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Assessment of the Competency- Based Training (CBT) System Implementation in the Salesian Technical Vocation Institutes

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Abstract
I. OBJECTIVES: To make intervention schemes based on the assessment of the respondents on the extent of the implementation of CBT System in FIS TVIs.
II. METHODOLOGY: This study used a Descriptive and Quantitative method. A questionnaire was distributed to the different FIS TVIs so as to know the extent of implementation of CBT System in the training programs of the FIS TVIs as perceived by the training directors, trainers and trainees in their respective TVIs.
III. FINDINGS: The results of the study showed that the main aspects of CBT System are very satisfactorily implemented which means that the main aspects of CBT System are already practiced although there are still implementations that need improvemnt.
IV. RECOMMENDATIONS: The recommendations of this study are the following:
1) A team of CBT experts should be formed with the task of guiding, assisting and monitoring the full implementation of the CBT System in the eight FIS TVIs.
2) The FIS should provide enough fund necessary for CBT training, curriculum development, purchase of materials, books, tools, equipment, renovate buildings so that the venue will be lighted and ventilated, and for the research development office of the FIS TVIs.
Keywords: Competency Based Training System, Salesian, Assessment, Training Director

I. INTRODUCTION

The development of Technical Education is an important concern for a country's progress because it facilitates the transfer of technological discoveries and advances into actual work situations and furthers its growth. One of its prevalent and vital developments is the emergence of Competency-Based Training (CBT) System in Technical Education. The European Qualification Framework Newsletter of 2017 can attest to its worldwide reception and prominence as there are 126 countries which introduced CBT System in their schools.

On the part of the Philippine Government, through the creation of the Technical Education and Skills Development Authority (TESDA) in Republic Act No. 7796, also known as TESDA Act 7796 of 1994, which mandates TESDA to take charge of the Technical Education in the country, the CBT System was adopted in all Technical Vocational Institutes (TVIs) as contained in TESDA Circular 02, series of 2011.

The Salesians of Don Bosco in the Philippine South Province (FIS), which educate and evangelize the poor and abandoned youth, has established different TVIs in the southern part of the Philippines. Since by law, all TVIs are covered by TESDA Act 7796 of 1994, it makes the implementation of CBT System compulsory for all the TVIs of the Salesians in the FIS. At present, FIS has eight TVIs in Visayas and Mindanao. The researchers conducted a survey in order to assess how far the CBT System of TESDA has been implemented as there have been no studies yet conducted in that regard and to contextualize this in the eight TVIs of the FIS.

Hence, this research sought to measure the extent of TESDA's CBT System implementation in the FIS TVIs as perceived by the Training Director, trainers, and trainees. The perceived problems, difficulties, challenges and opportunities will be drawn out as well as a relation to its implementation. Based on the findings of the study, intervention schemes will be proposed to further improve the implementation of the CBT System in FIS TVIs.

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A. Theoretical Background

The development of CBT System is a conglomeration of various educational theories which brought about three main aspects: (1) Formulation of Objectives, (2) Structure of the Learning Process, and (3) Manner of Assessment Method (Hodge, 2007). The supporting theories of these aspects of CBT System are as follows: Task Analysis Theory for the formulation of objectives; Operant Conditioning Theory and Mastery Learning Theory for the structure of learning process; and Minimum Competency Test Theory for the assessment method.

1) Task Analysis Theory for the Formulation of Objectives

The formulation of objectives gained prominence when the traditional educational disciplines failed to clearly identify the curriculum purposes and to specify the behavioral changes expected from the learner. The traditional form centers more on the contents of teachers' instruction which falls short in stipulating, mastering and assessing specific behavioral transformation expected from the learner in relation to concrete tasks. On the other hand, the formulation of objectives zeroes on in the learners' clearly defined behavioral changes that can be mastered and assessed given the conditions and processes (Hodge, 2007). The Task Analysis Theory was behind this emergence of "formulation of objectives" as an important aspect of the CBT System. Miller (1962) was said to have comprehensively developed the methods in formulating training objectives.

As indicated by Miller (1962: 33–4), task analysis theory had reached its critical stage in 1950s when training design was in close connection with the equipment design in the United States Air Force. Engineers and training designers were ironing out together such that once the equipment is produced the equipment operator had completed training ready for the task.

TESDA, in its implementation of CBT System, had produced Training Regulations and Competency Based Curriculum which manifest the elements of Task Analysis Theory. The criterion responses with the kinds and amount of output required are expressed in competencies which are divided into learning outcomes. The learning outcomes have accompanying tolerance limits, input variables and conditions which are contained in the Learning Outcome Summary of Competency Based Learning Module (CBLM) (NTTA, 2012).

2) Operant Conditioning Theory and Mastery Learning Theory for the Structure of Learning Process

The theory of operant conditioning that was developed by Skinner (1953) is significant in the development of CBT's learning process. Skinner notes that the learner should be taken as an active agent in the learning process. By stimulating the learner through a set of activities, the reinforcement of the learning process happens through the learner's personal engagement in the activities. Unlike the scheduled stimulus of classical conditioning, operant conditioning comes into effect in the learner's series of activities. It works on the development of the subject's actions within given conditions and allows self-paced learning and discovery. It led Skinner to make use of 'teaching machines' and chunks of learning contents for that learning process (Hodge, 2007).

TESDA has applied the principles of Operant Conditioning Theory and Mastery Learning Theory as seen in the structures of the learning experiences section of the CBLM and the Session Plan, which are prepared by qualified instructors.

3) Minimum Competency Test Theory for the Manner of Assessment Method

A significant contribution in the development of assessing the student's performance came from Glaser (1962) who made a distinction between 'norm-referenced' and 'content-referenced' measurement of performance. He advocated the latter which refer to the "subject matter or content of the program of learning and indicate whether the student has developed the 'terminal behaviors' intended in the design of the course" (Hodge, 204). The former is the traditional form which measures the efficiency relative to the other students, resulting into a rank in reference to the norm and subsequently indicates less the student's content of learning.

At present, 'competent' and 'not yet competent' assessment result is used in CBT programs, which are exactly the two categories of the 'minimum competency testing'. TESDA had applied these two categories in their National Assessment for the National Certification of the registered skills qualifications. Their assessment form for the National Assessment is called "Competency Assessment Results Summary" (CARS). The overall assessment result is either in these two categories: 'Competent' and 'Not Yet Competent'.

B. Flow of Research Process

The INPUTS of this study included the degree of TESDA's CBT System implementation in the FIS TVs as perceived by the training directors, trainers and trainees and the perceived problems, difficulties, challenges and opportunities in the present situation of the FIS TVIs in relation to CBT System implementation.

The PROCESS was a descriptive research method. First, a questionnaire was constructed and then tested by conducting a dry-run. The results of the dry-run were examined and further improvement was included for finalization. The finalized questionnaire was then administered and the results were retrieved. Afterwards, the data were gathered, presented, analyzed and interpreted.
The OUTPUT was the proposed intervention schemes to further improve the implementation of the CBT System in the FIS TVIs.

