industrial growth in Nigeria need not be over-emphasized. This is affirmed by Oladunyoye (1988) that "The job market for secretaries is the most reliable of all office positions. Secretaries are in demand everywhere". The view of Erickson (1971) was the "preparing for the demands of the office will require that business education students master the skills, knowledge, and procedures of basic components of beginning to intermediate level of office work".

Erickson's (1971) findings on basic components of office further revealed that typewriting ranked third among components which comprise the highest percentage of office work.

Therefore career education provides the training that is required for successful employment and also gives the education that leads to personal fulfillment. Writing on career education, Marland Jr. (1971:4) said

> Career education in sum would reflect a far broader understanding of the purpose of education in today's highly sophisticated, technical, change-oriented society – the need not only to fit a person to function efficiently but to make him aware of why he is doing what he is doing, and to bring relevance to our classrooms for many who, with reasons, now find them irrelevant.

This view is also shared by Popham et al (1975) in relating typewriting objectives to career education, which assures the opportunity for everybody to gain entry level marketable skill prior to leaving school. They stated that, typewriting is a

marketable skill and provides employment for those who achieve required levels of competency.

The polytechnic education has its focus within the above philosophy, in operating their various courses. This probably explains the reason for all educational programmes within the framework of Polytechnic structure having responsibility for developing good citizenship; and the consideration for saleable skills; as well as general education for the needs of youths and adults.

2.3.1 Vocational Business and Office Education.

Presently in Nigeria, programmes of vocational business and office education are increasing at a rapid rate and continue to provide occupational competence for youths. Nwokedi (1988) reported that "there are in recent years a wider educational and career opportunities for personnel in shorthand and typewriting fields". This occupational competency according to the national policy on education, implies that youth leaving school to enter the world of work are qualified for at least one job. Kazaure (1986) having observed this states that:

> ... the phenomenal increase in the number of secretarial training institutions in different parts of the country had compelled the need to coordinate, gauged and ensure the right standard of professional secretarial qualifications through the activities of the NSE Board, since the quality of secretarial manpower support was essential to output in most other professions and executive positions.

Presently, inspite of the adverse economic conditions which are forcing employers to curtail their recruitment of staff, there are limitless opportunities for qualified secretaries. Aransiola (1989) reported that:

> In the first half of 1978 alone, one Lagos based newspaper, Daily Times of Nigeria, published two hundred and sixty advertisements for secretarial positions in contrast to a total of 187 produced by three of the Nigerian Polytechnics – Federal Polytechnic, Bida, Kwara State Polytechnic, Ilorin, the Polytechnic, Ibadan.

Therefore, the demand for people with stenographic skills will continue to be high irrespective of the prevailing economic condition facing the country. This is attested to by Davis et al (1978) when they observed that:

> The demand for secretarial staff with the knowledge of shorthand and typewriting is greater than ever. The increasing technological innovations in today's modern business offices have not and never will replace people with good stenographic skills. The future is bright and the prospects are many for those who are willing to add this 'SPICE' to their life.

However, experience of this researcher in the teaching of typewriting and the introduction of computer/word processing has shown that the office is experiencing changes at an accelerated pace as automation is having far-reaching effects on it. Its potential role in the office of the future is beyond description. Therefore, the challenges of preparing highly skilled secretaries and stenographers in a computer and word processing age should be evident to business teachers. According to Russon (1964):

> Teachers of typewriting deal with a product. This product is the student who leaves the classroom to take a job in business. Teachers are judged by the way this product holds up in the world of work. If he is successful, and produce a sufficient volume of high quality work. A really fine product, though, has additional characteristics: he can think; he is responsible; the work he does is accurate.

This implies that there is a standard by which the 'product' (students) are assessed and teachers must endeavor to prepare their 'products' to meet this office standard requirements.

Office job has been found to be indispensable to machine operators. Writing on office job, Macdonald (1980) is of the opinion that "every job is made up of small tasks and activities which when tackled correctly, make a sequence which achieves the overall objective (thus) staff appraisal is viewed in terms of tasks effectively done, as well as its demonstrable level of accuracy".

From the vocational perspective, one can safely conclude that every employer hopes for an efficient secretary who possesses mastery of technical skill in secretarial work. This may attest to business men's criticism of typing work of beginning office workers for being inaccurate as a result of either their inability to find and correct their errors or to erase it to acceptable standard. Canning (1976) re-echoed this observation (typing mistakes) as occurring daily in thousands of schools, colleges and offices and so stated that the eradication

of typewriting errors can lead to tremendous speed, efficiency and productivity in office work.

2.3.2 Secretarial Education

In the researcher's opinion, secretarial education is part of vocational education that is geared towards providing instructions of a preparatory type in the development of basic manipulative skills for the purpose of fitting persons for useful employment in trades and industrial pursuits. The National Board for Technical Education (1990), the regulatory body charged with the responsibility of coordinating the post secondary technological institutions outside the universities lend credence to this, thus:

> The National Diploma in secretarial studies is designed to equip students with secretarial skills for employment in various fields of endeavor. In addition to the acquisition of vocational skills in secretarial studies, effective work competences and socio-psychological work skills which are very essential in everyday interactions with others.

Therefore, the primary objectives of training secretaries in the Polytechnics is to equip them with the abilities and competences necessary for them to assume and function in an office work situation. This view is equally shared by authorities such as Tonne et al (1975) and Canning (1976). They agreed that such competences and abilities will enable secretaries to take dictations

encountered in business situations with sufficient speed and accuracy as aid towards producing mailable transcripts.

The production of mailabel transcript is 'Sine qua non' for effective office performance. There are several integrative elements that make this objective sustainable; such elements include proficiency in shorthand, typewriting and English language. The learner needs to be well blended in them before achieving business office skill standard.

2.3.2 Shorthand Transcription

Many business organizations have been investing huge sums of money in acquiring sophisticated office gadgets (for example, word processing equipment) requiring the application of basic typewriting skills. This huge investment aims to improve the quality of office communication at reduced cost, as well as to project the organizations level of efficiency and productivity to its customers and associates. The basic skills and knowledge necessary to operate these modern machines are areas of emphasis by employers. For the Shorthand typists and confidential/executive secretaries the job demands more than the ability to take down shorthand dictation.

The transcription skill which is the ability to produce mailable transcript from shorthand outlines is very important. Anyaduba et al (1988) Russon et al

(1973), Canning (1976) and (1965) agreed that transcription is the ultimate goal of shorthand and that the recording of shorthand dictation at ever increasing rates is of little value unless an accurately written transcript is made of notes. Therefore, the typed script is viewed as the end product that involves the integration of several elements.

However, many teachers have asserted that the transcription problem is partly a typewriting problem. This was confirmed by Harms et al (1972) as he subscribed to this view and wrote "careless typing and haphazard proof-reading have caused untold hardship and delayed pretty important decision" requiring urgent attention.

2.3.3 Typewriting

The typewriter is a communication tool and therefore an important medium for carrying out copy typing and transcription jobs. In fact, the typewriter has assumed a new role in information processing. Since a high level of typewriting ability is required of secretaries, stenographers, typists and general office workers, employers in most cases are interested in knowing the typing rate of an applicant. One hardly comes across a 'white collar' office job in a modern office where typewriting skill is not expected. This view is equally shared by Sawyer (1965) who stated that "when one considers that typewriting is the most-used

skill of the three occupations in clerical field which will be least affected by technological changes, it will be realized that the typewriter will continue to be an integral part of the office for many years to come". Writing on the demand for secretaries in a depressed economy, Oladunjoye (1989) stated; "... typewriting will continue to be valuable office tool as most offices are becoming automated with machines that have the typewriter-like keyboards".

The researcher's vocational experience attests to the views expressed above by Sawyer and Oladunjoye. Typewriter keyboard is now an integral part of electronic computers and serves as a means of feeding data in the form of coded magnetic tape into the computer as well as a medium of putting results of processed data/information on paper.

Sawyer (1965) wisely remarked that "... demand for number typing skills in business communication means that the vocational typist must be able to type numbers more rapidly and accurately than ever before. On this, Hudson (1970) reminds that "... typing numbers is a good example of the inefficiency of previous instruction". Stern's (1979) view was more specific in stating that:

> ... a customer of a major department store in New York city returned merchandize worth $523. a computer-produced check for $523,000 was mailed to the customer,... this type of erroneous computer output is in fact, attributable to human error. Thus, emphasis should be on methods that can be used to minimized on such so-called "computer-error" –by ensuring accuracy of incoming data.

Thus, teachers of typewriting need to be reminded of the tremendous amount of work connected with the acquisition of skill in typewriting involving knowing of typewriting convention in matters of layout of letters, memoranda, notices, directives, reports and ability to make corrections quickly and effectively. In essence, high expertise in the machines of typewriting should be major areas of focus and emphasis.

The goal of typewriting is realized when a reasonable amount of usable copy is produced within a reasonable time. This explains why the goal of typewriting instruction focuses on preparing a prospective employee to function in a business office, industry or government in a satisfactory manner. Therefore, emphasis should be on the business applications of typewriting skill.

Besides, the development of proper attitude to work must be emphasized closely with ability to provide usable work in sufficient quantity and of acceptable

quality. Holt (1964) is of the view that ample research findings are available from which typewriting teachers will continue to benefit in meeting this enormous task.

Though employers expect typists to demonstrate their proficiency in speed as accurately as possible, research findings according to Canning (1976), Russon et al (1972) confirmed that there is no meaningful relationship between typewriting speed and error scores; but that, correlation exists between ordinary copying speed as measured in straight copy tests with production speed. However, Harms et al (1972) and Tone el al (1965) stated that increase in straight-copy proficiency had no transfer effect on job performance as much as might be supposed. Aina's reported findings in this respect states an "r" of about .3 coefficient.

However, Canning (1976) observed that "maximum transfer will take place when the student learns and practices exactly the things that the office will demand". This no doubt requires the possession of conceptual, technical and human skills. Paisey (1981) supported the view that "the integration of these three elements will make effective application of the acquired professional skills to meet the job standard requirements possible". This may not however, be all true according to Shuaibu (1986) in that "... ample research evidence show that

the cognitive achievement is relatively independent of effective development and ... there is a difference between knowledge of desirable attitude and intent to exhibit such attitudes and action".

Since typewriting is offered as a vocational course by the secretarial students in Polytechnics and Colleges of Education, its objective can only be realized when the acquisition of necessary skill and knowledge enables them to perform at a high level of overall competence needed in the world of work.

2.3.4 Keyboarding

Keyboarding no doubt has been observed to be at the core of electronic office communication systems. Peterson (1980) expressed the view that "regardless of the sophistication of information processing systems, keyboarding is indispensable. Onwby et al (1983) asserted that:

> Most schools cannot afford the luxury of inefficient, use of computer time. Some schools require at least a minimal level of touch keyboarding skill before students are allowed time on the computer. In addition, most students cannot afford to waste time with inefficient keyboard operation. If the computer is to be used as a tool for improving productivity, the user must be able to devote major concentration to the procedure for solving the problem at hand rather than the mere operation of the equipment.

Consequently, typing skills will continue to be an office pre-requisite .. the encoding of keyboarding will remain necessary and therefore "the presence of computer and word processor has not displaced the typewriter". Peterson (1980) further said that "the possession of basic keyboarding skills is still a prime requirement". A mastery of the skills of typewriting and production layout are essential in producing high quality and accurately processed information. This requires that work has to be done meticulously with a high degree of performance. Erickson (1971) writing on the same issue said, "Keyboard skills related to typewriting were required to operate some of the equipment used in the automatic data processing components such as key-punch machine, computer, optical front adding machine and decoder".

Blackstone (1940) was emphatic in his statement that "there are many machines which utilize keyboarding and for which specialized training might make job placement possible". The implication of this is that office employers will continue to need keyboarding skills with a great amount of emphasis on accuracy. In this direction, Myatt (1984) counsels that:

> It is more important for equipment operators to be able to produce accurate work than to be able to type at a speed of sixty (60) words per minute ... equipment operators must enjoy working with machine, must sit at work at the terminals for – long periods of time, and must be able to produce accurate work at the terminals while completing time-critical assignment.

This is a pointer that the possession of basic keyboarding skills is a prime requirement for the execution of typing function, which the national diploma in secretarial studies will eventually assume.

2.4 Business\Classroom Standard and Error Tolerance

Office communication, with the aid of the typewriter, has assumed a new dimension. Because the quality of communication reflects source, organizations dictate the standard/quality adjudged as meeting good typewriting taste. Lessenbery et al (1967) argued along this line that "business letters served as personal representative of the business men ... show the standard of the office from which they come, and give an index to the kind of work the typist does. If they are not typed with care, they fail in their mission". Carmichael (1955) stated precisely that "the typing skill is utilized as a means of producing the end product that both private and public send to their associates and customers".

