Tobacco Risk Reduction Among secondary School Students Using "Different Learning Methods"

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M.D. Degree in Public Health

BY

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Definition of Terms

Since the advent of microcomputers and instructional software for education, computer-assisted instruction **(CAI) ,** computer-assisted learning **(CAL),** or computer-based instruction **(CBI)** has provided a supplemental instructional method in schools. There are not precise definitions of the terms **CAI**, **CAL**, and **CBI.**

CD-ROM : (compact disc/read-only memory)

(CAI) : Computer-Assisted Instruction
Is a generic term that includes a range of forms, varying according to different implementations of computer technology to assist instruction by using tutorials, simulation/interactive thinking, word processing, conferencing, games and other activities ***Fletcher-Flinn & Gravatt, 1995,Chimezie, 1987.***Modern implementation of CAI includes more advanced hardware and software technology, and allows for greater student interaction, and greater stores of information ***Christmann, Badgett, & Lucking, 1997.***

(CAL): Computer Assisted Learning
Includes more sophisticated programs which incorporate tutorial instruction ***Wright & Marsh II, 1999-2000.*** Many **CAL** systems also include record keeping and management systems. However, **CAL** also goes by a variety of other names, such as CAI and CBI. With respect to **CBI** (Computer Based Instruction), it places emphasis more on individualization of the learning process to accommodate the needs, interests, current knowledge, and learning styles of the students.
Computer-assisted learning effectiveness : has also been variously defined. Which may include academic (e.g. achievement) or non-academic (e.g. learning motivation) outcomes, or efficiency (e.g. reduced learning time), or cost-effectiveness. Such being the case, embedded in the terminology of CAL are, in fact, variously defined constructs. The focus of this study is on the effectiveness of CAL in raising Health awareness and Knowledge acquisition outcomes.

(CBI) **Computer Based Learning** Software consists of tutorial, drill and practice and, more recently, Integrated Learning Systems ***John Schacter, 1999.***

(ILS) Integrated Learning System Is a far more specific term and such software can be differentiated from other computer-delivered curriculum content in that it has additional components, namely an extensive record and management system. However, more recently, an ILS is seen as having the ability to present learners with a question, process the answer and then give feedback before selecting an appropriate subsequent question ,It has three main components :

- **Curriculum Content:** This comprises an extensive range of tutorial, practice and assessment modules for a substantial part of a pupil's curriculum with coverage across a range of curriculum, subjects and levels of ability.

- **Pupil Record System:** This maintains information on every pupil and records the pupil's levels of achievement.

- **Management System:** This links and controls the flow of data and may perform some or all of the following functions:

    1. interpretation of pupil responses in relation to the current task;
    2. updating of pupil records;
    3. choice of pathways through the curriculum content;
    4. delivery of the appropriate sequence of learning modules;
    5. provision of feedback to pupils and teachers ***Brown, 1997, p.7.***

Graphic: Any visual representation that the authors use to highlight, clarify, illustrate, summarize, or complement their text ***Mcgrath, 1995.***

Interactive Multimedia: The use of the computer to present and combine text, graphics, audio and video with links and tools that let the user navigate, interact, create, and communicate ***Hofstetter 1994.***

Still Visuals: Images, including text, displayed on a computer monitor without the illusion of movement in space ***Rieber, 1990***

Motion Graphics: Images, including text, displayed on a computer monitor with the illusion of movement in space ***Rieber, 1990***

Affective Component : "The feelings about the attitude object which influences its evaluation" ***Burns, 1997, p. 456***

Attitude : " Evaluated beliefs which predispose the individual to respond in a preferential way, i.e. attitudes are predispositions to react positively or negatively to some social object" ***Burns, 1997, p. 456.***

Behavioral Component : "Reflects the actual behavior of the individual" ***Burns, 1997, p. 456.***

Cognitive Component : " What a person believes about the object, whether true of not" ***Burns, 1997, p. 456.***

Prior Computer use : For the purposes of this study, ‘prior computer use’ refers to the number of times students used word processing, spreadsheets, internet, e-mail and

computer games during the week prior to the administration of the initial computer attitude questionnaire.

Technology Integration : "A process whereby computers and other technologies are used routinely across grade levels and subject areas as students and teachers perform their work. In this process, education technology is no longer the objective of study, it is the means for conducting inquiry.

Technology :"Despite the popular inclination to equate computers and other high-tech electronic tools with the term *technology*, the definition includes two components: a *product* - the tool that embodies the technology - and a *process* & endash; the information base of the technology" ***Peck, & Dorricott, 1994, p11.*** In short, technology is a tool to support the tasks of teaching and learning" ***Eib & Mehlinger, 1998, p12***.

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Soad Abd- El- Megid

DEDICATION

To my Father,

Mr. Mohamed El Sayed Abdel Megid,

To my Mother,

Mrs. Bedoor Galal Abdel Megid

And

My Eldest Brother,

Dr. Eng. Sayed Abdel Megid,

whose untimely deaths occurred
while I was studying in USA.
May His souls rest in perfect peace.

To my

Lovely Husband, Prof. Tarek

who never lost hope and patience,
but unselfishly sacrificed his time and pleasure
to support me spiritually, morally, and financially
throughout this journey.

Finally,

To my God given Children,

Sarah, Sondos, and Basma

whose patience and understanding
inspired me to stay focused.