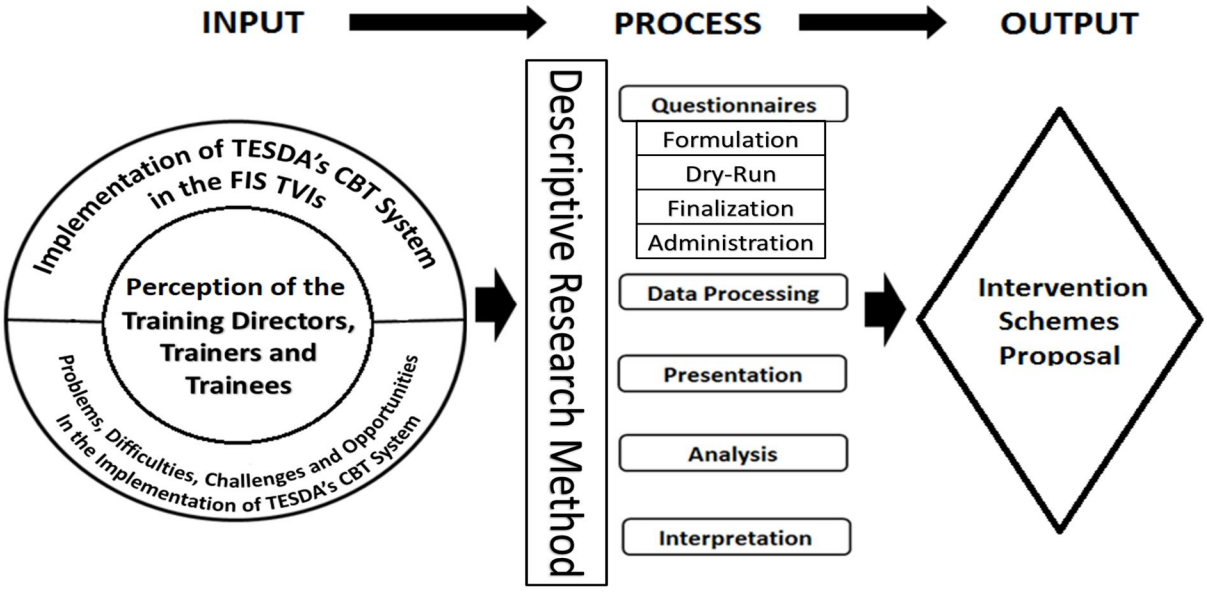


Figure 1: Research Flow

C. The Problem

1) Statement of the Problem

This study aims to assess the implementation of the CBT System of TESDA in the existing curriculum and educational methods of the Technical Vocational Institutes (TVIs) in the Salesian Philippine South Province (FIS) and to propose intervention schemes for the improvement of the implementation of the CBT System.
Specifically, this research attempts to answer the following questions:

a) What is the demographic profile of the training directors, trainers and trainees of the FIS TVIs who are directly involved in the implementation of TESDA's CBT System?

b) What are the existing training programs of FIS TVIs that are unregistered, registered and audited by TESDA?

c) As assessed by the training directors, trainers and trainees, what is the extent of implementation of Competency Based System in the training programs of FIS TVIs in the aspect of:

- Formulation of objectives;
- Structure of learning process; and
- Manner of assessment method?

d) Are there significant differences among the perceptions of training directors, trainers, and trainees on the extent of implementation of Competency Based System in the training programs of FIS TVIs in terms of

- Formulation of objectives;
- Structure of learning process; and
- Manner of assessment method?

e) What is the level of impact of factors affecting the extent of implementation of Competency Based System in the training programs of the FIS TVIs as perceived among the training directors, trainers and trainees?

f) Based on the findings, what intervention schemes may be proposed?

2) Significance of the Study

The research is significant for the following groups of stakeholders:

a) *FIS TVIs:* The research aims at developing the training program of FIS TVIs.

b) *Training Directors:* The research provides data for training directors in evaluating the level of awareness and the proximity of the FIS TVIs training programs in relation to the implementation of TESDA's CBT System and aids their decision making for its improvement.

c) *Trainers:* The research makes the trainers aware of their familiarity with the implementation of TESDA's CBT System and provides added impetus in their efforts to work on it.

d) *Trainees:* The research serves as a guide in improving the implementation of TESDA's CBT System in FIS TVIs training programs which will enhance the training experience of the trainees.

e) *Other Researchers:* The research contributes data that measures the extent to which TESDA's CBT System has been implemented in the TVIs of FIS.

D. Definition of Terms

For clarity and understanding, the following terms are defined as used in this study.

1) *Assessment Criteria:* Performance criteria identified in the Training Regulation (TR) as measures to assess the competence of the trainee.

2) *Assessment Method:* A list of expected assessment method or instruments to measure learning.

3) *Competency Based Learning Module (CBLM):* This is the learning module, which is based on the Competency Based Training system, intended for the trainees.

4) *Competency Based Training:* A training delivery approach that focuses on the competency development of the learner as a result of the training.

5) *Competency Standard:* The written specification of the knowledge, skills and attitudes and values required for the performance of a job, occupation or trade and the corresponding standard of performance required for these in the workplace.

6) *FIS:* Filippine Sud in Italian and Salesian Philippine South Province in English. This Province comprises Visayas and Mindanao.

7) *TVI:* Technical Vocational Institute. The FIS has eight TVI in the Province.

8) *Trainees:* Persons who are participants in a vocational, administrative or technical training program for the purpose of acquiring and developing job-related skills.

9) *Trainers:* Persons who direct the practice of skills towards immediate improvement in some tasks.

10) *Training Director:* Salesian or a lay person appointed by the superior of the FIS to manage the Don Bosco Training Center.

11) *Training Regulation (TR):* The document that serves as a basis in the formulation of competency assessment and the development of curriculum and instructional materials for competency-based technical education and skills development.

II. RESEARCH METHODOLOGY

This study used a Descriptive and Quantitative method. A questionnaire was distributed to the different FIS TVIs so as to know the extent of implementation of CBT System in the training programs of the FIS TVIs as perceived by the training directors, trainers and trainees in their respective TVIs. This research included gathering of information about each FIS TVIs for the purpose of description and interpretation. Also, this research method did not only collate and tabulate facts but included analyses, interpretation and comparison. It also utilized quantitative research in the sense that it used the collated survey data from the different FIS TVIs in order to measure the proximity or remoteness of TESDA's implementation of CBT System.

A. Profile of the Respondents

The respondents of the research included the training directors, trainers, and trainees of the FIS TVIs. Their perception on the extent of implementation of CBT System in the training programs was assessed in terms of formulation of objectives, structure of learning process and manner of assessment method. The qualifications of the respondents were the following:

1) The training directors referred to the Salesians or lay persons who are directly in charge of the FIS TVIs.