Today's challenge assumes better and more accurate work in less time. Nwokedi (1988), writing in respect of secretaries, and quoting Mackay (1977), stated that "In as much as career opportunities have increased in this area, it has become widely accepted in Government, commerce and industry that speedily produced and accurate copy should be the top priorities.

Bur (1988), writing on the regulatory function of the National Secretarial Examination (NSE), though not specific about standard observed that "considering the very demanding and crucial nature of the job of secretaries to executive output, the Board has a task to turn out professional secretaries who would measure up to their responsibilities, and enhance the productivity of the executives with whom they would be working".

This same view is shared by Bademosi (1985). He stated that "... it had become essential to measure and control the quality of the practitioners of the profession so that a certain level of efficiency could be maintained in order to maximize the output of executive in all sectors of the national income".

Kozlowoski (1980) was more specific about standard in his statement that "companies now will accept anyone that passes a test between 45 and 50 words per minute without more than three errors on five-minute time writing". Towe's (1988) view was also specific when he posits that "... a ... of letter with more than four mistakes is ideally not mailable". However, the opinion of Erickson (1971) was that the "criteria for successful performance emphasize the importance of accuracy rather than speed in keyboard operation".

Since the efficiency of computer depends on the level of accuracy of data fed to it, Camp (1983) warns that "... no matter how expensive or sophisticated

automated office equipment is, they will never correct all errors and produce perfect communications. Kohl (1964) and Pitfield (1980) both counseled, "As input of data becomes prone to error, the main safeguard must be a system of verifying the accuracy of every item fed in".

Various research studies have been conducted in an attempt to determine business standard expectations and how secretaries in training are meeting such standards. Anderson and Johnson (1966) conducted a research study using actual business materials. They collected and administered threes test materials on a number of subjects to determine their standard deviation from the mean. From their result, they developed standardized typewriting tests for teachers' use in measuring students' attainment level while progressing from first semester through fourth semester typewriting. The study conducted by Zucchi (1966) revealed that:

> Most business organizations hire typists to type from 40 words a minute. This rate is established as a result of the straight-copy typing speed test as a basis for determining net word a minute (and allowing for) a number of "typing pressures" that contribute to a normal slow down in production typing that are absent during a typing speed test,(such as) carbon-copy requirement, typing deadlines, page balance and layout degree of difficulty of material, quality of source copy, and end-of-page pressure.

Blackstone (1940) reported findings on business men's reaction to errors that "there are evidence to show that errors differ in seriousness among those

asked to classify typing papers as mailable, mailable after correction, and unmailable, and then to rank the papers in each division. The result shows that such errors as omissions, untidy erasers and incorrect division of words were weighted from six to ten times as serious as failing to space between words and certain stroke transposed such as "hte" for "the".

This is also similar to the view of Flesher (1960) as reported by Harms et al (1972) that business men agreed that serious errors that cause a letter to be unmailable, are "letters in a word slightly out of line, failure to space between words, incorrect division of word at the end of line, and presence of spaces within a word". The study conducted by Clark (1962) on skill in typewriting needed by prospective secretaries and clerical personnel provides guide of 0-2 errors a minute to tolerance level to secure positions in most of the companies surveyed. Pitfield's (1980) view supports that error tolerance level makes investigation possible if error exceeded the level. This is a major cause of diminishing typing production in errors followed by the inevitable and time-consuming erasures.

Contributing to a search for standard, Wanous (1949) said

> For more than 20 years, typing teachers have been asking businessmen about rate standards on letters and other office forms. Every time they have sought this information; they have met with the same blank stares or fuzzy answers. As a result, they (teachers) have concluded that, generally speaking, businessmen have not set up rate standards for typist. A "good day's work" is required of all typists.

But this has not precluded setting a standard to aim at. Research and experience have persuaded Lloyd (1980) to suggest that since "most office typists actually do the day-in-day out work at the rate of 40 words a minute ... they will need a 50 words a minute skill if they are to keep up a 40 words a minute pace". Lessenberry (1942) however advised that "the improvement of basic skills for second-year typewriting students should differ very little from the improvement of basic skills for first-year students. He said, "students must want to learn and they must seek to learn to type, whether that typing is on straight-copy, paragraphs, business letters, or production standards".

Crawford (1964) reminds us "businessmen have emphasized the cost-supported fact that expensive automated equipment can be justified only when it is operated with maximum efficiency and to maintain efficiency, typist must be able to operate these costly machines with high speed and minimum error". He went further to explain that "though managers are willing to accept the fact that

typists will make mistakes but that typists should be able to detect the errors they make is a point of view held with unyielding firmness by most employers".

Writing from a linguistic perspective, Corder (1975) distinguishes "mistakes are developmental trait that cannot be avoided because it is symptomatic of a particular period of learning whereas error is a serious deviation form/behavior that has not been recognized by the producer as unconventional". Warbug (1962) and close (1963) were of the view that to look for absolute correctness is to look for the shadow"

However, they emphasized the need to have a standard from which to deviate. Supporting this view is palmer (1971) who said, "what is correct and what is not is a matter of convention within a society".

These views aptly expressed, apply to all skill areas in which a demonstrable level of achievement is required to meet job standard.

Correctness is then a highly measurable feature of acceptable typewritten work. In the opinion of Corder (1975) the use of a wrong technique or a miss-use of the right technique will be a deviation from that which is acceptable or standard".

The discussion thus far, supports that an error occurs when a deviation from a conventional standard of typewriting principles or technique and conventions is manifested in a learner's straight-copy or production typewriting work. Error, therefore, is a phenomenon that cannot be ignored at all. The important fact is to seek the nature and type that persist and which lowers the quality of office communication and distort ideas for assignment of remediation.

2.5 Analysis of Error

Freedom from error is a matter of understanding error, not getting special dispensation to err simply from the precept that typewriting skill is thought to be beyond capabilities or interest of certain students. The aim of skillful performance, said Ponyi (1958) "is achieved by the observance of a set of rules which are not known as such to the person following them". McNicol's (1970) contribution on skill acquisition and error, is worthy of note. He observed and said that "in all works which are designed to develop accuracy, any errors made should be studied and, if possible, the reasons for any persistence of such errors. Error analysis is useful". He went further to call attention to the fact that studies made at different times revealed that there are certain stroking errors which are common to many students and that it will be helpful for the teacher to be aware of them so that prevention or corrective work can be given.

Error in the opinion of this researcher, no doubt, carry messages which writers cannot afford to send. Therefore it is not uncommon that huge amount of money and energy are being expended by individuals and businesses or error removal, whether by correction fluid, eraser, scraped paper, or proof-readers and acquisition of modern word processing equipment. In the view of Pitfield (1980), "mistakes can be very costly ... customers' goodwill may be lost if errors affect them, time spent in correcting errors is unproductive time". Arguing further, he said:

> If errors occur to an unreasonable extent it is necessary to identify where and why they occur. Analysis of a procedure many indicate that most errors occur at a particular point. Identification will then allow for alteration of the system so that errors are reduced ... it may be found that one operator has a higher error rate than the others. This failing can be identified only by individually checking the operators' work.

Shaughessy (1990) writing on errors and expectations, was of the opinion that:

> The discovery by a student that he can do something he thought he could not, releases the energy to do it. Students who make any errors feel helpless about correcting them. Error has them in its power, forcing them to hide or bluff or feign indifferent attitude toward error and to strategy for its defeat, one that allows him to count his victories as he goes and thereby grow in confidence.

She warns that the "mystery" error (can) intimidate (and that) the worry that errors just "happen" without a person's knowing how to, when, and "why".

Meaning, ignoring error for fear of inhibiting the learner even more or of assuming that errors will wear off as learning progresses will give error more power than it is due.

It is important to be aware that the fear of making an error could be a serious deterrent to the learning processes. The view of Magdalena (1975) quoting Moorrinson was that "the learner should be taught to disregard his errors and "to let himself to" at the early stage of typewriting instruction to allow for good technique development".

Thus, it could safely be stated that errors reveal to the teacher how far towards the goal his students have progressed and what remains and what remains for them to master. Corder (1967) however felt that errors are undependable to the learner because the learner learnt through his error "to discover the acceptable from the unacceptable". Thus, "errors" provide important evidence that students are still in the process of acquiring basic knowledge and understanding involved in learning how to typewrite.

Etherton (1977) felt that an analysis of the error made by a group of leaners could be helpful in a number of ways. He enumerated its uses to include supplementing the inadequacy of most textbooks in terms of what a group of learners may need. Besides, error analysis based on adequate data could

reveal the common and individual weakness that call for the teachers' special attention and as well show areas of deficiency on the part of the learner which needs his attention. Wyatt (1973) believes that an error analysis may be undertaken in an attempt to find out the final remaining work that would be necessary before an end of course examination. Lessenberry et al (1967) stated that error should be used as a diagnostic tool, as "it (error) enables the teacher and the student to know when to shift the emphasis from building a faster stroking rate to dropping back in speed to bring up the accuracy".

Olayemi (1980) contended that error analysis is useful for theoretical knowledge and desired for changes in pedagogy. Therefore, the reason for error analysis may vary from a desire for theoretical knowledge to a desire for changes in pedagogy.

2.6 Sources of Typewriting Errors

The researcher's field experience has shown that a student both resent and resists the vulnerability of typewriting error as he becomes aware that he leaves a trail of errors behind him when he types; and usually thinks of little else while he is typing without knowing what to do about it.

This could probably be a reason for some typists, inhibited by their fear of errors, adopting the perfect copy approach, and invariably, producing few lines

an hour or keep trying to begin again; erasing one line after the other, changing papers one after the other until the work is hopelessly tangled. To such a student, error is more than a mishap; it is a barrier that hinders him not only from making progress but from producing acceptable work within a reasonable given time.

Dotson (1949) quoting Rows (1948) allayed this fear as he said that "it is natural to make errors when developing skill." Thus Dotson (1949) holds the view that "errors are as natural in typewriting as they are in any other human activity." Canning (1973) represents those that asserted "human beings are fallible and will make mistakes however well trained, however expert". Therefore, Lucey's (1987) view that "there is no such thing as absolute accuracy..." is a factual statement.

Typewriting error that affects productivity vary in their degree of impact on the office job; and also, the circumstances that brought about such errors.

According to Canning (1976):

> Errors are of two kinds – there are those you know have made as soon as you have made them, and these of course are corrected on the spot; then there are those that you do not know you have made until you come to your proofreading or checking stage –which you may miss even then.

However, research and experience have persuaded Tonne et al (1965). Russon et al (1973), Canning (1973), and others to observe "errors are the result of lack of proper technique".

Writing on mistakes, Akor (`1989) reported Corder (1975) as saying that "mistakes are random and can be corrected by the learner because they are due to performance factor among which are performance strain and memory limitations; errors are systematic, consistent deviances, characteristics of a learner". It is plausible to follow the argument of Corder (1967) "that errors of performance will characteristically be unsystematic and the errors of competence systematic... (as such), it would be meaningless to state rules for making mistakes".

Harms et al (1972) in their own view, and quoting Flesser (1960) (as learning their direction), asserted that the following errors are serious enough to make a letter unmailable: "letters in a word slightly out of line".

Failure to space between words, incorrect division of a word at the end of line, and presence of spaces within a word. McNicol (1970) was more detailed when he wrote that:

> Typing errors are signs of interference, due partly to drills on isolated letter strokes and nonsense combinations, partly to relative dominance of common sequence signals, partly to chance slips in techniques, and partly to underlying keyboard arrangement. It may be stated as a general principle that the wider the delay between strokes in sequence, the higher is the chance of error.

An examination of available literature revealed that at keyboarding stage, some students cultivate wrong habit of pushing instead of striking, and in addition, adopting wrong forms.

Further examination revealed that tension, wandering attention, faulty reading habits and wrong mindset – sometimes restrict the free flowing motions of the fingers and invariably cause wrong stroking errors. But these are not the only reasons. It is normal for students to attempt to increase their stroking speed, therefore uncontrolled speed may sometimes lead to a breakdown in technique when they foster error in illegibility of the copy. Likewise, when students are faced with tasks for completion, several skills are called for; therefore, the choice or layout, placement, line-ends, spelling, doubts of word meaning may distract and make the student error prone.

