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Concept Paper

A Study of Keyboarding Skills: A Necessary

Contextual Teaching and Learning Workplace Skill

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Introduction

Keyboarding is an essential and fundamental component in education; it links skill development to career awareness and provides a strong foundation for success in early development and retention of skills essential to perform job tasks that are computer related to our ever so growing technological advanced information age. Since the educational reform movement of the 1980's has recognized the importance of computers in education. Shuller, (1989) noted that "A Nation at Risk" (1983) calls for the high school students to:

(a) understand the computer as an information, computation, and communication device;

(b) use the computer in the study of the other basics and for personal and work-related

purposes; and

(c) understand the world of computers, electronics, and related technologies.

Keyboarding connects the relevancy to the contextual teaching and learning for all students who will ever use a computer at school, at work, or at home. Contextual teaching and learning is a part of our K-12 educational system that motivates students to want to learn. It is the relevancy of how the subject that is being taught connects to the real life of the student that is learning. It equates how real life is seen in the eyes of the student. Contextual teaching and learning is a conception of teaching and learning that helps teachers relate subject matter content to real world situations; and motivates students to make connections between knowledge and its applications to their lives as family members, citizens, and workers and engage in the hard work that learning requires (TeachNet, 2009). "Students learn best–and retain what they have learned–when (1) they are interested in the subject matter and (2) concepts are applied to the context of the students' own lives" (ATEEC Fellow, 2000).

The application of contextual learning to American classrooms was first proposed by John Dewey, who advocated a curriculum and teaching methodology tied to the child's experiences and interests, and who deplored the separation of education into mind and body, and of school programs into academic and occupational tracks (CET, 2004). Keyoarding skills is one of those many career and technical skills that is taught in high school that connects students to the real world of technology either at school, work, or for personal use for the rest of their life. It makes learning how to use a computer keyboard a necessary, relevant, and a contextual skill.

Background

Skills are defined by Merriam-Webster by the ability of one to use one's knowledge effectively and readily in execution of a performance. Skills in the workplace are those performances that are required of a specific job. Keyboarding skills is a necessary, essential skill needed in any job where work is performed using a computer. It is without saying that we live in the digital age where 96% of businesses use computers (Bunnell, 2009). As a Business Education teacher and per Bunnell (2009) keyboarding specialist in Utah we agree that it is as essential today as is the literacy of reading, writing, and arithmetic. The National Technology Competencies Rubric agrees that it is a necessary skill and includes accurate keyboarding as an important technology skill (ISTE, 2006). Keyboarding is not a required contextual teaching and learning course in Florida's K-12 public education, although it is a necessary integrated skill associated with the use of computers in research and typing papers. Students are not required to learn the essential performance and effective workplace skill of keyboarding, a skill that is necessary in 96% of all workplaces.

Problem Statement

The problem is the K-12 educators lack the understanding of how well a formal keyboarding course helps students acquire keyboarding proficiency versus relying on other informal acquisitions of

self-teaching keyboarding skills when using a computer in and out of school. The international

technology standards mandate the integration of technology using computer generated products

such a presentation done in Microsoft Office PowerPoint, typed research papers in Microsoft Office

Word, and brochures in Microsoft Office Publisher. Mandated integration of technology that does

not require the teacher to teach the technology, but to integrate it. The international technology

standards do not mention one word of teaching proper techniques in keyboarding or even mandate a

formal course in keyboarding. We are only required to integrate technology (ISTE, 2006). In my 10

years of teaching, 90% of the times, the integration of technology require students to come to me to

ask me how to use the technology requested by another teacher, and not a student that has taken my

course. Teacher's and students prior knowledge of a particular subject is as important as having

prior knowledge of computers, as well. It is mandatory that a KWL of technology is implemented

and as important as the subject itself.