2) The trainers referred to hired technical skill instructors either full time or part time who have lapsed one year with such job description in the FIS TVIs.

3) The trainees referred to the current students of FIS TVIs and graduates of last year.

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Cochran's (1977) formula for the continuous variable was applied to determine the desired number of trainers, and trainees from the eight FIS TVIs as respondents of the study. The sample size determination considers the seven-point scale adopted in the questionnaire instrument, with the level of significance set at 0.05 that gives a *t*-value of 1.96 for selected alpha of 0.025 in each tail, an acceptable margin of error of 3%, and an estimated standard deviation of 1.167. The formula is given below:

$$n = \frac{t^2 * s^2}{d^2}$$

where: *t*=value for selected alpha of 0.025 in each tail of 1.96
s=estimate of standard deviation in the population of 1.167
d=acceptable margin of error for mean being estimated as 0.15.

Cochran's (1977) correction formula is further applied to calculate the final sample size since the samples exceeds 5 percent of the existing population of respondents. The formula is provided as follows:

$$\eta_1 = \frac{\eta_0}{1 + \frac{\eta_0}{population}}$$

where: η_1 = required return sample size since samples exceeds 5% of the known population
η_0 = required sample size according to Cochran's Formula = 118
Population = the existing population of respondents

The sampling proportion was then applied to determine the appropriate number of trainers, and trainees taken from each FIS TVIs. The formula provided below was used:

$$\%\ \text{Sampling Proportion} = \frac{\text{Desired Sample Size}}{\text{Population Size}} \times 100\%$$

The resulting common sampling proportion was then utilized to calculate the number of respective respondents from the different FIS TVIs to compose the study respondents based on the total population of trainers and trainees for each FIS TVIs 2016-2017. Subsequently, random sampling was employed in selecting sample respondents (Trainers and Trainees, respectively) across FIS TVIs for the study. Execution of the sampling processes was done using the sampling software.
The table below presents the distribution of respondents for the study.

Table 1
Number of Respondents

FIS TVIs	No. of Trainee Respondents	Percentage	No. of Trainer Respondents	Percentage	No. of Training Director Respondents	Percentage
Borongan	29	11.6%	4	11.11%	1	12.5
Punta Princesa	43	17.2%	6	16.67%	1	12.5
Balamban	12	4.8%	2	5.56%	1	12.5
Pasil	32	12.8%	6	16.67%	1	12.5
Dumangas	27	10.8%	1	2.77%	1	12.5
Liloan	19	7.6%	4	11.11%	1	12.5
Davao	64	25.6%	10	27.78%	1	12.5
Victorias	24	9.6%	3	8.33%	1	12.5
Total	250	100%	36	100%	8	100%

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Table 1 shows the number of respondents. There are 250 (85.03%) trainees and 36 (12.24%) trainers, and 8 (2.73%) training directors of the 294 (100%) respondents. Using Cochran's (1977) formula, the size of the respondents was determined and the subjects of the study were selected by way of random sampling. The following was the distribution:

As for the trainee respondents, the researchers selected the settings: from Borongan, the researchers had 29/37 or 78.37%; from Punta Princesa, the researchers had 43/63 or 68.25%; from Balamban, the researchers had 12/13 or 92.307%; from Pasil, the researchers had 32/44 or 72.72%; from Dumangas, the researchers had 27/35 or 77.14%; from Liloan, the researchers had 19/23 or 82.60%; from Mati, the researchers had 64/136 or 47.05% and Victorias the researchers had 24/36 or 66.66%.

As for the trainer respondents, the selected subjects were the corresponding class adviser of the trainee respondents and some trainers who were present during the survey.

As for the training director respondents, the subjects were the corresponding training directors of each setting. In other words, all the training directors were subjects of the study.

B. Research Instrument

The research used a primary source through a questionnaire, prepared for the respondents: training directors, trainers, and trainees of FIS TVIs. The questionnaire had three parts and had the following structure:

1) The first part measured the demography of the respondents.
2) The second part determined which skills training program were unregistered, registered and audited by TESDA.
3) The third part assessed the implementation of the Main Aspects of Competency Based Training of TESDA's CBT System. The respondents rated the given situation from 1 to 7.

To get the extent of the implementation of CBT System in the training programs of FIS TVIs in the aspect of formulation of objectives, structure of learning process, and manner of assessment method as assessed by the training directors, trainers, and trainees and its significant difference among the perceptions of the respondents, Kruskal-Wallis Test, Multicolliearity, Pairwise Comparisons and Principal Component Analysis were utilized by the researchers. These methods help in making comparisons of two or more means which enable the researchers to draw various results and predictions about two or more sets of data.

C. Dry Run Procedures

The researcher-made questionnaires were presented to the panel during the proposal hearing in order to determine the content validity and reliability of the different items that was used in the survey. Comments and suggestions were duly taken into account afterwards. The questionnaires were then pre-tested for assessing defects and areas that needed improvement so as to yield well-suited results for the research. The researchers got thirty-two (32) respondents who were randomly selected from the students of Cebu Technological State (CTS). This school conducts skills training programs which are registered under TESDA's Unified TVET Program Registration System (UTPRAS). This dry-run procedure was intended to validate the tool used in the study. The reliability index of the tool was computed using Cronbach Alpha. Consequently, the tool was found valid and reliable with the overall Research Instrument Reliability Test Result of 0.9374 with the interpretation of Very Highly Reliable.

D. Data Gathering Procedure

The researchers asked the approval of the Rector or local superior of the house to administer a survey questionnaire regarding the extent of the implementation of CBT System in the training programs of FIS TVIs as assessed by the training directors, trainers, and trainees. The researchers distributed the survey questionnaires through the help of the training directors in the different settings. For the selection of the respondents, random sampling was utilized. The instrument that was used was a survey checklist questionnaire. The results were gathered, tallied and tabulated according to the items checked by the respondents. Data was then subjected to statistical method to get the desired objectives of this research.

E. Data Analysis

After the questionnaires were gathered, data was tabulated accordingly.

To determine the extent of implementation of TESDA's CBT System in FIS TVIs in the aspect of formulation of objectives, structure of learning process and manner of assessment method among the respondents, the researchers used weighted mean and standard deviations, standard error of the mean. Percentage analysis, graphical display and cross tabulation analysis were employed to characterize the demographic profile of the respondents as well the perceived challenges, problems, difficulties and opportunities in implementing CBT System.

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Kruskal-Wallis Test was used to determine the differences of assessment among training directors, trainers, and trainees on the extent of implementation of CBT System concerning the formulation of objectives, structure of Learning Process, and Manner of Assessment Method. However, for the Differences of Assessments among training directors, trainers, and trainees concerning the Extent of Implementation of CBT on the Structure of Learning Process, Post Hoc analysis was utilized. It was further employed to perform the pairwise comparison in between groups concerning the differences of perception on the level of implementation of CBT system among training directors, trainers and trainees. The multivariate principal component analysis was used in order to set the different priorities of the different respondents when it respect to the implementation of CBT System in FIS TVIs.

