



Research Article

THE ACCEPTABILITY OF THE DEVELOPED MOTOR CONTROL TRAINER AS INSTRUCTIONAL DEVICE IN TEACHING INDUSTRIAL ELECTRICITY AT IFUGAO COLLEGE OF ARTS AND TRADES

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ABSTRACT

This research study was focused on the planning development and evaluation of a motor control trainer in order to ensure more effective teaching and learning for Industrial Electricity in the Ifugao College of Arts and Trades, Lagawe, Ifugao. Specifically, it sought to assess how the students, technology teachers and industrial electricity practitioners evaluate the acceptability of the developed Motor Control Trainer as instructional device in teaching Industrial Electricity in terms of its design and functionality. The descriptive method of research was used in this study in order to determine the acceptability of the developed Motor Control Trainer. It utilized a 4-point Likert-type questionnaire in order to gather the data needed in this study. The mean and t-test for independent samples were used as statistical tool to treat the data gathered and to test the hypothesis posted in this study. It was concluded that the developed Motor Control Trainer is highly acceptable instructional device in teaching Industrial Electricity in terms of its design and functionality.

INTRODUCTION

Authorities in the academe believe that the pursuit for distinctive competencies has always been the acme of all efforts and intentions of every educational institution. As pointed out by the Philippine Association of State Colleges and Universities (PASUC), every institution of higher learning should strive for excellence along their major areas of concern through instruction, research production and extension, in order to achieve the desired degree of relevance. It is apparent that today the future will bring about more sophisticated challenges and complexities for educational institution to hurdle. Complexities may arise on account of rectification of new programs, and the corresponding increase in the volume of information and knowledge brought about by the quantum leap in science and technology. There has been an ever-increasing demand for functional knowledge along taxonomy of various disciplines to enable to workforce to become more competitive in the fast changing technological milieu. If we are to foster effectively the in-house capability of the country, Philippine industry, schools, and society should study every segment of the employable population to have access to the latest technologies so as to contribute directly to the production of globally competitive manpower.

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Curriculum planning is developed by applying the principles of curriculum and development. In a rejoinder to manpower and educational planning, Harrison (1984) stated that: "To achieve a stable condition... is to balance between demand and supply of workforce. The program and training has a close relation with the national manpower training. Basically, the program is planning to use resources in accordance with the needs of development in order to be tuned in with the development rate." On the higher goal of education, former Minister of Labor and now Senator Blas F. Ople (1983) proposed that: "While the labor market should influence that kind of emphasis our secondary education should have, the goal of higher education, more than providing graduates with additional skills and enabling them to specialize to improve their job prospects, is to influence the labor market towards what values and priorities should be." For the country to become like South Korea, which is now one of the economic tigers in Asia, a structural shift in manpower demand from the labor sector particularly from agriculture to industry is needed. Former labor secretary Ma. Nieves Confessor (1992) in a report to then President Fidel V. Ramos underscored: "There is a need for the country to undertake a deliberate effort to transform the current stock into highly skilled, competitive, world class, industrial workers." The President then, instructed DECS Secretary Ricardo T. Gloria to shift education emphasis to technology skills needed for the country's modernization requirements of industry, there will be no meaningful advancement. The present

trend in technical and Vocational Education emphasizes the use of scientific training devices not only to help facilitate teaching and inculcate interest and understanding on the part of the students. Aside from textbooks, training devices that include pictures, charts, information sheets, modules, mock-up, models, demonstrators, trainers, and even the sophisticated film strips or motion pictures, scientific devices are designed and produced by scientists, engineers and engineering technologists. These training devices have been proven to be very effective in the teaching learning process as they motivate students, facilitate learning by making the lesson more vivid, and help the instructor meet the individual needs and interest of the students. It is, therefore, at the discretion of a successful and inventive shop instructor to select and prepare the learning devices for his own use as well as to advantage of his students in Ifugao. There are two institutions in the province offering electrical technology course but none of them is using a motor control trainer. Hence the researcher as a concerned electrical technology teacher at the Ifugao College of Arts and Trades, Lagawe, Ifugao conceptualized a design to develop a motor trainer for instruction purposes.

STATEMENT OF THE PROBLEM

This research study was focused on the planning development and evaluation of a Motor Control Trainer in order to ensure more effective teaching and learning for Industrial electricity in the Ifugao College of Arts and Trades, Lagawe, Ifugao.