Some other errors may arise as a result of personal factors like the mood and state of mind and health of the learner such as tiredness, fatigue, and mental "set" of the time. In addition, environmental factors such as "concentration breaker" that hinder typists from giving the close attention it deserves have been identified. Also, the physical working condition of the typewriter can cause psychological discomfort and tendency towards error. In a nutshell, Russon's et al (1975) summary of sources of errors are:

1. Lack of keyboard mastery
2. Faulty technique and form
3. Low reading ability
4. Fatigue
5. Uninteresting copy
6. Copy difficulty
7. Personal and environmental factors
8. Lack of desire on the part of the typist to type accurately.

2.7 Error Studies

Several procedures have been devised and used widely in the past in an effort to overcome tendencies for error. The diagnostic error chart was developed to assist in revealing errors of a persistent nature using as basis for error recording, keystroke, or the striking of one key for another. Others are technique check sheets used by teachers while observing the learners before making recording; this is only effective in bringing to the attention of both teacher and student specific technical faults resulting from a slowdown of the typewriter process (for example, error in shifting spacing, or carriage-throw technique).

Besides, there are "error charts" which assist in describing the type of error recording in which the tendency for error on specific keys is noted. In this instance, the procedure involves the provision of blank space down the left side of the chart for noting the date, or the number of the alphabet and several columns for recording errors other than errors of substitution were provided. A noticeable defect is that these methods, good as they are, fail to produce vital information to teachers or why errors are made.

Blackstone (1940) writes on the specific weakness of these methods, said they could not provide a basis for diagnosis; "if the pupil substitutes 'e' for 'y', he records this fact on his chart for anyone to see. But without a copy of the test before him, even an expert could not be sure why the error was made". He further quoted Smith (1932) as having earlier said, regarding this, that 'An' 'ed' ending may be unthinkingly substituted for an "es" ending. It would be wrong and futile to analyse the first error as being an error in typing "d" for "s"... it was one combination substituted for another".

Several observations were made regarding the defects inherent in methodology of error analysis discussed above. Besides, Blackstone (1940) did not favour the use of errors in timed-writing as the sole basis of analyzing typewriting errors; said he, "if copy test materials are used for specific keys and if

the test has been administered as a timed-writing, the analysis of error results is erroneous". To improve the validity of timed-writing as basis of making error analysis (especially on specific key stroking errors), he suggested that "all pupils in the class must have the same opportunity for error". That is, every examinee must complete the task used as instrument for the research within the time given.

Blackstone (1949) in a summary of over 400 research findings in typewriting observed that one mature pupils bright and dull students differ in their error types. He stated that:

> Bright students and dull students make different kinds of typewriting errors. The brighter students fail in spacing errors, omissions, additions, transposed, and striking wrong keys due possibly to lapses in attention, whereas duller students were found failing in centering, tabulating, and other situations involving planning rather than technique habits.

Likewise, he observed that most frequent errors are "substitution of one key for another, (for example i for e), incorrect spacing, strike-over (over-typing), omissions, transposed, and incorrect hyphenization".

Canning (1976) highlighted that errors are nearly always random, but their frequency is completely unaffected by perfect-copy technique; that errors can be classified into areas of knowledge and skill. Thus, he wrote "there may be

small comfort in analysis and classification if it enables us to prescribe some teaching practice which will help to make error less prevalent than it is". Writing that there are two schools of thought on learner's errors methodology of instruction in skill subjects, Corder (1967) observed:

> First the school which maintains that if we are to achieve a perfect teaching method the error would never be committed in the first place, and therefore the occurrence of error is merely a sign of the present inadequacy of our teaching techniques. The philosophy of the second school is that we live in an imperfect world and consequently errors will always occur in spite of our best efforts.

Since errors are inevitable, if one holds to the second school of thought, it is essential to find techniques for dealing with errors after they have occurred.

Russon, et al (1968) favours this second school of thought while acknowledging research studies and findings made by Lessenberry (1928) on 60,000 errors; Conix (1963) on 77,478 errors and Nellermore (1962) on 17,000 errors. Lessenberry's findings show that the most common errors could be classified into three groups:

1. Errors made by striking the adjacent key;
2. Errors made by striking the home key instead of the key above or below.
3. Errors made by a general confusion in the use of vowels.

His conclusion was that 20 percent of all errors made by students are the result of striking one letter for the other. Conix's (1963) findings show that errors most frequently occurring besides those earlier identified above, include omitted letter or letters with no space, strike-over, omitted space before a word, raise capitals, omitted letter or letters with space, insertion of stray letter or letters and extra space between words. On the other hand, Nellermoe's (1962) studies revealed that the largest number of errors made by students were:

1. Manipulation errors, followed by
2. Copy-reading errors, and
3. Judgment errors.

Further research findings on classification revealed that Canning (1973) and (1976) follows the latter line of reasoning by making classification according to the area of knowledge and skill that they fall into such as:

1. Technical errors
2. Linguistic errors
3. Errors resulting from loss of concentration and
4. Psychological errors.

But this he later put in two concise classifications technical and non-technical. These classifications are the result of errors arising from faulty manipulation or stroking techniques and inadequate linguistic knowledge as reflected in spellings, temporary failure of concentration, psychological quirks or intruded word from the mind. Onifade (1988) however, drew our attention to three broad patterns:

1. Psychomotor skill
2. Faulty machine
3. Cognitive ability

In essence, the views of Brady (1963), Lessenberry (`1967), russon et al (1972), Canning (1976) and Onifade (1988) represent those who see the classification of errors as falling into:

1. Errors in stroking techniques
2. Errors in basic knowledge or understanding
3. Errors in manipulation and
4. Errors in reading copy.

The concern for analysis and error classification, according to Lessenberry (1967), "arises from the desire to have students build good competency since stroking accuracy ranks first in the elements of competency".

2.7.1 Errors in stroking Technique

During the phase of keyboard learning, the students are taught mechanical control and the proper key-stroking technique as pre-requisite for mastering the keyboard. Popham's et al (1975) view was that the focus should be on refining stroking motions and improving technique before shifting to production typing. But west (1969) who favour this line of reasoning acknowledges that keyboard learning actually involves hundreds of responses (motion patterns) – therefore letter sequence should be proper focus of attention.

Canning (1976) in his own view, said that good stroking technique involving teacher's demonstration on how to strike keys with sharp at accadeo tough should be the center of focus to encourage high stroking rate while de-emphasizing accuracy. Tunne et al (1965) lend credence to the above views that good stroking technique is the first step towards a good typewriting techniques.

Research findings have so far revealed that correct striking is often neglected or given insufficient attention in teaching. Its neglect is serious for it

gives rise to errors and slows the progress which comes from student relying too much on trial and error approach of learning. Errors in stroking technique according to Lessenberry et al (1967), and Canning (1976) may be as a result of the following;

1. "Mashing bug-squashing" type of stroke
2. Shoulder punch, stiff-finger jabbing stroke between the keys.
3. Glancing stroke, resulting from striking between the keys.
4. Adjacent-key error caused by tenseness.
5. Vowel confusion, out of failure to note letter sequence.
6. Transposition of letters or words, caused by imperfect timing of strokes etc.
7. Anticipating errors from failure to "feed" the fingers with the strong correct impulses to type while reading ahead.
8. Same finger opposite hand errors.
9. Omission of letters as a result of uneven force back of the strokes etc.

10. Addition of letters as a result of substitution of familiar word ending due to reading ahead, and which cause the eyes to pick a letter or word to be typed, later and thereby relaying the "advance" stroking or its sequence.

11. Shadow (missing) character.

12. Vertical reach errors as in e for d or l for e.

2.7.2 Errors in Basic knowledge and Understanding

The teaching of typewriting involves cognitive learning the application of English usage to typewritten work. Popham et al (1975) observed that « training in typewriter usage and English mechanics proceeds simultaneously with the development of copying skill. The learner's attention is often focused so much on the art of typewriting that he or she cannot concentrate on the subject being presented." Canning (1976) also observed that there are numerous instances when typists have spellings quite correct in the copy but get them wrong on the keyboard due to inadequate linguistic knowledge. Thus, according to Lessenberry et al (1967), errors in basic knowledge and understanding include:

1. Mis-syllabication

2. Inaccurate form of expressing numbers

3. Incorrect capitalization

4. Punctuation, spelling and paragraph

5. Unacceptable arrangement of work and failure to follow directions.

6. Psychological quirks

7. Intruded word from mind and

8. Inadequate linguistic knowledge.

2.7.3 Errors in Manipulation

Correct machine operation is achieved when the typewriter is operated calmly and unhurriedly with great economy of motion. This implies adopting correct sitting position, avoiding unnecessary elbow forearm and hand movement, correct space bar operation and the throwing of the carriage without losing the basic operative position as well as other manipulative parts of the typewriter.

According to Russon et al (1963) "a study of time-writing typed by students provides such information as faulty use of space bar, the shift keys, and tabulator.

A close study of the work of Lessenberry (1967) however, shows a detailed analysis of manipulative errors. These range from:

1. Imperfect left margin

2. Imperfect shifting for capital

3. Extra letters and extra spaces

4. Spacing errors due to:

(i) Failure to space between words and

(ii) Extra spacing between letters or words

1. Clashing of keys

2. Carriage return tabulation

3. Margin release keys.

2.7.4 Errors in Reading

Research findings have confirmed that typewriting improves the ability to manipulate the mechanics of English. Blackstone (1940) confirmed that "typing has been taught in elementary schools, but while the results indicate that this practice improves reading and spelling ability of students, there is no evidence that the students become capable typists".

The experimental work of Malt as reported Canning (1976) on keyboard training and the theory of typewriting revealed that "there is a very direct

relationship between speed and accuracy of reading from copy and the speed and accuracy of keyboarding. People who are trained to read faster and with wider comprehension also type faster". He further argued that "the further the learner progresses in keyboard mastery, the more acute the reading problem becomes".

He went further using "digrims" and "trigrims' to illustrate that initially the learner is at the wholly literal stage where successive letter is a problem; typing what is in the copy is easier than it is, later on when the learner has built some chaned responses of two, three or four letters and reads whole word or phrases. He then advanced that "the speed of reading could affect typewriting performance".

Contributing to improvement in this area, Walter (1975) emphasized the need to introduce and teach typewriting students reading habit. Quoting Atwood (1965) he noted that "since the reading rate for typewriting is considerably slower than reading for comprehension, there is the probability that students concentrating on rapid reading would make a number of errors in typewriting. Reading either too rapidly or too slowly will cause errors, such as transposition in typewriting". The way out, he said is to assist the student in such areas as syllabications, spelling, configuration and structural analysis of words.

The following have been identified by Lessenberry (1967) and Canning (1976) as resulting from errors in reading:

1. Omitted word

2. Wrong word ending

3. Omitted line or lines

4. Transposition of letters

5. wasteful pauses in typing caused by either of these faulty reading habits:

(i). Raising the eyes from the copy

(ii). Reading too far in advance of typing and

(iii) Inattention to letter and word sequence.

2.8 Analysis of Letter Errors in Timed-writing

One of the four incompetences identified as important is that which requires student to reproduce a reasonable amount of work within a timed period. This is a combined application of cognitive, psychomotor and affective domains.

The teacher in most cases build into the typing materials that are used in the classroom, four basic components of typewriting abilities and the concentration on three broad areas of phases: keyboard presentation, skill building on straight-copy and typewriting application or production typing.

Experience has shown that the speed and accuracy goals are not compatible during the initial learning period. Therefore, most effective learning is achieved when the goals are kept apart and the learner aims for speed of operation and later switches to accuracy. Students are sometimes discovered to operate under the pretensions that high speed rate leads to more errors than typing slowly. West (1967) and Robinson (1968) both reported that "the correlation between speed and errors in ordinary copying at the typewriter is essentially zero". In their own findings, Lessenberry et al (1972) asserted that though less relationship exists between straight copy accuracy on production tasks, "types of errors, however, tend to remain relatively constant". In contrast to this view were the reported findings of Russon et al (1973), in respect of investigation on the relationship between speed and accuracy when students were instructed to type at something less than their highest rate on an informal experiment using short writings. It was the least accurate and those typed at reduced speed rate (below their highest speed rate) was the most accurate.

Russon et al (1973) went further to report findings on analysis of letter errors made in timed-writing and said "letter errors made in timed-writing will give a listing of all the persisting errors a student will make when typing other materials concept errors in form". Further here, they concluded that analysis of errors made on timed-writing will provide all the data necessary for the determination of needed remedial practice for a student, whether in first-, second-, third, or fourth-, semester typewriting. This suggests possibility of limiting error studies to only the errors made in timed-writing. However, Blackstone (1940) cautioned that "if copy test materials is used for the purpose of recording tendencies for error on specific keys and if the test has been administered as a time-writing, the analysis of results is erroneous".