Without the support of other teachers insisting that students use proper keyboarding

techniques, Laurie Patterson notes that a keyboarding program is apt to fail (Walters, 2006). The

Illinois Computing Educators Computer Update Bulletin for Educators newsletter also notes that

the one step to technology is teaching and emphasizing basic appropriate keyboarding skills. If we

are to integrate technology, then who is teaching our students keyboarding, especially if they are

not taking a course that teaches formal keyboarding (Walters, 2006). Linda Star writes that very

little attention is paid to keyboarding and they do not teach keyboarding as an essential skill (Star,

2001). The paper written by Shuller (1989) believes that keyboarding was seen as the ability to

input information accurately so that it may be manipulated and by NBEA (1987) definition focused

on input rather than output (Shuller, 1989). The International Technology Standards do not include

keyboarding as a necessary skill required standard; therefore it has been eliminated in many schools

in Florida. Many educators in Osceola and Marion Counties in the State of Florida (Interviews, 2008), believe that the integration of technology in schools teach those skills without enrolling in a sequential course that offers proper formal training.

Purpose of the Study

The purpose of the study is to analyze student statistical significant differences in the formal and self-regulated taught keyboarding skills in and out of schools. The study will analyze the students in a school in small rural county in the State of Florida. It will propose a subjective questionare, objective observation, and skill testing of all students that participate in the study; comparing students keyboarding techniques, speed, and accuracy. The skill testing will include technique observations and timings, which represent gross words per minute. The final outcome of this study will enable the understanding of how important a formal course in keyboarding is necessary in providing the integration of technology and train students a workplace skill necessary in today's workforce.

Research Questions

1. Are there statistically significant differences in effective performance of contextual workplace keyboarding skills between students who have taken a formal keyboarding course to those who are self-taught?

2. What patterns do students in K-12 public schools learn effective performance of contextual workplace keyboarding skills?

Limitations

This study is limited to one rural high school within Levy County, Florida. This study is designed to determine factors contributing to necessary contextual workplace skills that should equal to necessary contextual keyboarding graduation requirements. This study will look at ways to

implement policies to include keyboarding contextually within a K-12 curriculum as a mandatory workplace skill.

<center>Definition of Terms</center>

Contextual Teaching and Learning: Any of a series of methodologies on instructional delivery which actively engage students in the learning process. This would include such approaches as constructivism, cognitive apprenticeship, situated cognition and applied/active/authentic learning that is relevant to all individual in a real world application.

Skills: The ability of one to use one's knowledge effectively and readily in execution of a performance.

Workplace Skills: Are those skilled performances that are required of a specific job.

Keyboarding skills: Necessary, essential skill needed in any job where work is performed using a computer applying proper technique, speed, and accuracy.

Contextual Ontologism: a rigorous and exhaustive organization of some knowledge domain that is usually hierarchical and contains all the relevant entities and their relations.

<center>Significance of the Study</center>

The significance of the study will help policy makers, administrators, and educators to better understand the implications of teaching formal keyboarding to all students, a relevant skilled that is 96% a necessary workplace skill (Brunnell, 2009). The improvement within the study will increase student contextual learning of workplace skills, as well as reading, writing, and motivational skills to build and construct meaning using the tools that allow them to construct meaning and build new technologies without the hindrance of the "hunt and peck" method that is slow and time consuming.

Review of Literature

The importance of keyboarding skills has been established since the typewriter was invented in 1875 by Christopher Sholes with the assistance from Amos Densmore. The typewriter was invented to take over the long tedious cumbersome hand writings of writers and lengthy, business documents. This connection to typing skills is a necessary workplace skill that is relevant to an independent learner who wants to qualify for a typist job, one who types with speed, as well as accuracy. In the 1880s and 1890s typewriters were generally sold to offices where potential typists were learning to type from scratch (Liebowitz & Margolis, 1996). Typewriters didn't enter schools until around the 1890's. The first study on typewriters in elementary school was done in 1932 by Ben D. Wood and Frank N. Freeman. The study focused on students class-room performances with the introduction of typewriters. Teachers noted that it stimulated wider reading, increased independent writings, and motivated students in their schoolwork (Cothran & Mason, 1978). The study was cited by others to help provide evidence that also proved to increased fluency in elementary age children 4 to 5. The study was re-evaluated in 1934 by Cecilia E. Unzicker, providing more evidence of increased reading scores, better listening skills, increased pride in their work, more concern for work, greater interest in schools, better punctuation and capitalization, higher rate of comprehension, gains in vocabulary development, and an overall positive feeling about using the typewriter (Cothran & Mason, 1978).   The study connects the relevant use of the typewriter as a tool in an educational environment providing students the desire to improve by other connections in reading, writing, and motivation, the contextual ontologies of education. The typewriter has had a major effect on business office procedures, technology, and workplace skills that require the same typing skills. This is without saying that studies today compare student's achievement with the use of computers and applying similar typing skills, or what is now called