This study sought to answer the following specific questions:

- How do the students, technology teachers and industrial electricity practitioners evaluate the acceptability of the developed Motor Control Trainer as instructional device in teaching Industrial Electricity in terms of its design and functionality?
- Is there any significant difference between the evaluation of the three groups of respondents on the acceptability of the developed Motor Control Trainer in terms of its design and functionality?

HYPOTHESIS

The following null hypothesis was tested in this study:

- There is no significant difference between the evaluation of the three groups of respondents on the acceptability of the developed Motor Control Trainer in terms of its design and functionality.

The descriptive method of research was used in this study in order to determine the acceptability of the developed Motor Control Trainer. It utilized a 4-point Likert-Type questionnaire in order to gather the data needed in this study. The mean and t-test for independent samples were used as statistical tool to treat the data gathered and to test the hypothesis posted in this study.

CONCEPTUAL FRAMEWORK

Based on the related studies, individuals learn more effectively if the teacher uses an instructional tool for instruction.

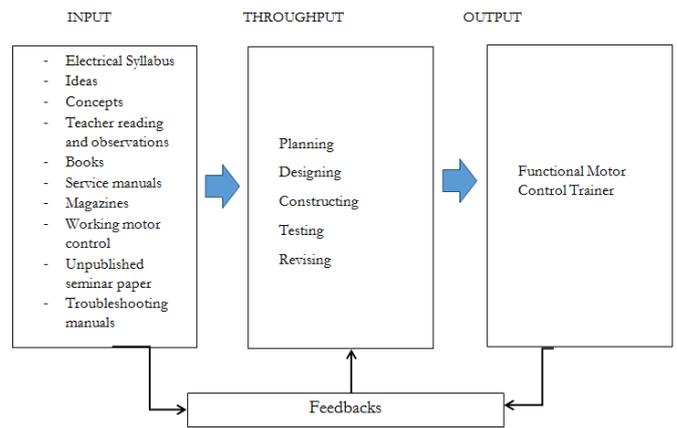


Figure 2. Shows the model in determining the effectiveness of the Motor Control Trainer

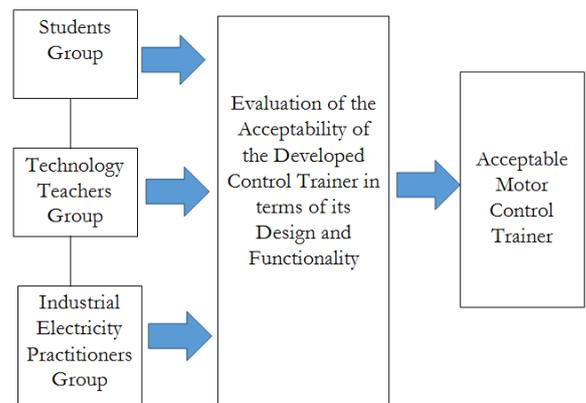


Figure 2. Model for determining the acceptability of the developed motor control trainer

It is, therefore, necessary that teachers must develop, produce and utilize instructional gadgets that will make instructions more functional and which will contribute to the positive skills development of the students. The research paradigm that guided the researcher in this study is shown in figures 1 and 2. Figure 1 shows the model for the development of the Motor Control Trainer. It is based on the input-throughput-output model. The input consisted of electrical syllabus, ideas, concepts, teacher reading and observations, books, service manuals, magazines, working motor control, unpublished seminar paper, and troubleshooting manuals. The throughput includes planning, designing, constructing, testing and revising while; the output is the functional Motor Control Trainer. The input consists of the three groups of respondents that evaluated the developed motor control trainer in terms of its design and functionality. The throughput consists of the evaluation of the trainer using the 4-point Likert-Type questionnaire. The output is the acceptable motor control trainer in terms of its design and functionality.

MATERIALS AND METHODS

Research Design

This study used a descriptive research method, particularly the survey method. According to Travers (1978), the two principal aims in employing this method are 1) to describe the nature of the situation as it exists at the time of the study; and 2) to explore the causes of particular phenomena.

Further, Sevilla (1988) defines descriptive research as involving collection of data in order to test hypothesis or to answer questions concerning the current status of the subject of the study. This design was used in this study in developing, testing, and evaluating the acceptability of the device in terms of its design and functionality. The different steps in the design were followed in the construction of the trainer.