The study used hypothetical mean range and interpretation of the weighted mean analysis of the main aspects of TESDA's CBT System concerning its implementation in FIS TVIs.

F. Hypothetical Interpretation Qualitative Descriptions

Mean Range			
6.16 – 7.00	-	Extremely Implemented (IE)	- The Indicator is extremely implemented, which means that all of the indicator's components with implications are fully implemented and attended to with high level of effective and efficient results.
5.30 – 6.15	-	Very Satisfactorily Implemented (VSI)	- The Indicator is very satisfactorily implemented which means that majority of the indicator's components with implications are implemented and attended to with effective and efficient results.
4.44 – 5.29	-	Satisfactorily Implemented (SI)	- The Indicator is satisfactorily implemented which means that a number of indicator's components with implications are implemented and attended to giving rise to acceptable results.
3.58 – 4.43	-	Moderately Implemented (MI)	- The Indicator is moderately implemented which means that only a few of the indicator's components with implications are implemented and attended to resulting to mediocre results.
2.72 – 3.57	-	Slightly Implemented (SI)	- The Indicator is slightly implemented which means that a very few of the indicator's components with implications are implemented and attended to resulting to poor results.
1.86 – 2.71	-	Almost Never Implemented (ANI)	- The Indicator is almost never implemented which means that almost none of the indicator's components with implications are implemented and attended to resulting to very poor results.
1.00 – 1.85	-	Never Implemented (NI)	- The Indicator is never implemented which means that none of the indicator's components with implications are implemented and attended to consequently having no results.

G. Ethical Consideration

The objectives of the research were discussed to the respondents before they took the survey who would then decided on whether they want to participate or not. The respondents were assured that all information collected would be treated in confidence and only used for the purpose of this study

III. PRESENTATION OF RESULTS, ANALYSIS AND INTERPRETATION

This section presents, analyzes and interprets the result of the survey conducted on the trainees, trainers, and training directors of FIS TVIs. The cross tabulation of the variables in the study is interpreted in order to find out how far the CBT System of TESDA is being implemented in the FIS TVIs.

Perceived problems, difficulties, challenges, and opportunities are asked from the respondents to further investigate the findings through comparative analysis using reliable and new statistical tools. The findings will help in making concrete intervention schemes in the implementation of TESDA's CBT System in FIS TVIs.

Below are the findings, analysis, and interpretation of the data.

Table 2: Profile of Trainers in Terms of TESDA Qualifications and Types of Certifications, Years of Training, and Teaching and Industry Experience in the Technical Vocational Institute

TESDA Qualifications	Type of Certifications	Years of Training	Years of Teaching	Industry Experience	Frequency	Percentage
SMAW NC I, SMAW NC II, MSES NC II, CSS NC II	W/NC and NTTC	None	2, 2, 2, 1	None	1	2.78
SMAW NC II	W/NC and NTTC	0.5	0.75	None	1	2.78
Driving NC II	W/NC	None	None	None	1	2.78
Machining NC I, Machining NC II, EIM NC II, EIM NC III	W/NC	None	None, None, 4, 4	None	1	2.78
EIM NC II, MSES NC II	W/NC and NTTC	None	3, 3	None	1	2.78
Machining NC II, Computer System Servicing NC II	W/NC	None	2, 2	1, 1	1	2.78
Carpentry NC II	W/NC	None	3	None	1	2.78
Carpentry NC II, EIM NC II	W/NC and NTTC	None	None, 6	None	1	2.78
SMAW NC II, Driving NC II, GMAW	W/NC	1, 0.08, 0.08	2, None, None	1, None, None	1	2.78
SMAW NC II, GMAW, Dressmaking (Casual) NC II	W/NC	None	2, None, 17	None	1	2.78
Machining NC II	W/NC and NTTC	4	11	4	1	2.78
Machining NC I	W/NC	None	None	None	1	2.78
SMAW NC I, SMAW NC II, EIM NC II, MSES NC II	W/NC, W/NC, W/NC and NTTC, W/NC and NTTC	None	None	None	1	2.78
SMAW NC I, SMAW NC II, SMAW NC III, Carpentry NC III	W/NC, W/NC and NTTC, W/NC, W/NC	2, 2, 1 week	2, 2, None	None	1	2.78
SMAW NC II, EIM NC II, Machining NC II	W/NC and NTTC	None	5, 1, 5	None	1	2.78
SMAW NC II, Machining NC II	W/NC	None	2, 16	None	1	2.78
Wood Working and Furniture NC II, Scaffold Erection NC II	W/NC	1, 0.17	5, None	8, None	1	2.78
SMAW NC II	W/NC	1	6	None	1	2.78
Agricultural Crops Production NC II	W/NC	1	8	None	1	2.78
Horticulture NC II, Machining NC II	W/NC	2, None	None, 10	None	1	2.78
SMAW NC I, SMAW NC II, Machining NC I, Machining NC II, Driving NC II	W/NC and NTTC	1, 1, 1, 1, 0.08	6, 6, 6, 6, 6	None	1	2.78
SMAW NC II, Machining NC I, Machining NC II	W/NC	None	0, 3, 3	0, 2, 2	1	2.78
SMAW NC II, EIM NC II, MSES NC II, Automotive Servicing NC I, Automotive Servicing NC II	W/NC	None	None	None	1	2.78
SMAW NC II, Machining NC II	W/NC and NTTC	None	9, 9	None	1	2.78
Machining NC I, Machining NC II	W/NC	None	None	None	2	2.78
Did not indicate					9	25.00
Total					36	100.00

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Table 2 presents the TESDA qualification of the trainer respondents. 27 (75%) of them have national certificates, which indicate that they had passed the National Assessment conducted by TESDA for a particular qualification with training regulation (WTR). 10 (27.78%) of them have National TVET Trainer Certificate (NTTC) which is issued upon submission of a NC II or higher and TMC I (TESDA CIRCULAR no. 13 series of 2011). This indicates that only 27.78% of the trainers are qualified to conduct TESDA's CBT system in a particular skills training program.

9 (25%) of them did not indicate their TESDA qualification.

Out of the 27 trainers who had National Certificates, 17 of them did not indicate their regular skills training program.

In terms of years of teaching, 17 years is the longest teaching experience. The second is 16 years of teaching.

In terms of industry experience, 22 (61.11%) of them do not have work experience in the industry. Industry experience is useful for the trainers so that they could teach the trainees what the industry expects or demands from the latter and to simulate what is happening in the industry to the classroom experience. In other words, they could transfer their knowledge in the industry into classroom situation. After all, CBT course should be learned in an environment that duplicates or simulates the workplace (Norton, 1987).