keyboarding skills, also improved student motivation. Moving from typing skills to computer keyboarding skills in the 1980's created a new technology contextual ontology of the educational environment. In a study by Ravitz, Mergendoller & Rush (2002), student achievement excelled based on students computer use.

In the study by Russell, M. & Haney, W. (2000) they demonstrated to prove that student achievement is consistent with the efficient and effective use of keyboarding skills. The use of technology has advanced greater than it has grown in educating our youth is such skills. The article states that computers have doubled from 1984 to 1993. There are more computers in the classroom, and more assignments that require the use of a computer to access researching the Internet. In 1995 they compared computerized testing versus paper writings. The study found that students responded better using a computer than hand written responses (Russell & Haney, 2000). Two years later a study by Massachusetts using MCAS and NAEP in language arts, math, and science, found students who typed 20 words per minute was much better on computer than on paper. Utah establishes that students in the 5th grade should type 25 words per minute and students in 8th grade should be able to type 45 words per minutes (Utah Department of Education, 2009). The Computing for College Careers offered as an elective in the State of Florida require students to type 55 words per minute. The results state that maybe test results are being under estimated with mostly hand written tests. Even test are not equivalent to the technology that this generation has only known of, not ever knowing when a computer never existed. The results also state that if students had low performing keyboarding skills, computer aided test would decrease performance. Technology has become a popular prescription for improving education.

The purpose of learning keyboarding in the State of Florida allows for the opportunity to be offered in middle school students a business keyboarding and career planning class or in high

school taking the business educational core that could include: Computing for College and Careers, Keyboarding and Business Skills/Computer and Business Skills, or Introduction to Information Technology. The high school student performance standards only including developing keyboarding skills to enter and manipulate text and data, as well as the language art skills to correct spelling, correct punctuation, correct grammar, and correcting formatting that appeals to readers (FLDOE, 2009). The objective of learning how to keyboarding provides an excellent way to introduce students to computer literacy and improve one's ability to interact with computers. "When you know how to type, you do not have to search for the key to press and, you can concentrate on the application at hand (Prof Ware, 2009). Students will be able to develop correct touch typing technique, key contextual data quickly and accurately, demonstrate operational computer skills, and accurately key 25 words per minute (Prof Ware, 2009).

The need for learning computers or practical keyboarding skills is a requirement in 96% of today businesses (Bunnell, 2009), although it is not a necessary requirement for graduation in the State of Florida (FLDOE, 2009). Although, many states like Utah make it a contextual basic literacy skill as necessary as English, Mathematics, and Science (Utah State Office of Education, 2009) as an actual graduation requirement. If it is such a necessary skill in the workplace than contextually it is a necessary, relevant skill that should be a required skill is taught to all students in K-12 school. It is also is a skill that helps promote contextually learning among other subjects that require the integration of technology. The research done by Wood & Freeman, 1932; Unzicker, 1934; Cothran & Mason, 1978; Ravitz, Mergendoller & Rush, 2002; and Liebowitz & Margolis, 1996; and Russell, M. & Haney, W., 2000; have shown that keyboarding skills increase student achievement in writing and reading, as well as motivation within the gaps brought about since "A Nation at Risk" was written in 1983. A gap that has continually grown.