Locale of the Study

The Ifugao College of Arts and Trades is situated in Bahawit, Poblacion West, Lagawe, Ifugao. The school was created by the Bureau of Vocational Education in 1971 pursuant to R.A. 4568, and it was named Ifugao National School of Arts and Trades. On June 24, 1983, the school was converted in to Ifugao College of Arts and Trades under Batas Pambansa Blg. 634. At present the college offers 3 four-year courses. The Bachelor of Science in Industrial Arts (BSIA), Bachelor of Science in Industrial Education (BSIE), and Bachelor of Science in Industrial technology. The BSIE and BSIT have the same majors such as Automotive, Technology, Civil Technology, Furniture and Design Construction Technology, Electrical Technology, Food Technology, Garments Technology, Technology in Home Economics and Computer Technology. The Ifugao College of Arts and Trades also offer a high school as laboratory. The college has enough facilities to train students in the course being offered by the college such as, shop rooms, related subjects building or academic rooms and an administration building, a clinic, canteen and a standard athletic oval. Tools and equipment are also sufficient in different trade areas but not as modernize as compared to other school offering such courses.

Respondents of the Study

The respondents who were utilized in the evaluation of the trainer are the third year college of Electrical technology students of the Ifugao College of Arts and Trades, the technology teachers of the same school and the Industrial Electricity practitioners in the community. The distribution is shown in Table 1.

Table 1. Frequency and Percentage Distribution of Respondents

Group	No. of Respondents	Percentage
Students	10	33.3%
Technology Teachers	10	33.3%
Industrial Electricity practitioners	10	33.3%
TOTAL	30	100%

It could be noted from the table that the three sets of respondents were equally represented in the distribution of respondents who evaluated the acceptability of the developed Motor Control trainer in terms of its design and functionality. During the evaluation of the trainer, the three groups of respondents were also asked to use and perform the different suggested activities of the said trainer.

Research Instrument

The study made use of a 4-point Likert-Type questionnaire in order to evaluate the acceptability of the developed Motor Control Trainer.

This was prepared by the researcher based on the study of Umayan (2000). The questionnaire consisted of two parts: Part I consisting of ten (10) items, for measuring the acceptability of the design of the said trainer; and Part II, consisting of 13 items, for measuring the functionality of the trainer. In order to establish the content validity of the questionnaire was shown to researchers' adviser, critic, statistician and some electricity professors at ICAT and NVSPC for their reactions and suggestions, which were considered in the finalization of the questionnaire.

The collected data were tallied and analysed using the scale below:

Scale	Qualitative Description
3.25-4.00	highly acceptable
2.50-3.24	Acceptable
1.75-2.49	Moderately Acceptable
1.00-1.74	Not Acceptable

Statistical Treatment of Data

After the retrieval of the questionnaire, the responses in the questionnaire were tallied and analysed. The collected data were treated using the following statistical tools:

Mean. This was used in determining the acceptability of the developed Motor Control Trainer in terms of its design and functionality. t-test for Independent Samples. This was used in determining the significant differences in the perceptions of the three groups of respondent's on the acceptability of the developed trainer.

Summary, Conclusions and Recommendations

Summary of Findings

The significant findings of this study are as follows:

- As to the design of the Motor Control Trainer, the three sets of respondents agreed that the trainer is highly acceptable as evidenced by the very high mean rating registered at 3.95 for students; 3.87 for practitioners; 3.89 for the faculty; and 3.90 for the overall mean rating. The respondents likewise rated the trainer to be highly functional as supported by the very high mean ratings recorded.
- The three groups of respondents did not vary significantly in their evaluation of the acceptability of the developed Motor Control Trainer as seen in the F-ratios of 0.60 for design and 0.50 for functionality. This indicates that the trainer is an acceptable and valid instructional device in teaching industrial electricity.

Conclusion

Based on the foregoing findings, the following conclusions were drawn:

- The developed Motor Control Trainer is highly acceptable instructional device in teaching Industrial Electricity in terms of its design and functionality.
- There is no significant difference in the evaluation of the three groups of respondents on the acceptability of the developed Motor Control trainer in terms of its design and functionality.

Recommendation

- In the light of the findings and conclusions, the following recommendations are offered:
- The developed Motor Control trainer in this study should be validated to other vocational/technical schools to further establish its acceptability and validity as an instructional device which could enhance the psychomotor skills of students in industrial electricity.
- The developed trainer in this study should be patented, reproduced and adopted for use in technical/vocational schools with the help of the school administrator.
- Teachers should be encouraged to improvise other instructional devices and materials out of locally available materials in order to help solve the problem on the inadequacy of instructional materials in the shop.
- The school administration should allocate funding to support the improvisation and development of instructional devices, trainer, and other models in the shop that could enhance further the skills of students.
- Further studies should be undertaken to improve this project and thus come up with more effective training equipment.

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