This therefore implies that analysis of key stroking errors in specific keys will only be accurate provided all learners have the same opportunity for error- each completes the timed writing at the exact time.

2.9 Remedial Measures For Error

In the opinion of the researcher, today's and even tomorrow's business world will continue to place top priority on accuracy, and error detecting skills of secretary typists. This is so because a machine with correction features may not be able to recognize errors and that even though word processor often detects

mis-spelled words, it cannot detect errors of incorrectly used words. Particularly, nowadays, the convenience and low cost of making copies, which has contributed to a paper work explosion, tended to multiply the effect of errors. The implication of this has been properly placed in perspective by Camp (1983) who identified the effect of error on a 2000 copies of a typed report thus:

> It the typist made an error, which was not detected before copying, this is no longer one error – it is 2000 errors! Had the error been detected before the report was copied, the cost of correcting it would have been minimal. But since the error was in the distributed copies, there may be great cost to the employer in terms of embarrassment and misunderstanding.

Therefore, the high cost of undetected errors cannot be over-emphasized – ranging from a severe reprimand by an angry employer or even the loss of a good position.

Against this background the comment of Russon (1973) on variability of students performance errors in typewriting comes to focus:

> The students in a single class vary greatly in the number and kinds of errors they make on the same copy at the same time; varies considerably in the same copy at different times. At one time a student may make all his errors in the first minute of a writing, at another, he may make all of them in the final minutes of the writing.

In essence, Canning (1976) cautioned that care should be exercised while determining remedial measures and that sometimes, the teachers' emphasis will have to be on avoidance rather than correction, except if the error is as a result

of faulty techniques. He then advocated that error tolerance scale that can permit the slowest students a higher percentage of error than the more able one could be adopted. Beside this, it is necessary to familiarize the learner with proof-reading so that errors can be systematically located and neatly corrected.

This is more so, when Brendel (1954) cautioned that:

> There is the human desire to succeed, which implies the human dislikes to fail. To pupils, their errors indicate failure. They like to feel that they are accurate typists, which is nothing more than a reflection of the success "bug". They "feel" they "know" when they make error, therefore, when a typing job is finished, they "feel" it is accurate. The "knowing" and "feeling", however set up a mental block which blinds them.

The main point of emphasis may be Russon (1973) was that:

> We all had the experience of making a mistake and then almost at once making another as a result of shock of making first, and a third one for good measure while we recover our equilibrium. (Thus) we need training to accept the inevitability of error and to preserve our equanimity, training almost like an army drill by numbers to go into our expert error-correction routine-fast, orderly and well executed manner.

Erasing skill then is to be taught to improve on the student output. Erasing and correction of errors thus should be taught, drilled and called for frequently. This will give us a realistic index of the student's ability at producing usable copy.

Cortex (1980) recognized this fact and therefore designed a diagnostic approach – an error analysis chart which students are expected to maintain.

This permits both the teacher and the students to know how exactly the kind of errors is made – including the letter, the finger and the hand involved. All that students are required to do is to devote some time to correcting their individual typing problems using specifically assigned corrective drills prepared by the teacher and00 which is suited to the particular need of that student depending on the type of errors in question. The significance of the chart is that "... it helps to identify the specific speed and accuracy problems that need to be overcome". The student practices only what he or she needs to practice, and as a consequence, there is a dramatic improvement in the students overall typing performance.

The objective of analysis and classification of errors is raising the level of students typing skills, thereby reducing the time required for error correction. An understanding pattern and frequency distribution of errors may help towards proposing some remedies that may reduce error frequency.

2.8 Summary

The demand for secretarial staff with knowledge of shorthand and typewriting is now greater than ever; while the challenges of the present modern office impose on the institutions training secretarial workers, the responsibility of turning out workers that passes the ability to make efficient use of the typewriter.

However, this has not been the case considering the increased rate of students failure in professionally administered examinations as well as employment interviews largely as a result of the phenomenon of errors in typescripts.

Evidences from the literature review show that researchers' attention for some decades had been on the sources of typewriting errors with little focus on the types of errors that students make, their causes; and remedial measures that could alleviate them. Further, available information on typewriting errors are largely a product of straight-copy timed-writing from the view that errors made in straight-copy timed-writing will give a list of the errors on a student will make in production typing. The general belief was that errors are nearly always random, and their frequency, unaffected by perfect copy (production typing) technique.

The several procedures devised and used to overcome the tendencies for error such as the "diagnostic error chart" and "technique sheets" revealed to teacher and students only specific technical faults on non-manipulative parts while "error chart" assists only in describing the type of error recording in which the tendency for error on specific keys are noted without revealing the cause. Thus they could not provide basis for diagnosis since the teachers do not have access to the copy from where the information recorded on errors were made for determining their causes.

Therefore, a rigorous study of the error types in straight-copy and production typing and their causes is yet to be undertaken. The results of such a study may enable this researcher to prescribe some teaching practice that may assist in improving students' mastery of typewriting skills. Since errors reveal to the teacher how far towards the goal his students have progressed and what remains for them to master, the result of this study may thus make error less prevalent than it is presently.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

In this chapter, the description of the procedures for data collection and identification, classification and analysis of errors in the students work is explained.

3.2 Population

All students who offered typewriting in Colleges of Education and Polytechnics in Nigeria formed the population in this study.

3.2.1 Sample

The sample for the study was drawn from four institutions of higher learning in Borno and Yobe states. These institutions included: Ramat Polytechnic Maiduguri, Borno State, others included College of Education Gashua and Federal College of Education (Technical) Potiskum in Yobe State. A total of one hundred and ten (110) secretarial students at NDII level in the Polytechnic and in Colleges of Education at 300 level trained for 50/100 words per minute in

typewriting and shorthand respectively were used and covered by this research work. The distribution of the one hundred and ten (110) students both male and female studied within the four institutions of learning mentioned above as shown in table 3.1

Table 3.1 Distribution of students of participating Institutions

Institutions	Male	Female	Total
College of Education Gashua	16	12	28
Kashim Ibrahim C.O.E Maiduguri	23	15	38
Ramat Polytechnic Maiduguri	18	11	29
Federal College of Education (Tech), Potiskum	08	07	15
	65	45	110

Table 3.1 above shows that sixty-five of the students were male while forty-five were female.

3.3 Instrument for Data Collection

The test instrument used for data collection consisted of – speed and accuracy task (with 1.5 syllabic intensity) as well as production typing. This instrument was moderated by three experts in the subject at different intervals before being adjudged as appropriate for the level of students studied. All the students took the tests.

Likewise, the students and thirty of the teachers drawn from the respective institutions rated a check-list which comprised thirty-two items.

3.3.1 Test Material

The material which was carefully designed and synthesized was made up of one thousand, seven hundred and twenty-two (1,722) words. It was further designed to challenge students' ability to be observant; to think along and comprehend as they were producing from the test sheets.

To aid students stroking fluency, words that can be typed accurately or quickly and with less difficulty such as different, government, processing etc. were included. This was in addition to the use of word meaning in familiar context; thus, difficulty in understanding them is reduced. The source material was very legible for all the students to read.

3.3.2 Speed and Accuracy Task

This part of the test was a timed-writing exercise for a ten (10) minutes duration – 45 words a minute rate. It contained a total of four hundred and fifty standard typewriting words. The task was guided by factors, namely, the student's attainment level (finger dexterity, the difficulty level of the passage (syllabic intensity, stroke intensity, familiarity with vocabulary, presence of one-hand words, elimination of unusual words; and some proportionate of words with letters like a, x, z; words with double letters and words with difficult letter combinations). Therefore, the average number of syllables in the material was 1.5.

3.3.3 Production Tasks

These consisted of manuscripts (letters), and straight-copy educative material (partly typewritten) requiring knowledge and application of correction signs. The tasks involved reading from unfamiliar handwriting, and application of knowledge of correction signs normally found in production work.

The production rate of 35 words a minute was used; it was the same rate used during the pilot study earlier carried out to test the validity of the test instrument in which the state College of Education, Azare in Bauchi State was used. The students numbering 25 and a speed production rate 26.6. since the

terminal goal for this category of students is 50 wpm with 95% level of accuracy, the shortfall was very significant and in fact shows a great performance gap between the students achievement level and their terminal goal. This did not augur well for the graduating secretaries

Table 3.2 Summary of Test Instrument

Task	Nature	Total Standard Words	Duration (Minutes)	Rate (Minutes)	S.I
i.	Speed & Accuracy	450	10		1.5
ii.	Production;				
	Letter)				
	Straight copy)	1,272	90		1.5
	Manuscript)				
	Reading		20		
		1,722	120		

3.3.4 Check-list

The check-list contained thirty-two items (drawn from the four conventional error categories). Both typewriting teachers and students were served for rating. The research questions stated in chapter one served as the guideline for structuring the checklist.

Each respondent placed a check mark at one of the five points on the scale depending on the magnitude to which a particular error was perceived.

3.4 Administration of Instruments

The researcher visited the affected institutions of learning and obtained time schedule for the above exercise. The check-list was served to the typewriting teachers by their Heads of Department while the students were served by these teachers.

The administration of the test instrument was carried out in the respective institutions with the assistance of the Secretarial teachers. However, there were few cases of typewriter mal-functioning. These cases were promptly attended to with the aid of extra typewriters that were in good working order.

Before the commencement of the tests, the researcher, on each occasion, allowed the students to read through the entire materials during which time, complaints were attended to.

3.5 Data Analysis Technique

The researcher assessed the completed work of the subjects to iden type of errors committed on the typed scripts according to the differe within a school and between schools. The errors were later analyzed, and classified accordingly, based on the four conventional error frequency

distribution pattern – stroking technique, basic knowledge and understanding, manipulation and reading.

In analyzing the data collected, the researcher made use of tables involving error mean, number per students using the error frequency distribution figures as found in the study. The average error per student was computed for both the within and the between error types and error patterns. Tables were used to summarize both the error classifications and the error check-list ratings.

In addition, statistical tests such as H-test (Kruskal Walis), t-test (studentized t-test) and one-way analysis of variance were used. Details are given under Hypotheses Testing.

3.5.1 Error Analysis Technique

All the errors found in the entire study were first identified, and then analyzed task by task according to institution and on male/female grou[illegible]. Further an analysis sheet for adjacent error, transposition error, vertical [illegible]h error and same finger opposite hand error was drawn and letters involve[illegible] further identified.

Likewise, another data sheet was equally drawn from error types such as light strokes, omission of words, etc. with a view to identifying the frequency of

occurrence of particular letters (a – z) in the error type. The spelling error type were equally analyzed to determine the type of mis-spelling committed.

3.5.2 Error Classification Technique

The errors identified were classified into the following conventional pattern (by the use of table): stroking technique, basic knowledge and understanding, manipulative technique and reading. This was done first across the institutions; then according to the two tasks (speed and accuracy as well as production typewriting) and further on male and female groupings. The error pattern mean per students was calculated and used as basis of comparison.

3.5.3 Statistical Analysis Technique

T-Test was used to test the difference between the mean errors made by male and female students in speed and Accuracy Tasks, Production Typing Tasks and the Mean-rating errors of students and those of their teachers.

Furthermore, One-way Analysis of Variance was used to ascertain the difference of mean errors made by the students in the four insti production Typing Task and speed and accuracy task.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

4.1 Research Questions

In this chapter a detail description of the error pattern of the students as well as responses of both the students and teachers to checklist rating items are tabulated and explained, based on the research questions formulated for the study.

4.2 Error Analysis and Classification

The analysis of data in this section is presented under the following sub-sections:

1.2.1 Error pattern of students according to conventional Error category.

1.2.2 Error Pattern of students for speed and accuracy and production Typing Tasks.

1.2.3 Error pattern of Male and Female students for Speed and Accuracy and Production Typing Tasks.

1.2.4 Error Pattern of Male and Female Students according to Conventional Error Category across the participating institutions.

1.2.5 Teachers and students perception of Errors in Typescripts.

All the tables were computed using mean number of errors per students. Terms used such as relatively significant, significant, very significant and highly significant were employed to describe instances where the X values were 1.0 – 1.9; 2.0 – 3.9; 4.0 – 4.9 and 5.0 and above.

4.2.1 Error Pattern of students according to Conventional Error Category

Table 4.1 – 4.4 show the error frequency distribution pattern of the students from all the participating institutions according to the conventional error categories: Stroking Technique, Basic Knowledge and Understanding, Manipulation and Reading.

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Table 4.01: Mean Number of Errors Per students for Stroking Technique Across the participating Institution.