Table 3: Profile of Training Directors in terms of TESDA Qualifications and Types of Certifications, Years of Training, and Teaching and Industry Experience in the Technical Vocational Institute

TESDA Qualifications	Type of Certifications	Years of Training	Years of Teaching	Industry Experience	Frequency	Percent
MSES NC II, Driving NC II	W/NC	0.75, None	None	None	1	12.50
Machining NC II, Machining NC III	W/NC, W/NTTC	None	16, 16	None	1	12.50
Machining, Fitting, Electricity	W/ NTR	None	40	None	1	12.50
Machining NC I	W/NC	None	None	None	1	12.50
SMAW NC I, SMAW NC II, SMAW NC III, Carpentry NC III	W/NC, W/NC, NTTC, W/NC,W/NC	2, 2, 1 week, None	2,2, None, None	None	1	12.50
Automotive Electrical Assembly NC II, Automotive Mechanical Assembly NC II, Driving NC II, Horiculture NC II	W/NC	0.33, 0.33, 0.08, 0.25	1, 1, None, None	None	1	12.50
Machining NC II	W/NC	None	None	None	1	12.50
Machine Shop	W/ NTR	8	4		1	12.50
Total					8	100

Table 3 shows that 6 (75%) of the training directors have NC and 2 have NTR. National Certificate (NC) is a document issued to individuals who have achieved all the required units of competency of a national qualification as defined in the promulgated Training Regulations (TESDA CIRCULAR no. 13 series of 2011). Two of them have 4 or more qualifications. In terms of years of training, 4 of them indicated no years of training but they had TESDA qualifications which can only be achieved through National Assessment. Thus, the 4 who did not indicate years of training may have acquired their competence through other forms of learning experience not through TESDA's formal training.

From the given data, most of the training directors need formal training, teaching and updating. They also need industry experience or at least exposure in the industry so as to address the expectation of the industry from the trainees, to align the curriculum of the TVIs and to apply their knowledge in the industry to the trainees which is actually a component of CBT System. In fact, according to Anane (2013), one crucial component in the CBT programme is Workplace experience learning because it affords the trainee the chance to put into practice in a real work situation what he/she has been taught in order to perfect his/her competences.

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Table 4: Profile of Trainees Skills Qualification in the Vocational Institute

Skills Qualification of Vocational Institute Trainees	Frequency	Percentage
Agricultural Crops NC II	1	0.40
Automotive Electrical Assembly NC II	22	8.80
Automotive Mechanical Assembly NC II	22	8.80
Automotive NC I	1	0.40
Automotive Servicing NC II	1	0.40
Computer Data Operator	1	0.40
Computer Hardware Servicing NC II	3	1.20
CSS NC II	2	0.80
Driving NC II	9	3.60
EIM NC II	3	1.20
Electronic Data Processing NC II	1	0.40
FBS - Food & Beverage Servicing NC II	1	0.40
Food Preparation	1	0.40
Machining NC I	30	12.00
Machining NC II	31	12.40
Mechanical Tech NC II	2	0.80
MSES NC II	11	4.40
SMAW NC I	5	2.00
SMAW NC II	10	4.00
Did not Indicate	93	37.20
Total	250	100.00

Table 4 shows that 93 (37.20%) of 250 respondents did not indicate their TESDA qualification. This may indicate that these are the respondents who enrolled in the TVIs for the first time. However, 31(12.40%) of the respondents have Machining NC II already. 30 (12.00%) of the trainee respondents have Machining NC I. It means that those who took Machining NC I proceeded to Machining NC II. Thus, they continued the program that is being offered in the TVIs. This is also true for the trainees of Automotive Electrical Assembly NC II who proceeded to Automotive Mechanical Assembly NC II. This means that these trainees spent almost two years in the TVIs.

The succeeding results were essential to provide the needed assessment that is to know which areas of the main aspects of CBT System should be given priority during the interventions using the mean, standard deviation, and standard error of the mean.

The standard deviation is a representation of the spread of each of the data points. The standard deviation is used to help determine validity of the data based the number of data points displayed within each level of standard deviation (https://www.investopedia.com/terms/s/standard-error.asp#ixzz51CHuQOW6).

Descriptive statistics using standard deviations was used to determine the consistency of the respondents' answer to the different indicators presented in the Main Aspects of Implementing CBT System in FIS TVIs. It also gave an information whether the data were close to the average or whether the data were spread out over a wide range. It measured the absolute variability of a distribution.

On the other hand, standard error functions more as a way to determine the accuracy of the sample or the accuracy of multiple samples by analyzing deviation within the means (https://www.investopedia.com/terms/s/standard-error.asp#ixzz51CHuQOW6). It can provide a rough estimate of the interval in which the population mean is likely to fall.

Table 5
Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives as Perceived by Training Directors, Trainers and Trainees
(n = 294)

Indicators	Mean			Standard Deviation			Standard Error of the Mean			Overall Mean	Interpretation
	Training Directors	Trainers (36)	Trainees (250)	Training Directors	Trainers (36)	Trainees (250)	Training Directors	Trainers (36)	Trainees (250)		
1. Each qualification (ex. SMAW NC II, etc…) has basic, common and core competencies which are all transmitted to the trainees. None of the competencies is left out until the trainees are found competent in these competencies.	5.75	5.33	5.67	0.89	1.64	1.46	0.31	0.27	0.09	5.58	Very Satisfactorily Implemented
2. Each competency (ex. Common 9: Repair weld, etc…) has a Competency Based Learning Module which is used as a complete and effective guide for trainees to achieve mastery.	5.00	5.50	5.80	1.51	1.46	1.36	0.54	0.24	0.09	5.43	Very Satisfactorily Implemented
3. Each competency has the complete number of Learning Outcomes (ex. LO1: Perform root pass, etc…) that make a trainee competent; and these Learning Outcomes are presented using various suitable training methods (ex. print, audio, videos, simulation, practical demonstration, etc) with corresponding evaluation tools that aim to check the mastery of the trainee.	5.50	5.28	5.52	0.93	1.49	1.35	0.33	0.25	0.09	5.43	Very Satisfactorily Implemented
4. The basis for evaluating or assessing the mastery of the trainee on each competency is taken from the TESDA regulations or Industry Standards. (ex. For Performing Root Pass, one of the assessment criteria from TESDA's Training Regulation (TR) is "Root pass is performed in accordance with Welding Procedure Specification (WPS) and/or client specifications.")	6.38	5.56	5.73	0.74	1.63	1.38	0.26	0.27	0.09	5.89	Very Satisfactorily Implemented
5. The contents or topics of the Learning Outcomes are comprehensive and complete for the attainment of the needed knowledge, attitude and skills which are based on the assessment	5.88	5.66	5.90	0.84	1.45	1.26	0.30	0.25	0.08	5.81	Very Satisfactorily Implemented