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List of abbreviations

CAI	Computer Assisted Instruction
CAL	Computer Assisted Learning
CBL	Computer Based Learning
CD-ROM	Compact Disc / Read – Only Memory
ILS	Integrated Learning System
CB	Curriculum Based
MENA	Middle East and North Africa
UAE	United Arab Emirates
GYTS	Global Youth Tobacco Survey
ETS	Environmental Tobacco Smoke
CDC	Center for Disease Control and Prevention
UK	United Kingdome
UICC	University of Illinois at Chicago Circle
EMTCP	Eastern Mediterranean Tobacco Control Profile
DNA	Deoxyribose Nucleic Acid
LE	Egyptian Pound
WHO	World Health Organization
BSE	Breast Self Examination
HBM	Health Belief Model
PMT	Protection Motivation Theory
TPB	Theory of Planned Behavior
HAPA	Health Action Process Approach
UNICEF	United Nations International Children Emergency Fund
UNFPA	United Nations Fund of Population Activities
HIV/AIDS	Human Immunodeficiency Virus / Acquired immunodeficiency Syndrome
SCT	Socio-Cognitive Theory

USA	United State of America
MOHP	Ministry of Health and Population
MOE	Ministry of Education
CBT	Computer Based Technologies
NIH	National Institute of Health
CAQ	Computer Attitude Questionnaire
SAQ	Smoking Attitude Questionnaire
AI	Assertion Inventory
SPSS	Statistical Package for Social Science
ANOVA	Analysis of Variance
MPC	Mean Percent Change
STD	Sexually Transmitted Diseases

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ABSTARCT

Two Health Education Materials were developed (booklet format versus CD-ROM program) the formal as an example for traditional method, however, the latter as an example for innovative school-based curriculum methods that focuses on integrating media, audio, and visuals into classroom settings. It instills critical thinking skills in students as a method of deterring the influence of the multimedia on tobacco use. The development of the material was based on "Socio-Cognitive Theory" **SCT** and "Trans Theoretical Model" **TTM**. The study have been implemented with four experimental High Schools at East Nasr City District. The curriculum contains eight lesson plans, which were implemented with 10 classrooms for the 10th grade students. The program was implemented during "Activities" and "Computer" classes in one semester. The curriculum was conducted in 11-week, forty-five minute sessions presented once a week during the 2004-2005 school year.

Lessons were divided into two phases; Phase I: Health & cost and decision making process, and Phase II: Peer & Community Advocacy and the "trip of quitting and values". Phase I strategies consisted of raising students' level of awareness regarding local and national prevalence of tobacco use; educating students about the health and social consequences of tobacco use; teaching students how to analyze and decode media messages; and allowing students to produce their own decision based on cost benefit analysis. Phase II strategies included encouragement of the students in raising values and involving in self help through trip of tobacco quitting and experience engagement in the community and school tobacco free activities saying no for tobacco and peer educator training. Student's knowledge, attitude, and behavior were assessed by standard questionnaires which were adapted to suite the age and developmental stage of the students. The anonymous questionnaires were administered one week before the implementation of the curriculum (pre-test) and one week immediately after the completion of the curriculum (post-test). Two follow-up sessions were conducted at six-month and one-year time periods.

The primary goal of this research project is to evaluate the relative effectiveness of an anti-tobacco Multimedia Health Education Curriculum using **(CAL)** among a selected group of high school students. Secondary goals include: (1) to decrease the prevalence of tobacco use among students; and (2) to decrease the number of students who believe tobacco use is acceptable by strategically applying normative education.

The participants were divided into 4 groups, 1st group received pre- post test without intervention, 2nd group received booklet format as traditional education,3rd

group received CD-Rom,4th group received both CD-Rom plus booklet. A pre-post-test quasi-experimental design was conducted to evaluate the effectiveness of the CD-Rom among first year secondary school students. Change in knowledge, attitude, and behavior among 400 students who participated in the study. from 2004 through 2005. A total of 396 students participated in the study. The school response rate was 100% (sample of 4 schools) were surveyed, the student response rate was 99% and the overall response rate was 99%. In addition, a qualitative usability study was conducted among students using focus groups.

Research results has shown that **(CAL)** is an effective tool for delivery of a prevention program due to its accessibility and availability in most schools. Elements of interactivity and expert-trusted guidance were identified as appealing to most participating students. In addition, the use of pictures and graphics in conjunction with text proved to be useful in reaching students with varied learning styles.

Changes in self perception, attitude, and knowledge about tobacco smoking were assessed. Results indicate significant increase in knowledge, attainment of more positive attitude and behavior change in (CD-Rom and Booklet group) which demonstrate a critical step in the rational development of new school-based prevention strategies. In addition, self efficacy for those exposed to CD-Rom in groups 3 and 4 compared with other groups. Also, for those exposed to the CD, an increase in the interest for the learning process was observed compared to other groups.

This study suggests that appropriately-designed **CAL** courseware can be an effective instructional method in the classroom setting specially when combined with a printed format, and that the health educational application of it has the potential to be efficacious. Hopefully, this study will serve as a catalyst for further research into the use of **CAL** courseware in the Health Education at School.

Key Words : smoking prevention, students, Computer Assisted Learning Programs, Interactive Multimedia, Secondary School Curriculum.