Error Type	Institutions Affected			
	C.O.E Gashua x	K.C.O.E Maiduguri x	Ramat Poly. Maiduguri X	F.C.E(T), Potiskum X
Adjacent Key	7.2	9.4	10.3	8.4
Transposition of Letters.	1.8	1.3	1.4	1.9
Same Finger Opposite Hand	1.3	0.9	1.6	1.0
Omission of letters	4.0	4.5	4.4	4.1
Addition of Letters	0.4	3.2	4.3	0.8
Shadow character	0.7	0.4	1.4	1.8
Vertical Reach	2.8	1.4	2.1	3.2
Light Strokes	2.3	3.9	3.7	2.7
Fingers Out of Position	2.1	1.4	2.7	4.4
Unaligned Words.	1.4	1.5	0.6	1.4
	2.4	2.79	4.51	2.97

In Table 4.1; the study revealed ten error types in stroking technique category, the error mean per students for the adjacent and omission of letters are highly significant. This was followed closely by other error types that are within the

significant range in the following order: light strokes, fingers out of position, vertifical reach, addition of letters. The remaining error types are relatively significant.

Table 4.2 Mean Number of Errors Per Students For Errors in the Basic Knowledge and Understanding Across the participating Institutions.

Error Type	Institutions Affected			
	C.O.E. Gashua x	K.C.O.E. Maiduguri x	Ramat Poly Maiduguri x	F.C.E (T) Potiskum X
Misspelled Words	15.2	11.4	19.3	17.8
Capitalisation	8.1	5.4	7.2	4.4
Punctuation	1.6	1.9	2.6	3.2
Mangle Letters	0.7	-	0.5	2.2
Division of Word	5.4	4.1	0.8	2.4
Indentation	0.6	2.2	0.8	0.4
Erasing	3.2	0.6	2.5	3.4
	4.9	3.6	4.8	4.8

Table 4.2 shows that error mean per students for misspelled error type is highly significant. This is equally true of capitalization error type, division of words and erasing are equally significant in some specific institutions. All the error types are

however significant among all the participating institutions except mangled letter error type.

The specific case of misspelled word calls for special attention, as well as wrong error types.

Table 4.3 Mean Number of Errors Per students for manipulative Technique Error Across the participating Institutions.

Error Type	Institution			
	C.O.E. Gashua x	K.C.O.E Maiduguri x	RamPoly Maiduguri X	F.C.E(T) Potiskum x
Shift Keys	4.3	4.9	8.3	4.2
Extra Letters	3.7	2.5	4.3	4.7
Spacing	3.2	2.8	3.1	4.2
Clashing of Keys	0.6	0.4	1.2	1.3
Overtyping Letters	0.7	1.5	1.0	1.3
	2.5	2.4	3.5	3.1

Table 4.3 above shows that all the error types fall within the highly significant and very significant range among the students from participating institutions with the exception of clashing keys.

Table 4.4: Mean Number of Errors Per students for Reading Errors Across the Participating Institutions.

Error types	Institutions Affected			
	C.O.E Gashua x	K.C.O.E Maiduguri x	Ramat Poly Maiduguri x	F.C.E(T) Potiskum x
Addition of Words/Lines	4.1	4.3	4.4	1.0
Omitted Word(s)	3.3	4.5	5.7	4.2
Omitted Line(s)	1.4	1.3	0.5	0.4
	2.9	3.3	3.5	1.8

The above table shows that all the error types are significant among the students of the participating institutions. Particularly, addition of word(s) lines and omitted word(s) error types are very significant among the institutions exception of all particular case, where it is just relatively significant.

4.2.2: Error Pattern of students for Speed and Accuracy and Production Typing (Tasks 1 and 2)

Tables 4.5 – 4.8 reveal the error me3an per students for both the speed and accuracy task and the production typing tasks as found in the students typescripts according to the conventional error patter category.

Table 4.5 Mean Number of Errors Per Students for Stroking technique Errors

AcrossThe participating Institutions (Task 1 & 2)

Institutions Affected Error Type	Task 1 x	Task 2 x
Adjacent Key	5.2	4.4
Transposition of Letters	1.3	0.9
Same Finger Opposite Hand	0.3	0.7
Omission of letters	1.7	3.0
Addition of letters	0.6	1.4
Shadow (Mission character)	0.5	0.6
Vertical Reach	1.6	1.2
Light Strokes	1.8	1.7
Fingers out of Position	1.9	1.2
Unaligned Words	0.4	0.3
	1.5	1.5

From 4.5 above shows a very close similarity in the intensity of occurrence of the error types committed by the students from all the participating institutions. All the ten error types reveal that the error pattern of the students are common to both the speed and accuracy task as well as production typing task. Besides, the fluctuation in the level of significance vary, but this does not dispute the fact that the students have common error pattern for both tasks.

Table 4.6 Mean number of Errors per students for Errors in the Basic Knowledge And Understanding Across The Participating Institutions for Tasks 1 & 2

Institutions Affected Error Type	Task 1 x	Task 2 x
Misspelled Words	4.2	10.3
Capitalization	0.3	4.7
Punctuation	1.2	3.3
Mangled Letters	0.1	0.1
Division of Words	1.3	0.2
Indentation	1.0	0.0
Erasing	1.1	3.1
	1.1	3.1

Table 4.6 above shows that misspelled word error type is common and significant for both the speed and accuracy and production typing tasks. Error type of misspelled words was found to be more significant than any of the other error types. Besides, the following error types are also common to both task and are significant in production typing: Capitalization, poor erasing, wrong punctuation and wrong indentation.

Generally, all the error types with varying level of significance are common to both tasks.

Table 4.7 Mean Number of Errors Per Students for Manipulative Technique Error Across the participating Institutions for Task 1 & 2

Institution Affected Error Type	Task 1 X	Task 2 X
Shift Keys	1.1	4.4
Extra Letters	1.3	3.1
Spacing	1.2	2.4
Clashing of Keys	0.4	0.7
Overtyping of letters	1.4	3.5
	1.0	2.8

Table 4.7 reveals that with the exception of error type-clashing of keys, the mean number per students for all the other error types are significant. However, this is more noticeable in production typing task where the error mean per students recorded a higher error mean rate.

Table 4.8 Mean Number of Errors Per Students for Reading Errors Across the Participating Institutions For Task 1 & 2

Institutions Affected / Error Type	Task 1 x	Task 2 x
Addition of Words/Letters	1.4	2.0
Omitted Word(s)	0.6	2.5
Omitted Line(s)	0.3	0.4
	0.7	1.6

In table 4.8 above, the result indicates that only one of the error types is not significant in both tasks. However, production typing task recorded higher mean number of errors per students than in the speed and accuracy task.

Based on the summarized result shown by the use of Tables 4.1 – 4.8; it was observed that:

(a) That Tables 4.1 – 4.4 revealed that the study identified twenty-nine (29) error types which falls with the following conventional error pattern category of: stroking technique, basic knowledge and understanding, manipulation and reading.

(a) (i). Table 4.5 – 4.8 revealed that although the twenty-nine (29) error types are common to both the speed and accuracy and production typing; their level of significance was relatively high for the later.

(ii) Though the error mean number per students vary (high in some cases and low in several others); the pattern of the students as revealed by this study is common in both the speed and accuracy and production typing.

(c) since none of the error patterns is peculiar to a particular task, Russon et al. (1973)'s finding that "... letter error made in speed and accuracy will give a listing of all the persisting errors a student will make when typing other materials..." is valid to the extent that it provides information on errors that are constant in typescripts.

Table 4.9 : Error Mean Per Students Across the Participating Institutions for Speed and Accuracy Task

Institutions Affected / Error Type/Category	C.O.E Gashua	K.C.E.O Maid	RamPoly Maiduguri	F.C.E(T) Potiskum
Stroking Technique	1.0	1.2	1.3	2.1
Basic Knowledge and Understanding	1.1	1.2	2.6	1.8
Manipulative Technique	0.7	1.3	1.4	0.7
Reading	1.4	0.6	0.1	0.7
	1.0	1.0	1.3	1.1

Table 4.9 above shows that the summary of error mean per students speed and accuracy task. Errors in the stroking technique as well as basic knowledge and understanding are significant among students from all the participating institutions in contrast to error pattern in the manipulative and reading which shows variation among institutions.

Table 4.10 Error Pattern Mean Per Students Across the Participating Institutions

For Production Typing Task

Institutions Affected Error Type/Category	C.O.E Gashua x	K.C.O.E Maiduguri x	Ramat Poly Maiduguri x	FCE(T), Potiskum x
Stroking Technique	1.2	2.2	1.8	1.3
Basic Knowledge & Understanding	2.7	5.2	5.3	2.7
Manipulative Technique	1.1	2.4	3.5	1.3
Reading	2.4	2.5	1.2	2.5
	1.8	3.0	2.9	1.9

As shown in Table 4.10, the error pattern mean per students for the following error category were significantly high among three of the institutions: Basic knowledge and understanding, manipulative and reading. Furthermore, stroking technique error is generally significant among the students from the participating institutions.

4.2.3 Error Pattern of Male and Female Students for Speed and Accuracy and production Typing Tasks.

Tables 4.11 – 4.18 revealed the error frequency distribution pattern of students according to male and female groupings for the speed and accuracy and production typing respectively along the conventional error category.

Error	Male x	Female X
Adjacent Keys	5.3	4.4
Transposition of letters	1.1	0.6
Same finger Opposite Hand	0.6	0.4
Omission of Letters	2.0	1.9
Addition of Letters	0.7	1.2
Shadow (missing) Character	0.4	0.4
Vertical Reach	1.8	1.6
Light Strokes	2.2	0.7
Fingers out Production	2.0	1.2
Unaligned Words	0.3	0.2
	1.6	1.2

Table 4.11 shows that error mean per male and female students for the adjacent keys was very significant. This was followed by such error types as: Omission of letters, vertical reach and fingers out of position; all of which recorded relatively significant mean among the two groups of students across the participating institutions.

Table 4.12: Mean Number of Errors Per Male and Female Students for Errors in Basic Knowledge and Understanding Across the Participation Institutions – Task I

Error Type	Male x	Female X
Misspelled Words	3.9	3.7
Capitalization	0.4	0.6
Punctuation	1.4	0.8
Mangled Letters	0.3	0.4
Division of Words	0.3	0.2
	1.2	1.1 ..

In Table 4.12 above, the error Mean per students for misspelled words was found to be very significant. Punctuation error type, however, was equally significant among the two groups of students.

The remaining error types within this category recorded a very low error mean per group of the students studied.

Table 4.13:Mean Number of Errors Per Male and Female Students for ManipulativeTechnique Error Across the Participating Institutions – Task I

Error Type	Male X	Female X
Shift Key	1.5	2.0
Extra Letters	3.1	1.7
Spacing	0.4	0.3
Clashing of Keys	0.5	0.2
Overtyping of Letters	1.2	0.6
Margin.	0.3	0.2
	1.1	0.8

In Table 4.13 above, the error types that are very significant are extra letters and faulty use of shift keys. Other error types with the exception of overtyping of letters are not significant to both groups.

Table 4.14 Mean Number of Errors Per Male and Female Students For Reading Error – Task 1.

Error Type	Male X	Female X
Addition of Words/Lines	0.6	1.7
Omitted Words	0.7	0.6
Omitted Line(s)	0.4	0.3
	0.5	0.8

Table 4.14 above shows that for the female students, addition of words/lines error type was relatively significant in contrast to that of male counterpart. However, all the other error types within the category recorded lower error mean per students for both the male and the female students alike.

4.15Mean Number of Errors Per Male and Female Students for Production Typing Task – 2

Error Type	Male x	Female X
Adjacent Keys	4.8	3.9 ..
Transposition	0.6	0.5
Same finger Opposite Hand	0.7	0.5
Addition of Letters	1.3	0.9
Omission of Letters	3.1	3.3
Shadow (Missing) Character	0.7	0.9
Vertical Reach	1.4	0.6
Light Strokes	2.0	0.7
Fingers out of Position	1.0	1.4
Unaligned Words	0.9	0.3
	1.6	1.3

As shown in table 4.15; error mean per students for the Adjacent Keys was very significant for the groups. Also, omission of letters, vertical reach, fingers out of position and light strokes error types recorded significant error mean per students among both the male and the female students respectively.

The remaining error types are equally relatively significant for both the male and female groups.

Table 4.16 Mean Number of Errors Per Male and Female Students for Errors in Basic Knowledge and Understanding – Task 2.