criteria of TESDA's TR.											
6. The venue is well-lighted, well-ventilated, spacious and suited for mastery of the learning outcomes.	6.12	5.44	5.60	0.64	1.75	1.28	0.23	0.29	0.08	5.72	Very Satisfactorily Implemented
7. The equipment, tools, accessories and supplies are identified, sufficient and suitable for achieving mastery of the Learning Outcomes.	6.25	5.64	5.81	0.71	1.55	1.30	0.25	0.26	0.08	5.90	Very Satisfactorily Implemented
8. The training aids/materials/places (print, audio, and visual) are identified, labeled, sufficient, complete and suitable for achieving mastery of the learning outcomes.	5.38	5.37	5.62	1.19	1.66	1.29	0.42	0.28	0.08	5.46	Very Satisfactorily Implemented
9. The evaluation or assessment methods are well-suited for measuring the competence or mastery of the trainee in relation to the assessment criteria of the Learning Outcomes.	5.50	5.39	5.84	0.93	1.54	1.25	0.33	0.26	0.08	5.58	Very Satisfactorily Implemented
10. The training design includes an in-house training and on-the-job training that reinforces mastery of the competencies.	6.38	5.67	5.87	0.92	1.51	1.28	0.32	0.25	0.08	5.97	Very Satisfactorily Implemented
Grand (Mean, Standard Deviation, Standard Error of the Mean)	5.81 (VSI)	5.48 (VSI)	5.74 (VSI)	0.47	0.14	0.13	0.15	0.04	0.04	5.68	Very Satisfactorily Implemented

Reliability: Training Directors: Cronbach's alpha = 0.7157
Trainers: Cronbach's alpha = 0.9777
Tarinees: Cronbach's alpha = 0.9448

Legend:

Hypothetical Mean Range			Interpretation
			- Extremely Implemented (EI)
6.16	-	7.00	
5.30	-	6.15	- Very Satisfactorily Implemented (VSI)
4.44	-	5.29	- Satisfactorily Implemented (SI)
3.58	-	4.43	- Moderately Implemented (MI)
2.72	-	3.57	- Slightly Implemented (SI)
1.86	-	2.71	- Almost Never Implemented (ANI)
1.00	-	1.85	- Never Implemented (NI)

Table 5 presents the extent of CBT System implementation in terms of the formulation of objectives as perceived by training directors, trainers and trainees. It shows that the ten indicators had the overall rating of 5.68 which means "very satisfactorily implemented". This rating is just one step from reaching the highest rating category, which is the "extremely implemented".
The highest rank indicator is *No.10: The training design includes an in-house training and on-the-job training that reinforces mastery of the competencies,* which has the rating of 5.97. Among all the objectives of the training program in the FIS TVIs, the OJT component that reinforces the in-house training in terms of mastery acquired the highest mark. The connection between the in-house training and the OJT has the strongest impact among the respondents.

This data shows that the FIS TVIs in general give importance to the OJT program as an essential part of the learning process. Indeed, the basis of vocation education is a combination of formal education and experience in the workplace (Azmanirah bt Ab Rahman et al, 2013).

However, the bottom 3 indicators that garnered the lowest marks are the following: (No.2) *'Each competency has a Competency Based Learning Module which is used as complete and effective guide for trainees to achieve mastery'* which has the rating of 5.43; (No. 3) *'Each competency has the complete number of Learning Outcomes that make a trainee competent; and these Learning Outcomes are presented using various suitable training methods with corresponding evaluation tools that aim to check the mastery of the trainee'* which has the rating of 5:43; (No. 8) *'The training aids/materials/places are identified, labeled, sufficient, complete and suitable for achieving mastery of the learning outcomes'* which has the rating of 5.46.

In the qualification of training directors (see tables 3 and 6), there are only 3 (38%) training directors who have TMC1. This rating shows that majority of the Training Directors may not be that familiar with the CBLM. On the part of the trainers (see tables 4 & 5), there are only 15 (44%) of them who have TMC1. This rating is also low for the reason that more than half of the trainers may not be that familiar with the CBLM. This is a setback in the full implementation of the CBT System.

Table 6
Extent of Implementation of Competency Based System (CBT) in the Aspect of Structure of Learning Process per Assessment of Training Directors, Trainers and Trainees
(n = 294)

Indicators	Mean			Standard Deviation			Standard Error of the Mean			Overall Mean	Interpretation
	Training Directors	Trainers (36)	Trainees (250)	Training Directors	Trainers (36)	Trainees (250)	Training Directors	Trainers (36)	Trainees (250)		
1. The training methods are sufficient for the understanding, appreciating and mastering the contents of the Learning Outcome.	5.62	5.47	5.98	0.74	1.36	1.12	0.26	0.23	0.07	5.69	Very Satisfactorily Implemented
2. Each method includes the mechanism of presentation (trainer's part), practice/demonstrate (trainee's part) and feedback (trainer-trainee) aimed at mastery.	5.62	5.56	5.94	0.74	1.44	1.18	0.26	0.24	0.07	5.71	Very Satisfactorily Implemented
3. Each method includes the identification of the resources needed and the time allotment.	5.62	5.50	5.78	0.92	1.44	1.19	0.32	0.24	0.08	5.63	Very Satisfactorily Implemented
4. The materials for the presentation and practice/demonstrate are sufficient for mastery.	5.88	5.36	5.90	0.84	1.33	1.23	0.30	0.22	0.08	5.71	Very Satisfactorily Implemented
5. The feedback mechanism is immediate, frequent and continuous for every practice.	5.25	5.47	5.90	0.89	1.34	1.20	0.31	0.22	0.08	5.54	Very Satisfactorily Implemented
6. The learning method is competency-based and modular in structure where one module addresses the learning of one competency and the learner proceeds from one module after another until all competencies of the qualification are attained.	5.25	5.11	5.69	1.28	1.69	1.29	0.45	0.28	0.08	5.35	Very Satisfactorily Implemented

7. The training delivery is individualized and self-paced where individual differences are addressed and learning is done by the learner at own pace.	5.75	5.22	5.80	1.17	1.64	1.15	0.41	0.27	0.07	5.59	Very Satisfactorily Implemented
8. The in-center training and on-the-job training are closely link and integrated that progress of the trainee in his/her specific qualification is monitored and reinforced.	5.88	5.47	5.97	0.84	1.61	1.20	0.30	0.27	0.08	5.77	Very Satisfactorily Implemented
9. The training system recognizes and credits the previously learned knowledge, skills and attitudes either through work experiences or previous training after verification of supporting documents and appropriate testing of the said acquired knowledge, skills and attitudes.	5.00	5.31	6.09	1.31	1.56	1.20	0.46	0.26	0.08	5.47	Very Satisfactorily Implemented
10. The system allows for learner to enter and exit training programs at different times and levels and to receive a corresponding award for the competencies attained at any point.	4.00	3.58	5.47	1.85	2.30	1.60	0.66	0.38	0.10	4.35	Moderately Implemented
Grand (Mean, Standard Deviation, Standard Error of the Mean)	5.39 (VSI)	5.21 (SI)	5.85 (VSI)	0.57	0.59	0.18	0.18	0.19	0.06	5.48	Very Satisfactorily Implemented