Laehn, Lang, O'Leary, & Sommers, (2003) in a keyboarding longitudinal study notes that 90% of business documents are electronic, students lack formal keyboarding training, ideas can be recorded 3-5 times the rate of handwriting, reduces time a PC's, increases confidence in software use, and increases job prospects. The study also notes that keyboarding is a cumulative skill where if it can be effectively learned early on at one level will heavily depend on how much more work will be learned later on. As with the theory of Jean Paige a behavioral theorist that could train pigeons, so can we train human skills such as keyboarding. Keyboarding incorrectly is just as much a part of training that is difficult to correct (Laehn, Lang, O'Leary, & Sommers, 2003). The importance of proper technique forms the foundation for successful touch keyboarding. Bad habits are associated with "hunt and peck" methods that become ingrained and difficult to develop further competency, it is important to develop good keyboarding habits right from the start (Saskatchewan Education, 1991). How people learn according to the experts is when learning occurs in context, is active, is social, and is reflective (The Pennsylvania State University, 2007). "Tell me, I forget. Show me, I remember. Involve me, I understand." This Chinese proverb suggests that learners have to be mentally active during learning activities, make connections between the new knowledge and existing knowledge, and construct meaning from their own experiences (The Pennsylvania State University, 2007).

CORD, 2009 established 10 self-test questions to ask yourself if you are contextual teaching. The first question asks "Are new concepts presented in real-life (outside the classroom) situations and experiences that are familiar to the student?" Teaching keyboarding skills in the classroom as a requirement is requiring a student to contextually learn a real tool used in the world of work. The teaching of keyboarding skills has been proven by research to increased learning, achievement, and motivation in much other contextual ontologies of education. The second

question asks "Are concepts in examples and student exercises presented in the context of their use? The context provides to continued exercises, examples, and practice throughout the rest of high school, college, work and home. The third question asks "Are new concepts presented in the context of what the student already knows?" The new concept of keyboarding skills exemplifies reading and writing skills contextually through examples given and research that proves to apply what they already know. In this study the relationship to CORD, 2008 has created applicable questions that can be answered in applying keyboarding skills as a relevant contextual real life skill needed in school, work and in personal life. It increases the self-regulation drive to learn more and motivate more in reading and writing. Keyboarding provides a solution to increasing student achievement and ready to work skills that students are so lacking when they enter the workforce.

<p style="text-align:center">Theoretical Framework</p>

In the theory of Vygotsky we learn that the "Zone of Proximal Development" includes cognitive apprenticeship, situated cognition, and the ZPD reflect the power hierarchy by affirming the teacher's role while apparently attempting to also endorse the primary constructivist principle of self-created knowledge (Marsh & Ketterer, 2005). Keyboarding skills lead to the development of such contextual learning and is a skill that continues to construct knowledge through the use of the keyboarding skills learned in prior drill and practices of learning that includes authentic, applied, and situational types of contextual learning. The drill and practice of learning keyboarding allows for effective techniques, ergonomics, and keying with accuracy. Vygotsky's learning theory of constructivism is the process where one constructs meaning, stimulating wider reading and increased independent writing and motivations. Learning typing not only increases many educational objectives but provides practical workplace skills of typing, reading and writing.

As one progresses through high school, college, and work one continues to practice the keyboarding skills learned appropriately in a career and technical business program. Computers that provide keyboarding skills is authentic learning, it is practical learning, it is cooperative learning (communicating effectively among groups), and it is workbased learning (Hong, Ki, & Song, 1999). Contextual learning implies "What are we learning?" and "How can I use this practically?" Contextual learning is rooted in a constructivist approach to teaching and learning on how the learner construct new meaning and knowledge from previous learned material while interacting within its environment. Learning computers in school is a contextual learning tool that all students that will use keyboarding as a result for their future goals, in work, in college, or in personal life.