Error Type	Male x	Female x
Misspelled Words	11.4	15.1
Capitalization	4.9	4.2
Punctuation	3.4	2.7
Division of Words	0.3	0.6
Indentation	0.8	1.7
Erasing	3.9	2.5
	4.1	4.4

In Table 4.16 above, the error mean per students for misspelled words was highly significant in contrast to that of capitalization that was equally significant. The two groups recorded high error mean rate for these error types. Likewise, the error mean per male and female students for the punctuation and erasing error types are very significant. Therefore, only two error types recorded relatively low error mean rate per students.

Table 4.17 Mean Number of Errors Per Male and Female Students for Manipulative Technique Error – Task 2

Error Type	Male X	Female X
Shift Keys	3.4	2.8
Extra Letters	2.8	3.1
Spacing	2.7	3.2
Clashing of Keys	0.6	0.1
Overtyping of Letters	5.1	2.4
	2.9	2.3

From Table 4.17, the following errors are found to be very significant to both the male and the female students alike: Shift keys, spacing, overtyping of letters and extra letters. Only one error type recorded a relatively significant mean for the male students (clashing of keys) in contrast to the low mean per student for the females.

Table 4.18 Mean Number of Errors Per Male and Female Students for Reading Errors - Task 2

Error Type	Male x	Female X
Addition of words/Lines	2.5	2.6
Omitted Word(s)	4.0	2.9
Omitted Line(s)	0.6	0.8
	2.3	2.1

In Table 4.18 above, omission/addition of word(s) and line(s) are very significant to both the male and female students from the participating institutions. The error mean per students for these error types are the same in intensity. Only omitted Line(s) error type recorded a relatively low error mean.

From the summary of the error pattern of the male and female students as contained in Tables 4.11 -4.18; it would be observed that:-

(a) adjacent misspelled error types ranked highly for speed and accuracy in contrast to production typing where the following were the order: misspelled words, capitalization, adjacent keys, omitted words, poor erasing, faulty shift key, wrong punctuation, extra letters and overtyping.

(b) The error pattern category are consistent and common in varying rate to both the male and female students alike as shown by the error mean per students for each of the error type that makes up the error category.

(c) Generally, the error mean per male and female students was relatively high in production typewriting than in the speed and accuracy.

(d) Therefore, the error patterns of both the male and the female students are similar. Neither of the group had peculiar error patterns; instead the error types for each are found to be either high or relatively low along the same trend and in a consistent manner.

4.2.4 Error Pattern of Male and Female Students According to Conventional Error Category Across the Participating Institution

Table 4.19 – 4.22 revealed the error pattern of male and female students according to the conventional category for the participating institutions.

Table 4.19 Error Pattern Mean Per Male Students Across Participating Institutions for Speed and Accuracy.

Institutions Affected Error Type/Category	C.O.E Gash X	K.C.O.E Maid X	Ramat Poly Maid X	F.C.E (T) Potiskum X
Stroking Technique	1.1	1.3	2.4	2.1
Basic Knowledge and Understanding	0.5	1.7	2.2	2.4
Manipulative Technique	1.1	1.1	1.3	1.2
Reading	0.6	0.2	0.2	0.3
	0.8	1.0	1.5	1.5

Table 4.19 shows the summary of error per students for the speed and accuracy task. With the exception of reading error that recorded the lowest mean per male students, all the remaining error mean were relatively significant in all the institutions. Particularly, error in stroking technique as well as basic knowledge and understanding were significant in two of the institutions.

Table 4.20: Error Pattern Mean Per Female Students Across the Participating Institutions For speed and Accuracy.

Institutions Affected Error Type/Category	C.O.E Gashua x	K.C.O.E Maid x	Ramat Poly Maiduguri x	FCE(T) Pot X
Stroking Technique	1.4	1.1	1.9	1.6
Basic Knowledge and Understanding	1.2	1.2	2.4	1.2
Manipulative Technique	0.6	0.5	0.7	0.6
Reading	1.7	0.8	0.2	0.2
	1.2	0.9	1.3	0.9

Table 4.20 above shows the summary of error mean per female students for the speed and accuracy task. All the error mean were relatively significant of which one of the institutions where error in reading was not significant.

Table 4.21 Error Pattern Mean Per Male Students Across the Participating Institutions for Production Typing

Institutions Affected Error Type/Category	C.O.E Gashua x	K.C.O.E Maid X	Ramat Poly Maiduguri x	FCE(T) Pot x
Stroking Technique	1.3	1.4	2.2	1.3
Basic Knowledge and Understanding	1.4	3.4	2.6	3.2
Manipulative Technique	1.5	3.2	3.8	1.4
Reading	1.1	3.2	1.6	1.5
	1.3	2.8	2.5	1.8

Table 4.21 above shows the error mean per Male students for all the error patterns across the participating institutions are significant. Particularly, errors in basic knowledge and understanding and manipulative technique are highly significant in three institutions.

Table 4.22: Error Pattern Mean Per Female Students Across the Participating Institutions for Production Typing

Institutions Affected Error Type/Category	C.O.E Gashua x	K.C.O.E Maid X	Ramat Poly Maiduguri x	FCE(T) Potiskum x
Stroking Technique	0.9	1.9	1.2	0.6
Basic Knowledge and Understanding	3.2	5.2	5.0	2.9
Manipulative Technique	1.4	2.6	3.1	1.5
Reading	1.5	2.8	1.2	2.2
	1.7	3.1	2.6	1.8

Table 4.22 shows that error pattern mean for errors in basic knowledge and understanding, manipulative technique and reading are significantly high among the females in three of the institutions. Furthermore, stroking technique error and reading errors are likewise relatively high in another set of three institutions respectively.

In the light of the findings summarized in Tables 4.19 – 4.22; it would be observed that:

(a) Error distribution pattern of both the males and females for speed and accuracy do not differ for the between students and the within institutions.

Table 4.23: Mean Scores of Students and Teachers Responses To Questionnaire Items (Error Checklist Ratings)

Institution	Students	Teachers
College of Education, Gashua	2.23	3.61
Kashim College of Education, Maiduguri	2.34	3.62
Ramat Polytechnic, Maiduguri	2.42	3.74
Federal College of Education (Tech) Potiskum	2.33	4.16

Table 4.23 shows the summary of the ratings by both the students and teachers of the error checklist items on Likert Scale. From the results shown above, the level of awareness of the students do not correspond to that of the teachers on the possible impact of errors as regard mailability of transcript. Thus, dis-similarity exists in how both groups perceive the implications of errors in typescripts.

(b) Error distribution pattern of both the male and female students for production typing do not differ for the between students and the within institutions respectively.

(c) Therefore, none of the error frequency distribution pattern is peculiar to particular institution(s). the error pattern are fairly and evenly distributed among the students of the participating institutions.

4.2.5: Teachers and Students Perception of Errors in Typescripts.

Table 4.23 shows that the summary result of the teachers and students response to the rating of thirty-two (32) error check-list items. The table shows data relating to how both groups view typewriting errors normally found in typescripts.

HYPOTHESES TESTING

4.3: Introduction:

In the section, five hypotheses were tested at (t X = 0.05) level of significance. The statistical tests used were the H-test (Kruskal-Wallis) and t-test (studentized t-test).

Null Hypothesis I: There is no significant difference between the mean errors made by male and female students in production tasks.

Table 4.24: Test on mean errors made by male and female students in speed And Accuracy task.

Subject	N	X	SD	DF	t-value	t-crit	Decision	P
Male	65	1.100	0.45	108				
Female	45	0.975	0.21		0.50	1.645	Ho Retained	0.6343

To test this hypothesis, t-test statistics was used. The summary of the computation is shown in table 4.24 above. From the table, the observed t-value (t-0.50) was not significant at X = 0.05 level of significance with df = 108, hence the Null Hypothesis was retained. Thus, there is no significant difference between the mean errors of male and female students in the speed and accuracy tasks

Null Hypothesis II: There is no significant difference between the mean errors Made by male and female students in production typing tasks.

Table 4.25: Test on mean errors made by male and female students in Production typing tasks

Subject	N	X	SD	t-value	DF	P
Male	65	3.025	1.167	0.35	108	0.7371
Female	45	2.700	1.433			

To test this hypothesis, t-test statistics was used similarly. The summary of the computation is shown in table 4.25. From the table, the observed t-value (t-0.35) was not significant at X = 0.05 level of significance with df = 108. hence the Null Hypothesis was retained. Thus, there is no significant difference between the mean errors made by male and female students in production typing tasks.

Null Hypothesis III: There is no significant difference in the mean errors made by The students in the four institutions under the study with Respect to speed and accuracy tasks.

Source	Df	SS	MS	F	F
Between	3	4.650E-01	1.550E-01	0.51	0.6845
Within	106	3.665	3.054E-1		
Total	109	4.130			

To test this hypothesis, one-way Analysis of Variance was used. The summary of the computation is contained in table 4.26 above. The f-value was found to be 0.51. At X = 0.05 with df = 3, df2 = 106. the computed f-value (0.51) was found to be not significant. Hence the Null Hypothesis was retained.

Null Hypothesis IV: there is no significant difference in the mean errors made by the students in the four institutions under the study with respect to production typing tasks.

Table 4.27: Test on mean errors made by students in the four institutions under Study in production typing tasks.

Source	Df	SS	MS	F	P
Between	3	6.002	2.001	0.77	0.5340
Within	106	31.280	2.607		
Total	109	37.282			

To test this hypothesis, one-way Analysis of variance was used. The summary of the computation can be seen in table 4.27 above. From the table, the observed f-value was not significant (P 0.05). Hence the Null Hypothesis was retained. In other words, the f-value was found to be 0.77 and was not significant at X = 0.05 level of confidence with df = 3 and df2 = 106.

Null Hypothesis V: There is no significant difference between the mean-rating Errors of teachers and the students.

Table 4.28: Test on mean-rating errors of teachers and students.

Subject	N	X	SD	t-value	Df	P
Teachers	30	3.832	0.1799	4.54	132	0.0039
Student	110	3.395	0.0695			

To test this hypothesis, t-test statistics was used. The summary of the computation is shown in table 4.28 above. From the table, the observed t-value (t-4.54) was significant at X = 0.05 level with df = 138. Hence the Null Hypothesis was rejected. It is therefore concluded that there is significant difference between the students rating of errors and those of those of their teachers.

4.3 *Discussion*

The results of the hypothesis tested support the findings of the study that there are no differences in the error pattern of the male and female students from the participating institutions for both the speed and accuracy task as well as production typing task.

It is important to note that significant differences do not exist in the errors made by the male and female students in both the speed and accuracy task. This is supportive of Russon et al. (1973's) finding that letter errors made in time-writing will give a listing of all the persisting errors a student will make when typing other was that errors a student will make when typing other materials. However, a striking discovery from the study was that errors in timed writing did not adequately reveal deficiencies inherent in the learners.

Since the results of the test indicate that there were no statistically significant difference for the between and the within error patterns of the students in both timed-writing (speed and Accuracy) and production typing tasks, it suggests that none of the error category has been so persistent or consistent either within or among the institutions as a whole. Thus, the error patterns are not sex-based and importantly, all the students make consistently, similar errors that were evenly and fairly distributed along the conventional error pattern category. However, since the study did not focus on whether mature pupils, bright and dull students differ in their error types, it is impossible to know whether error pattern is also a function of maturation and academic achievement.

However, the test results do not support that there are no significant differences within the distributions of responses of students and between the students and teachers responses on errors that make a type script unmailable.

Therefore, the two groups are not in complete agreement that errors they have rated could have significant impact in rendering a typescript unmailable. This is further a clear indication that teachers are more aware of errors that can make typescripts unmailable.

All other null hypotheses tested did not reveal any significant differences for either the speed and accuracy task or production typing tasks completed by the male and female students from the respective institutions studied.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The research involved analysis and classification of errors made in typewriting by secretarial students of four selected post-secondary institutions in Borno and Yobe States of Nigeria. Accordingly, the findings from the study were summarized and discussed. From the findings and discussions, conclusions were made, from which recommendations were then drawn. Suggestions as well as the pedagogical indications of the findings were then made for future research.

.1 Summary of Findings

A total of one hundred and ten students were used in the study. Also, thirty (30) Secretarial teachers participated in the error checklist rating. The analysis of the errors were guided by the research questions formulated for the study.

The errors found in this study led to the discovery of 29 error types that were then classified into four broad conventional error categories of stroking techniques, basic knowledge and understanding, manipulative technique.



Error pattern in the basic knowledge and understanding category posed the greatest problem. Most of the error types in this error pattern recorded significant error mean per student. This was followed by error pattern in stroking and manipulative technique. Reading error recorded the least error mean rate per student among all the participating institutions.