Reliability: Training Directors: Cronbach's alpha = 0.8719
Trainers: Cronbach's alpha = 0.9529
Trainees: Cronbach's alpha = 0.9454

Legend:

Hypothetical Mean Range				Interpretation
6.16	-	7.00	-	Extremely Implemented (EI)
5.30	-	6.15	-	Very Satisfactorily Implemented (VSI)
4.44	-	5.29	-	Satisfactorily Implemented (SI)
3.58	-	4.43	-	Moderately Implemented (MI)
2.72	-	3.57	-	Slightly Implemented (SI)
1.86	-	2.71	-	Almost Never Implemented (ANI)
1.00	-	1.85	-	Never Implemented (NI)

Table 6 presents the Extent of Implementation of Competency Based System in the Aspect of Structure of Learning Process per Assessment of Training Directors, Trainers, and Trainees. As reflected, the overall mean is 5.48 with the interpretation of Very Satisfactorily Implemented.

(No. 8) "The in-center training and on-the-job training are closely link and integrated that progress of the trainee in his/her specific qualification is monitored and reinforced" is the highest in the structure of learning process which has the rating of 5.77. This indicates a strong training culture which highlights the importance of actual work practices such that the in-center training and on-the-job training are closely linked and monitored. The long duration of stay of the training directors and trainers in the FIS TVIs as indicated in tables 3 and 4 points out that a training culture has been generated and practiced.

However, there are also structure of learning that the FIS TVIs have to improve. The lowest in the structure of learning process is *(No. 10) 'The system allows for learner to enter and exit training programs at different times and levels and to receive a corresponding awared for the competencies attained at any point'* which has the rating of 4.35. This is not practiced in the TVIs. This is only given to non-regular or 'special' trainees. The FIS TVIs do not allow multiple entry for the reason that they instill in the trainees some important values such Salesian spirituality, sacraments, punctuality and consistency.

Table 7
Extent of Implementation of Competency Based System (CBT) on the Manner of Assessment Method per Assessment of Training Directors, Trainers and Trainees
(n = 294)

Indicators	Mean			Standard Deviation			Standard Error of the Mean			Overall Mean	Interpretation
	Training Directors	Trainers (36)	Trainees (250)	Training Directors	Trainers (36)	Trainees (250)	Training Directorsn	Trainers (36)	Trainees (250)		
1. The institutional assessment of a certain qualification uses the "competent" and "not-yet-competent" scheme.	5.38	5.42	5.70	1.69	1.92	1.29	0.60	0.32	0.08	5.50	Very Satisfactorily Implemented
2. Trainees with "not-yet-competent" remarks are re-trained to reach the level of competence needed until the trainee is ready again for the institutional assessment.	5.50	5.53	5.85	1.07	1.70	1.33	0.38	0.28	0.08	5.63	Very Satisfactorily Implemented
3. Trainees evaluate their readiness to take the institutional assessment and can postpone institutional assessment when more practice is needed for mastery.	5.25	5.25	5.86	1.67	1.78	1.32	0.59	0.30	0.08	5.45	Very Satisfactorily Implemented
4. The institutional assessment of learners is based on the evidences of work performances based on the competency standards set by TESDA and/or Industry.	6.00	5.36	6.02	1.07	1.68	1.24	0.38	0.28	0.08	5.79	Very Satisfactorily Implemented
5. The evidences of work performances that are required for the institutional assessment are presented well to the trainees.	5.50	5.50	6.03	0.93	1.40	1.18	0.33	0.23	0.07	5.68	Very Satisfactorily Implemented
6. The needed tools, equipment, and venue for the completion of the evidences for institutional assessment are complete, functional and suitable.	5.88	5.64	5.95	0.84	1.50	1.15	0.30	0.25	0.07	5.82	Very Satisfactorily Implemented

7. The time allotted and the 'dos' and 'don'ts' during the institutional assessment are presented well to the trainees.	5.75	5.61	5.90	1.04	1.44	1.22	0.37	0.24	0.08	5.75	Very Satisfactorily Implemented
8. The result is immediately relayed and explained to the trainees after the institutional assessment with corresponding recommendations.	5.75	5.47	5.80	0.89	1.65	1.26	0.31	0.28	0.08	5.67	Very Satisfactorily Implemented
9. The successful undertaking of the National Assessment for qualifications With Training Regulations (WTR) is required for the completion of the training program.	6.62	5.72	5.93	0.74	1.78	1.33	0.26	0.30	0.08	6.09	Very Satisfactorily Implemented
10. The successful undertaking of the On-the-Job Training (OJT) or Learnership or Apprenticeship is required for the completion of the training program.	6.62	6.17	6.44	0.52	1.25	0.85	0.18	0.21	0.05	6.41	Extremely Implemented
Grand (Mean, Standard Deviation, Standard Error of the Mean)	5.82 (VSI)	5.57 (VSI)	5.95 (VSI)	0.48	0.25	0.20	0.15	0.08	0.06	5.78	Very Satisfactorily Implemented

Reliability: Training Directors: Cronbach's alpha = 0.8759
Trainers: Cronbach's alpha = 0.9747
Trainees: Cronbach's alpha = 0.9474

Legend:

Hypothetical Mean Range				Interpretation
6.16	-	7.00	-	Extremely Implemented (EI)
5.30	-	6.15	- (VSI)	Very Satisfactorily Implemented
4.44	-	5.29	- (SI)	Satisfactorily Implemented
3.58	-	4.43	- (MI)	Moderately Implemented
2.72	-	3.57	-	Slightly Implemented (SI)
1.86	-	2.71	- (ANI)	Almost Never Implemented
1.00	-	1.85	-	Never Implemented (NI)

Table 7 presents the Extent of Implementation of Competency Based System on Assessment Method per Assessment of Training Directors, Trainers, and Trainees. As reflected, the over-all Mean is 5.78 with an interpretation of Very Satisfactorily Implemented. It also shows that in terms of Manner of Assessment Method, *(No. 10) 'The successful undertaking of the On-the-Job Training (OJT) or Learnership of Apprenticeship is required for the completing of the training program'* ranks first with a rating of 6.41. For the respondents, *'OJT as part of Assessment and completion'* is the best way to assess the trainees. OJT is the stage of training where the trainees could apply what they have learned in the classroom.

