Hands-on-Skills Enhancement DVD for Complementing Electrical Students’ Laboratory-Based Exercises in School-Based Assessment in Jamaica

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Internationally the job market everywhere is highly competitive, thus requiring persons with competent requisite technical skills to be considered.

Technical and Vocational Education and Training (TVET) programmes are usually established to prepare its products with adequate knowledge, skills and attitude necessary for entering the job market as well as for higher studies.

In order to effectively achieve these objectives, TVET programmes depend heavily on the availability and adequacy of training equipment, tools and material supplies.

Very unfortunately in some of the Technical High Schools in Jamaica some of these lofty objectives are far from being realized.

Some of the reasons include by are not limited to:
- poor teaching and learning conditions in the Technical High Schools
- ill-equipped or total absence of instructional resources among others (Mackenzie, Yalams, Davis and Samuda, 2012).
Where TVET labs are ill equipped, the situation tends to compel instructors and teachers to resort to unconventional and approaches to instructional delivery of their courses.

Also, the dearth of equipment and material supplies for hands-on-skills training in any laboratory-based subject can be very challenging, especially for students preparing for various kinds of lab-based assessments or examinations.

For transition from the high school to tertiary education in the Caribbean, students are required to possess good grades in the Caribbean School Examinations Certificate (CSEC/CXC) or Caribbean Vocational Qualification (CVQ).
These examinations require comprehensive preparations in general education as well as in the TVET components.

The preparations include both summative and formative assessments, one of which is the School-Based Assessment (SBA).

The SBA usually focuses on those areas often featured in the externally conducted examinations (CSEC/CXC, CVQ or Caribbean Proficiency Exams (CAPE)).

In all these, teachers are expected to provide guidance to students in ensuring that there is a clear understanding of the requirements of the external examination, as this assists the students in optimizing learning for the examinations.
INTRODUCTION (CONT’D)

- However, reports have it that, in the past, and even currently there are on-going arguments indicative of the fact that, in the schools, the SBA assignments are not properly conducted by students.

- The role of teachers in the preparation also remains questionable (Bennett-Facey and Lawrence, 2012).

- One reason associated with these is linked to lack of observing the assessment ethics on the part of the teachers.

- Other factors have to do with the ill-equipped and deteriorating conditions of the learning environments.
The CXC (2011) report for Electrical Technology clearly indicates that, the number of candidates who wrote the CXC examination in 2011 was 3526, but that the overall performance resulted in only 25.83% who obtained Grade II.

And that many Electrical Technology students do leave the high schools and enter the tertiary education without fully understanding the topics covered in the Electrical Technology syllabus for that lower level.

This is a signal to a potential problem in the system.
This study was therefore set to:

- develop an instructional DVD that would assist Electrical Technology students and teachers in the hands-on exercises when preparing for the SBA and other external examinations

- Validate and test the developed DVD on selected students

- Compare achievement scores of the students based on the pre and post tests conducted
The study was guided by 4 research questions, however; only one of them is discussed in this paper.

Research question: How does the Electrical Technology students’ achievement scores compare based on the pre and post tests conducted?
METHODOLOGY

- The study adopted an “instrumentation design” often employed in Research and Development (R&D) studies

- Summary of the steps involved in developing the resource include:

  - Writing, editing and validating the production scripts, planning the on-location activities, recording of the lab exercises and producing the demo version of the DVD

  - The developed demo version of the DVD was further modified and tried out on selected 30 (10th and 11th grade) Electrical Technology students preparing for CXC & CVQ

  - The sample was drawn from three High Schools within St. Catherine Parish in Jamaica; and coded as Schools A, B & C
From each of these 3 schools, 10 participants were randomly sampled and involved in the study.

The sampled students were first given pre-test based on the content of the curriculum, which addresses two aspects of lab-based exercises used in the developed DVD.

After an interval of days, they were taught in another setting with the aid of the developed DVD and were given a post test.

The grades for the two tests were computed and compared and discussed in this paper.
RESULTS

Students’ Achievements Scores in the Pre and Posttests in School A
RESULTS

Students’ Achievements Scores in the Pre and Posttests in School B
Results

Students’ Achievement Scores in the Pre and Posttests in School C

![Bar chart showing students' achievement scores in the Pre and Posttests in School C.](chart_image)
Based on the results of the study, it was noted that there was:

- Improvement in students’ scores in the post achievement tests than in their pretests from all the three schools

- This can be implied that viewing the DVD made some impact in the increased achievement of the scores noted
If this DVD is eventually made available to schools, and effectively used, it will assist students preparing for SBA and other lab-based exams in Electrical Technology.

It also has the potential to help learners have better appreciation for the subject and attain better grades.

The initiative could be used to motivate TVET teachers create and use videos in delivering their lessons.
It can be concluded therefore, that an Instructional DVD for Complementing Electrical Technology Students’ Practical Ability in SBA Laboratory Exercises at the CSEC Level in Jamaica has been:

- developed
- validated and
- tested on sample of the targeted population
The study recommended thus:

- This initiative should be encouraged and expanded to cover other areas of TVET
- The current product be further validated by testing on a larger sample including those from the Secondary and Technical High Schools in Jamaica
After further validation, it is recommended that the final version of this DVD be developed on a commercial scale and distributed to students at the secondary level to enhance their learning and practical ability.
SELECTED REFERENCES


Denise Bennett-Facey and Richard Lawrence (2012). Development and Validation of an Instructional DVD in Electrical Technology for Complimenting Students’ Practical Ability in School Based Assessment Laboratory Exercises at the CSEC Level in Jamaica

THANK YOU...