The errors identified in the basic knowledge and understanding were characterized by deficiency in linguistic/communication skills, while the errors in stroking technique were characterized by adjacent keys, letter omissions, uneven stroking, vertical and transposition error types.

Errors in the manipulative technique were characterized by faulty use of shift keys, extra letters and overtyping of keys (resulting from adjacent keys, vertical reach, transposition and opposite hand finger errors). The reading errors consist of addition/omission of words(s)/line(s).

The error checklist analysis supports the assertion that both the students as well and the teachers are aware of the errors that make a letter/typescript unmailable.

The results of the tests conducted confirmed that none of the errors analyzed is peculiar to particular institutions or groups of students. Likewise the phenomenon of error, their types as well as category were fairly and evenly distributed among the students from the participating institutions.

5.2 Conclusions

Based on the results from this study, the following are the key findings and conclusions.

(a)The study has conclusively revealed that students error frequency distribution pattern in typewriting are in error pattern category of: stroking technique, basic knowledge and understanding, manipulation and reading. These patterns are consistently the same in all the institutions irrespective of sex of the students for both the speed and accuracy as well as production typing. Likewise, the error pattern thus conform with the conventional error category.

(b).The error pattern in the basic knowledge and understanding as well as stroking technique category predominate among the students. First, the students

are lacking in linguistic/communication skills. Secondly, they are lacking in keyboarding mastery and thus do not possess good basic typing technique for high operative skills and proficiency on the typewriter.

(c) Of the error types discovered, misspelled words and adjacent key stroke error types persist among all the students. This is in addition to vertical reach and opposite hand errors.

(d).The students are deficient in the handling of the manipulative aspect of the typewriter, such as carriage return, use of shift keys, space bar, improper hand positioning and machine handling. Hence their typing fluency was impeded.

(d). Most of the students are lacking in proof-reading skill. The outcome of the results of this study confirmed that students are not conscious of the traits of mistakes they have committed. The pervasive nature of some of the error types attests to this conclusion.

(e). There were no significant differences in the error pattern of the male and female students for either of the tasks: speed and accuracy as well as production typing. The two groups involved in the study show evidence of similarity in their error pattern and error checklist ratings.

(f). The study conclusively proved that graduating NCE students in Secretarial department are not measuring up to the terminal goal of the course, hence on the job entry requirements. Generally, there was that lack of desire in most of the students to type faster and accurately, too.

(g) The study conclusively proved that graduating NCE students in Secretarial department are not measuring up to the terminal goal of the course, hence on the job entry requirements. Generally, there was that lack of desire in most of the students to type faster and accurately, too.

5.3 Recommendations

In the light of the findings from this study, the following recommendations are made:

(1). Typewriting teachers should use teaching methods that appeal to as many senses as possible to increase the number of stimuli to correct student responses. They should teach through the use of as many senses as they can because students learn correct stroking, by seeing the demonstrator's hand and arm position, by hearing a "clean-cut' strokes, by looking at the keyboard and getting the 'feel' of the reaches for fluency in touch typewriting. The appeal that involve seeing are usually effective and audio-visual aids such as film and slide

projectors, overhead projector and transparency can be usefully engaged for this purpose.

(2). Teaching emphasis should concentrate on the development of proper stroking technique of students through the imitation of the teachers purposeful demonstration (one that is geared towards the achievement of the instructional goals and which as well addresses the inherent weakness of the students). Likewise, effort should be directed toward developing in the students a concept of what the expert patterns; and an analytical mind on the action pattern that is necessary for imitation to gain perfect control on the machine. This is more so because it is quicker and clearer to show how than to tell how. Furthermore, students always gain confidence and are motivated by the action of teachers who can perform and give tangible evidence of the mastery of the subject of typewriting.

(4). Teachers should make provision for constant refinements in technique (correct stroking and operational technique) with emphasis in the following order; technique, speed and then accuracy. With good technique skill, speed and accuracy becomes a natural concomitant. To achieve success, the teacher should first, determine the weaknesses of the students by observing them at work rather than their work as a basis of getting correct feedback. Secondly if

necessary they can re-demonstrate the basic skills, such as carriage return, space bar, margin release, back-spacing, shift key operations and machine handling to improve responses until mastery is attained by the majority of the students; thus smooth continuity in machine operation becomes inevitable.

(5). While developing the basic skill of the students, teachers should give enough emphasis to occupational skill so that the students standard and progress can be satisfactorily directed towards meeting the job market requirements.

Furthermore, actual business material should be solicited for and used to supplement class drills and to measure the students progression towards the occupational goal.

(6). Students errors are the symptoms, therefore the teacher should work together with their students in error analysis to identify errors that are constant or variable in nature. They should then work on an appropriate technique to tackle the problem and there by reduce error occurrence.

(7). For classroom learning activities, the teacher should constantly provide the students materials and opportunity to improve their communication skills through drills on vocabulary, word usage, spellings, tenses and other aspects of English mechanics. This will supplement and reduce the inadequacy of the textbook materials for developing linguistic skills of the students.

(8). the teacher should ensure that teaching/learning atmosphere are business like. The creation of environment devoid of fear and anxiety toward successful performance can be achieved through the creation by the teacher, positive attitude in the way students are encouraged for each small improvement they made.

(9). Teachers should make conscious effort on giving the students intensive instruction on proof-reading and erasing skills. This will create in the students an awareness of their errors and thus the desire to want to reduce the frequency of the phenomenon of errors.

(10) teaching emphasis should cover the development in students, the ability to following rubric, marginal and specific instructions. This is to reduce the copy reading errors and lessen the extent of student carelessness at complying with performance directives.

(11). The teacher should diverse individualized instructional method especially for error prone students to assist in reducing the phenomenon of stroking technique error.

(12).During the period of refinement of movements, typewriting teachers should make sure that constant reminders are given to the students on the elements of

good technique by displays in the textbooks, on transparencies, or on film, or by demonstration of facsimile copy placed on the bulletin board.

5.4 Implications For Classroom Instruction

The identification analysis, classification and the discussion of the problems has implications for the training of secretarial teachers (and particularly, the teaching of typewriting) in Nigeria.

It was apparent that enough has been done in the students mastery of keyboarding, stroking and the manipulation of the typewriter. In effect, the students are been passed to the job market as mere 'copyist'. There is the need to re-state the performance objective of the teaching of typewriting to incorporate important element of English usage/communication skill in addition to a re-appraisal of the course structure to re-emphasize good mastery of keyboard and proficiency in key stroking. Therefore, the pedagogical implication include:

1. The motions that help and hinder learners in speed and those that improve accuracy are not the same. Therefore, for proper stroking technique it would be classroom period to each alternatively. For example, drills that will improve speed should be given in the first lesson of the week for 30 minutes of the class; this should be alternated on a daily basis such that the teacher can use drills that will improve accuracy.

This is because the reduction of error comes from the use of "contrived" copy while the typist refines motions that frequently produce errors.

2. At the early keyboarding stage the teacher should make effort to devote 1/6 of the class period twice a week to the training of students in the non-manipulative aspect of the typewriter. This should be through provision of special drills requiring use of shift key, space bar, carriage return, back spacer, and margin release key.

3. A lesson each week for ¼ of a class period should be devoted by the teacher for spelling. The teacher can rather easily programmed the lesson by using a duplicated sheet for student responses on which each word is correctly spelled at the right margin one double space below the line of which the learner attempts to spell the word from dictation.

4. For improving knowledge of typewriting usage and English mechanics, the teacher should devote ¾ of a class period a week for lesson containing resource "set" of standardized grammar and usage tests and modules of instructional materials from English and Business English sources. Thus the goal of individualized instructions could as well be achieved.

5. the ultimate goal of vocational typewriting is to produce errorless copy. The teacher should give a lesson on proofreading twice a week for ¼ of the class

period each. The first should be typographical errors and mechanics while the second should be largely devoted to correctness of the content.

For example, the teacher should provide a sample page containing errors of various kinds (typographical, spacing with punctuation marks, omission, etc) and ask students to demonstrate their proofreading ability by circling all error with not more than one error overlooked. Students then proofread their typewritten work against proof-guide sheets and submit their self-evaluated work to the teacher along with their proof sheets, on which they have recorded their ratings.

6. Teachers should allow students twice in a month to work under untimed conditions, for the production of "usable copy" requiring that problem be typed in complete agreement with conditions and containing no uncorrected errors on either the original or the carbon copies. Thus, work containing uncorrected typographic errors, misspellings, incorrect and word division, incorrect punctuation, or other deviations from correct typewriter usage can be declared unacceptable (unmailable). Erasures on both original and carbon copies must be un-obstructive

7. For students who have made several attempts and cannot produce mailable letters because they cannot proofread, teachers should create avenue once a month for them of exchanging with their classmates, a series of say five letters

which have been typed and of correcting all errors found. Thus, pairs of students can have opportunity to question each other, teach each other, and learn to work cooperatively until they are self-reliance enough in proof-reading to work alone again.

(8) The management of institutions of learning mounting Secretarial studies in the light of the findings are required to

(a). Provide resource room and demonstration equipments such as audio-visual machines, transparencies, overhead and slide projector, film projector, demonstration stands and materials necessary for the teachers' attainment of typewriting objectives for occupational skill.

(b) .Arrange industrial attachment proramme undergraduates such that by the beginning of third semester they would have acquired a feel of what the business demand and thus be motivated towards achieving occupational goal for typewriting instruction.

5.5 Suggestion For further Research

This study covers only the analysis and classification of errors made by graduating students of secretarial studies in typewriting. A study on the pre-entry English Language results and linguistic errors in typewriting can be done to find out whether any relationship exists between a pass in English Language and accuracy in copy-reading/reproduction in typewriting.

(1). this same study can be done on whether bright and dull students differ in their error types.

(2). Furthermore, research can be done to find out the adequacy of instructional textbooks/drills for error remediation.

(3). Also, a study on whether students who type at high speed will make more error than those who type more slowly can be conducted to determine their type and nature.

(4). Finally, since this study covered only four institutions with one hundred and ten students, this number may be considered small to arrive at any conclusively generalization to both the national diploma and the higher national diploma graduates. This same research can be replicated using a wider geographical coverage of graduating NCE Secretarial students. It can be replicated for the purpose of serving as a guide in designing remedial programme/drills for error remediation.

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AHMADU BELLO UNIVERSITY, ZARIA
DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION

OUR REF:

DATE: 14 June, 1993

TO WHOM IT MAY CONCERN

STUDENT'S RESEARCH PROJECT

We are happy to inform you that our M. ED. Program on Business Education provides for students' research activities at the final year of their studies. This is, in fact, an attempt to make our teaching realistic and practical oriented to the Nigerian situation. Such researches are on the problems related to Business and other Vocational Education in Nigeria.

As a result, the M. ED. students of this Department are required to collect relevant data from different sources – public and private institutions and individuals of different walks of life in the country.

The data collected are kept strictly confidential and are used only for academic purposes. We firmly believe that you will extend your full co-operation for the success of this attempt to making our University Education more suitable and applicable to the needs of the country.

Mr. PEREKPO, CLARENCE EBITIMI is an M.ED. student of Business Education. He is soliciting your co-operation and assistance in the process of collecting data required for his approved research project:

ANALYSIS AND CLASSIFICATION OF ERRORS MADE IN TYPEWRITING BY SECRETARIAL STUDENTS OF FOUR SELECTED POST SECONDARY INSTITUTIONS IN BORNO AND YOBE STATES OF NIGERIA

The Department of Vocational and Technical Education will remain ever grateful to you for any extent of your support and co-operation in this regard.

HEAD OF DEPARTMENT
OSHOSU Audu
UNIVERSITY ZARIA
Dept. Voc. & Tech. Educ.
Ahmadu Bello University,
ZARIA
VOCATIONAL TECHNICAL EDUCATION

SEARCH INSTRUMENT

AHMADU BELLO UNIVERSITY, ZARIA - NIGERIA
Department of Vocational & Technical Education

TYPEWRITING

Time Allowed: 2 Hrs

STRUCTION

1. This examination comprises of three parts namely; Speed & Accuracy, Production and Error-Checklist.

2. Type your registration number on every used sheet.

3. Begin each task on a fresh sheet of paper.

4. Complete the Error-Checklist rating at the end of the test.

5. At the completion of the test instrument and error rating, please hand over your typescripts as well as the error check-list sheets to the invigilator(s).

6. The question paper must be submitted along with the typescripts.

ucture of the Test Instrument

art 1 : Speed & Accuracy 10 minutes

art 2 : Production:

Letter)
Straight Compy Manuscript) 90 minutes

eading Time 20 minutes

t Test Instrument Activity: Error Checklist rating.