Technology is the driving factor for the contextual learning of proper and accurate keyboarding skills. Appropriate keyboarding skills, accuracy and speed allows for learning to take an opportunity of a lifetime that will used for a lifetime. Context is induced in the knowledge domain of learning appropriate technology tools and by the operational setting of appropriate tools used in the real world. The tools that induce technology is a keyboard, much like a nurse must learn how to use a blood pressure pump (Westera, 2009). The necessary tools used contextually in the workplace appropriately, although the misuse of one tool could be more hazardness to your health than the other, but still a tool to use with proper technique and accuracy. The contextual ontologies are a rigorous and exhaustive organization of some knowledge domain that is usually hierarchical and contains all the relevant entities and their relations. It is the relationship of belonging in a technological world, it explains that a keyboarding is just as an important part of the computer as the computer itself (Columb, 2009).

Methods

Research Design

 Methods will include qualitative and quantitative studies to include surveys, observations, and interviews. The method will include a qualitative approach to survey questions and a quantitative approach which will measure the observation of skills in keyboarding and the techniques applied in an educational setting.

Population and Sample/Subjects

The qualitative sample populations are the 500 students enrolled in Chiefland High School in Levy County, Florida. The qualitative sample population will complete a survey questionnaire to allow for equal distribution of observed students in the quantitative part of the study. The quantitative sample population will be 100 of those students in a comparison study of formal training to those students who are self-taught.

Data Collection Instruments or Methods

Students will take a survey questionnaire relating to keyboarding skills learned in and out of school, programs used and knowledge of computer software applications. Questions will also allow students to discuss their opinion about the use of those skills contextually. The survey will enable the research to provide an accurate distribution of student's observations that are imperative for an accurate data and unbiased results.

Data Collection Procedures

The survey will be administered by their English instructor. The interviews and direct observations will be administered by two trained business education teachers. The criterion is based on training of educators in a formal keyboarding class.

Analysis of Data

Surveys will be examined not only to determine qualitative purposes but to provide qualitative data in relationship to today educational system. The observation will be examined statistically to perform and accurate analysis of the differences or equalities that meet formal keyboarding standards, as well a theoretical perspective of a student processing information the best possible way to increase learning.

Summary

"Keyboarding skills are no longer vocational in nature, but necessary to communicate, extract, and disseminate information. Poor or no keyboarding skills will severely hamper people in their quest for knowledge (Ethel, 2004)". It is not enough that the workplace readiness skills checklist only suggest the demonstration of simple keyboarding skills (ABE, 2004). It is not enough that The State of Florida Ready to Work certification program does not include keyboarding skills as a skill that is tested, therefore there is a flaw in what Florida believes is a ready to work skill. It is not enough that an interview with a local community college professes that students need keyboarding, specifically mechanics who now use a computer keyboard daily. It is not enough that some school districts such as Marion and Osceola County have stopped teaching keyboarding skills altogether. It is not enough that we are not doing enough to teach contextual, necessary real life skills that promotes lifelong learning. Keyboarding is a key to life, work, and play.

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Negative full-scale gain error is the deviation of the specified negative full-scale code (7168 for the 16-bit level) from the ideal VIN+ −̂ VIN−̂ (−̂250 mV) after the offset error is adjusted out. Signal-to-Noise-and-Distortion Ratio (SINAD) SINAD is the measured ratio of signal to noise and distortion at the output of the ADC. Then the device is connected. case ESP_BT_GAP_DISC_RES_EVT: ESP_LOGI(SPP_TAG, "ESP_BT_GAP_DISC_RES_EVT"); esp_log_buffer_hex(SPP_TAG, param->disc_res.bda, ESP_BD_ADDR_LEN); for (int i = 0; i < param->disc_res.num_prop; i++){ if (param->disc_res.prop[. i].type == ESP_BT_GAP_DEV_PROP_EIR. Espressif. break; case ESP_SPP_DISCOVERY_COMP_EVT: ESP_LOGI(SPP_TAG Dual 5.8W Audio Power Amplifier Circuit, AN7168 datasheet, AN7168 circuit, AN7168 data sheet : PANASONIC, alldatasheet, datasheet, Datasheet search site for Electronic Components and Semiconductors, integrated circuits, diodes, triacs, and other semiconductors.