Task 1: Speed and Accuracy (Time Allowed: 10 minutes)

INSTRUCTION: Type the following passage ONCE ONLY in double line spacing and on foolscap paper provided. Use 60-character-space-line.

.....1.....2.....3.....4.....5.....6

Word processing changes the way office tasks are performed. For many years a secretary reported only to one manager or to small number of managers. In a word processing office, however, he is no longer expected to be a jack of all trades who handles typing, filing, dictation, copying, computing, and various other tasks. The word processing employee works as part of a team, handles tasks for a number of managers, and specializes in nontyping or typing tasks. Two kinds of workers are usually found in word processing office systems - administrative secretaries and correspondence secretaries. Nontyping tasks such as copying, taking shorthand, and answering the telephone are handled by the former. Typing assignments such as reports, statistical tables, and memorandums prepared from handwritten drafts or machine dictation are handled by the latter.

Another feature of the word processing office is the use of automatic typing equipment. It was a product designed by the IBM of Germany. It allows a typist to type (or record) a document, correct and revise it without retyping, and save it for use at a later time when it may be needed for use or up-dating. Trained secretaries in

IBRAHIM IBRAHIM

most cases are placed in charge to ensure smooth and efficient operation.

In addition to word processing function, in large offices, the secretary's duties might also include that of supervising the work of other clerks. He leads others, directs and checks their work and behaviour in and around the office so that they comply with laid down rules of the establishment. He guides so that they produce the desired quantity of work within the desired time; and see to the need of the workers under him from time to time.

The age of computer and word processing is here; they are in different sizes and can perform wide range of tasks. The personal computer is now a way of life in some business units and even homes. It aid in processing fast, accurate data for immediate or future use.

Word processing is now a challenge for the worker who enters the business world. It provides an opportunity to learn new skills, use existing skills, and explore new careers. The word processing office has been called the office of the future. The future is now!

(450 words : S.I = 1.5)

sk 2: Type a copy of the letter below for despatch today to The Executive Secretary, National Board for Technical Education, Opposite Kaduna State Library, Off Hospital Road, Kaduna, Kaduna State. Any method of display consistently used will be accepted. Correct word spelling errors (sp). Our Ref:NASE/CON/SED/Vol 1.8

ar Sir,

I forward this letter to you Unbehalf of the ~~NASTE~~ tional Executive Committee of the National Association of ecretarial Educations in respect of the above issue.

The association's membership cut across the polytechnics & Colleges of educ. Traing Secretarial Manpower r the Nig. economy. We are a registered association ~~under the land perfetual act of Nigeria~~

Some few wks back, this assoc had a National nference on the theme "TRAINING SECRETARIES FOR THE ESE 2000." The level of discussion and scholarly research papers Presented by members was Commendable as ey revealed the present and future manpower demand r secretarial workers.

Of note and who might be of interest ~~to~~ was the... onsensus opinion among professionals and experts alike, at their ability to combine shorthand and word processing skills are now in demand by a substantial number of bus. orgns. sampled ~~from~~ ~~all~~ ~~over~~ the country.

We as a Collective body are most willing to address this challenge; and has in effect approved the urriculum review Committee's submission for yr boards consideration & possible approval.

he Conference noted that the successful Implementation of this new reality is Possible only through the cooperation

of Yr board as well as its readiness to address the issue of inadequate facilities and equipments in most of our insts., and which did created a lots obstacle.

I have therefore been mandated by the National Exec. Committee of Nbte to request Yr board to place order for (a) Electronic word Processing typewriters & (b) Word processors and (c) softwares in sufficient q's for immediate distr. to all fed. Polys and Coll. of Educ and state Ministry's Controlled similar Insts. that indicate willingness to meet the Cost as soon as precible against the 1990/91 ac. sess.

A few no of Computer manufacturers operations in Nig. have been Consulted with the assurance of providing the software and expertise necessary for Maintenance of the machines.

It is our belief that you will act w despatch in the Interest of Education for all our citizenry.

Yours in quest for relevance

Jibril Kola Kalan
National Sec.

POLY. SEC. EDUCATION(T)
OFFICE AUTOMATION

regarding
of us

...copy of the matter below on an A5 size of paper. Set appropriate margin at both end and type in double line space.

Shorthand and Word Processing - the Winning Combination for the Productive Secretary

The typical office environment has undergone a metamorphosis in recent years. The computer, electronic calculator, and word processor are ~~now~~ standard equipment in today's offices/ ~~not merely projections for the "office of the future."~~ These developments have improved drastically office productivity/ information processing equipment is here to stay since businesses can no longer remain competitive without it. As technology continues to change office procedures, student must be adapt with skills required by employers of the year ~~two thousands~~.

~~Today's secretary need keyboarding, communications, office management, and information processing skills.~~ However, many educators disagree concerning the relevance of shorthand skills to a secretarial career in today's job market. This controversy stems from the illusion that information processing equipment has replaced shorthand as the key to office productivity.

office productivity and automation ⑤ → initial caps + u/s

We must take our cues from business. Managers realize that productivity depends on people - sophisticated automated office equipment is practically useless without conscientious, competent employees to operate it. Certainly, these are the kinds of work attributes any manager would appreciate in a secretary.

business secretarial demands ① → initial caps + u/s

There is evidence that business has not given way to this illusion and neither should business educators. ~~Personnel Managers continue to~~ confirmed ② (per Gregg 1985) that given two otherwise equally qualified candidates, they would choose a secretary with shorthand skills over one without them. Why? Because business understands that shorthand contributes to office productivity in ways that automated equipment can't. ~~Since shorthand~~ prepare students for jobs in the modern office, the value of shorthand as a marketable job skill that succeeds in tandem with word processing skills must be stressed.

Word Processor Capabilities ②

The secretary with good shorthand and communications skills in addition to word processing skills has the ability to fill the gap between word processor capabilities and the requirements of the modern office. It must be remembered that the primary goal of an office is to provide information, and shorthand is, after all, a mode of information processing. Someone with shorthand skills can process the spoken word ~~with~~ to a readable document, something word processors simply can't do. Although many word processing units can check and correct spelling, they can't determine correct word choice or assure that a document has been recorded accurately, completely, and in the proper format.

The capacity of word processing equipment is limited to handling the information that is keyboarded into it by the secretary. There is a continuous need for the secretary who can record minutes of meetings, take telephone and other office messages quickly and accurately, and record business correspondence for those employers who make effective use of shorthand dictation.

future of shorthand ④ Initial caps & u/s

It's clear that shorthand will continue to be a job skill that managers seek when hiring secretaries. Good shorthand skills are a decided asset for taking dictation and minutes of meetings of manufacturing, businesses and the attorneys' offices.

~~There is no denying that~~ The age of computerized information processing is here. We must prepare our students to operate microcomputers and word processors and to be adaptable to the exciting developments to come in the office of the future. At the same time, our students should understand the complementary functions that shorthand and word processing serve.

It is obvious that the individual with both shorthand and word processing offers an employer more in terms of increased skills, flexibility, and productivity.

Secretary.

Pls arrange these paragraphs as numbered. The heading for item 2 should read Word Processor Capabilities and Shorthand SKILLS

AHMADU BELLO UNIVERSITY, ZARIA - NIGERIA
Department of Vocational & Technical Education

T Y P E W R I T I N G

(RESEARCH INSTRUMENT)

MARKING SCHEME
for Speed & Accuracy/Production Tasks

Executive Secretary postmarked

The coference noted that the successful implementation of this new reality is only possible through the cooperation of your board as well as its readiness to address the issue of inadequate facilities and equipment in most of our institutions, and which could create a big obstacle.

I have therefore been mandated by the National Executive Committee of NASE to request your board to place order for

(a) Electronic Word Processing Typewriters

(b) Word Processors and

(c) Softwares

in sufficient quantities for immediate distribution to all the Federal Polytechnics, Colleges of Education and State Ministry's controlled similar institutions that indicate willingness to meet the costs as soon as possible against the 1990/91 academic session.

A few number of computer manufacturers operating in Nigeria have been consulted with the assurance of providing the softwares and expertise necessary for maintenance of these machines.

It is our belief that you will act with despatch in the interest of qualitative education for all our citizenry.

Yours in the quest for relevance.

Yours faithfully

JIBRIL KOLA KADIR
National Secretary

Task 2: Production (Straight-Copy Manuscript)

.....1.....2.....3.....4.....5.....6

Shorthand and Word Processing - the Winning Combination for the Productive Secretary 07 19

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metamorphosis in recent years. The computer, electronic 41
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Business Secretarial Demands 182

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Word Processor Capabilities and Shorthand Skill 294

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We must take our cues from business. Managers realize that productivity depends on people - sophisticated automated office equipment is practically useless without conscentious, competent employees to operate it. Certainly, these are the kinds of work attributes any manager would appreciate in a secretary.

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The age of computerized information processing is here. We must prepare our students to operate microcomputers and word processors and to be adaptable to the exciting developments to come in the office of the future. At the same time, our students should understand the complementary functions that shorthand and word processing serve.

ERROR CHECKLIST

AHMADU BELLO UNIVERSITY, ZARIA - NIGERIA
Department of Vocational & Technical Education

INSTRUCTION

Please respond to error checklist items 1 - 32 overleaf, choosing among the options given, the one that best express your views regarding effect of errors on mallable scripts. Your responses will be treated in strict confidential and used for academic purpose only.

As soon as you complete your rating, please hand over the checklist sheets to the invigilator(s).

Thank you.

PERSONAL DETAILS

Please tick (___) the appropriate option.

1. Status: Student (___) Teacher (___)

2. Sex: Male (___)

Female (___)

ERROR CHECK-LIST

In typewriting, errors are penalized; and the degree of penalty depends on the type of error or mistakes that has been made. The underlisted errors are commonly found in typescripts. Please indicate your agreement or disagreement with the statement (1 ~ 32) below against each of the errors mentioned. The key to your responses are as follows:

SD	=	Strongly Disagree
D	=	Disagree
UD	=	Undecided
A	=	Agree
SA	=	Strongly Agree

The underlisted errors, if found on typescripts, can make the work unmailable.

1.	Adjacent-key error (e.g. typing r for t)	SD	D	UD	A	SA
2.	Failure to note letter sequence (e.g. teh for the	SD	D	UD	A	SA
3.	Transposition of letters, words (e.g. oq for go)	SD	D	UD	A	SA
4.	Same Finger Opposite hand error (e.g. koor for door)	SD	D	UD	A	SA
5.	Omission of letters (e.g. tedous for tedious)	SD	D	UD	A	SA
6.	Addition of letters (e.g markett for market)	SD	D	UD	A	SA
7.	Shadow (missing) character (e.g. ay for may)	SD	D	UD	A	SA
8.	Vertical reach error (e.g. typing e for d)	SD	D	UD	A	SA
9.	Heavy Strokes (e.g. said for said)	SD	D	UD	A	SA
10.	Light Strokes (e.g. tat for that)	SD	D	UD	A	SA

11.	Fingers out of position (e.g. I ,au gp for I may go)	SD	D	UD	A	SA
12.	Unaligned of words/letters (e.g. wᵃs for was)	SD	D	UD	A	SA
13.	Missylabication - mis-spelled words (e.g. excises for exercises)	SD	D	UD	A	SA
14.	Inaccurate form of expressing numbers (e.g. 4 for four)	SD	D	UD	A	SA
15.	Incorrect capitalization (e.g. raised capital - ᵗhe for The)	SD	D	UD	A	SA
16.	Punctuation error (e.g. use of comma instead of semi colon etc)	SD	D	UD	A	SA
17.	Mangled form (e.g. ltetres for letters)	SD	D	UD	A	SA
18.	Incorrect division of word (e.g. ne-wsletter for news-letter	SD	D	UD	A	SA
19.	Incorrect Indentation	SD	D	UD	A	SA
20.	Lack of Uniformity in paragraph indentation	SD	D	UD	A	SA
21.	Imperfect left margin	SD	D	UD	A	SA
22.	Imperfect shifting for capital (shift keys)	SD	D	UD	A	SA
23.	Extra letters and extra spaces	SD	D	UD	A	SA
24.	Spacing errors (e.g. lack of; too many spaces, spaces within a word	SD	D	UD	A	SA
25.	Clashing of keys (e.g. fr for fr	SD	D	UD	A	SA
26.	Overtyping of letters or characters e.g. as for as)	SD	D	UD	A	SA

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27. Uneven margin

20. Untidy (poor) erasing

29. Omitted word (e.g. X may home for I may go homo)

30. Wrong word ending (e.g. corrocaion for correction

31. Omitted line or lines

32. Misspelled words (e.g.) concensus for consensous)