OJT is the stage of training where trainees are sent to different companies where they could practice and master their skills. This is also good for the trainees because they could be absorbed by the company if they perform well in their OJT. At the same time this is also an important component of the CBT. According to Emmanuel Amankwah (2011), Industrial attachment forms an important component of CBT curriculum. It covers 16 credit hours of the 576 total credit hours. Various job profiles have been identified where students are expected to have their attachment and possible placement after graduation. OJT is designed to help students to learn and familiarize themselves with real life situation at the industries. It also helps students to network and make contacts so as to get jobs easily after graduation. It also guides students to make appropriate choices in terms of career development.

However, the first lowest in the Manner of Assessment is (*No. 3) 'Trainees evaluate their own readiness to take the institutional assessment and can postpone institutional assessment when more practice is needed for mastery*' which has the rating of 5.45. It is the trainees themselves who evaluate their readiness. They know their capacity; they know their strengths and weaknesses.

Table 8
RANKING OF THE RATINGS OF THE INDICATORS IN EACH ASPECT OF CBT

Formulation of Objectives as Perceived by Training Directors, Trainers and Trainees			
Rank	Indicators	Overall Mean	Interpretation
1st	10. The training design includes an in-house training and on-the-job training that reinforces mastery of the competencies.	5.97	Very Satisfactorily Implemented
2nd	7. The equipment, tools, accessories and supplies are identified, sufficient and suitable for achieving mastery of the Learning Outcomes.	5.90	Very Satisfactorily Implemented
3rd	4. The basis for evaluating or assessing the mastery of the trainee on each competency is taken from the TESDA regulations or Industry Standards. (ex. For Performing Root Pass, one of the assessment criteria from TESDA's Training Regulation (TR) is "Root pass is performed in accordance with Welding Procedure Specification (WPS) and/or client specifications.")	5.89	Very Satisfactorily Implemented
Structure of Learning Process per Assessment of Training Directors, Trainers and Trainees			
1st	8. The in-center training and on-the-job training are closely link and integrated that progress of the trainee in his/her specific qualification is monitored and reinforced.	5.77	Very Satisfactorily Implemented
2nd	2. Each method includes the mechanism of presentation (trainer's part), practice/demonstrate (trainee's part) and feedback (trainer-trainee) aimed at mastery.	5.71	Very Satisfactorily Implemented
3rd	4. The materials for the presentation and practice/demonstrate are sufficient for mastery.	5.71	Very Satisfactorily Implemented
Manner of Assessment Method per Assessment of Training Directors, Trainers and Trainees			
1st	10. The successful undertaking of the On-the-Job Training (OJT) or Learnership or Apprenticeship is required for the completion of the training program.	6.41	Extremely Implemented
2nd	9. The successful undertaking of the National Assessment for qualifications With Training Regulations (WTR) is required for the completion of the training program.	6.09	Very Satisfactorily Implemented
3rd	6. The needed tools, equipment, and venue for the completion of the evidences for institutional assessment are complete, functional and suitable.	5.82	Very Satisfactorily Implemented

Table 8 presents the ranking of the indicators in each aspect of the CBT. It is observed that the top ranked indicators in the three aspects of CBT are related to the On-the-Job Training. The next two is related to the equipment and mastery. These top 3 strongly indicates the emphasis on industry-based training, which is the main component of CBT. The findings showed that the FIS TVIs is strong in the industry based training. The bottom 3, on the other hand, relates to methodologies in conducting CBT such as CBLM, CBT didactics, modular in structure, personal readiness for assessment, RPL, etc. Having received the bottom rating indicates the need of the FIS TVIs to improve in its methodologies in conducting CBT approaches in training.

Differences of Assessments among Training Directors, Trainers and Trainees on the Extent of Implementation of Competency Based System (CBT) Concerning the Formulation of Objectives, Structure of Learning Process and Manner of Assessment Method in the Salesian Philippine South Province (FIS) Technical Vocational Institutes (TVIs)

This section determines the differences of assessments among Training Directors, Trainers and Trainees on the Extent of Implementation of Competency Based System Concerning the Formulation of Objectives, Structure of Learning Process and Manner of Assessment Method in the Salesian Philippine South Province (FIS) Technical Vocational Institutes (TVIs). The normality test results revealed that some data sets of the three indicators on the implementation of CBT System in FIS TVIs were found not normally distributed as depicted in the corresponding Kolmogorov-Smirnov test results. Hence, the use of non-parametric test, specifically the Kruskal Wallis Test is used to establish such differences.

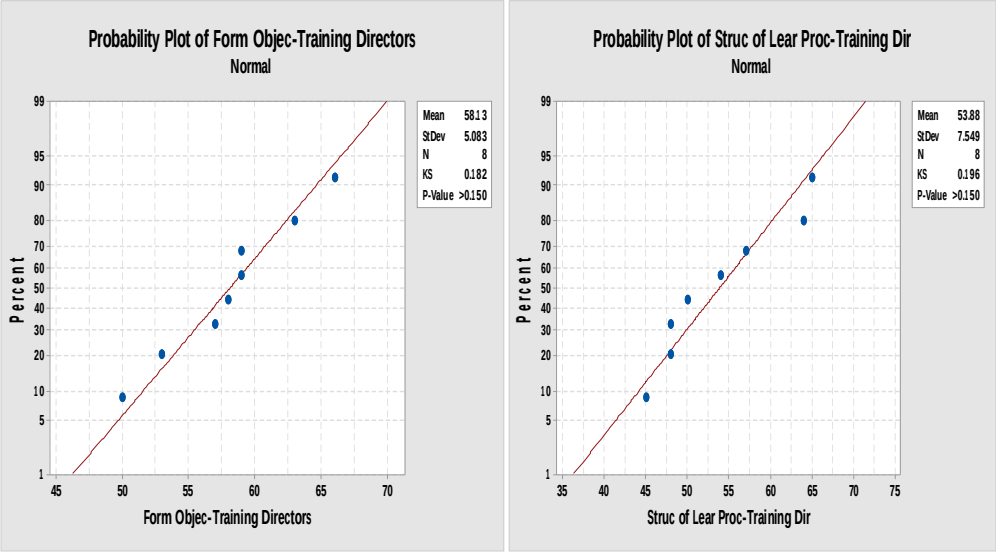


Figure 2: Normality Test Results on the Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives, Structure of Learning Processes and Manner of Assessment Methods

Table 9: Kruskal-Wallis Test Results on Differences of Assessment among Training Directors, Trainers and Trainees on the Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives

Groups	n	Median	Ave Rank	Z
Training Directors	8	58.50	136.8	-0.36
Trainers	36	57.00	140.5	-0.53
Trainees	250	60.00	148.8	0.65
Overall	294	147.5		

H = 0.43 DF = 2 P = 0.806

Legend

P - Value $< \alpha = 0.05$ - Significant at $\alpha = 0.05$ (*)

P – Value $> \alpha = 0.05$ - Not Significant at $\alpha = 0.05$ *(ns)*

Table 9 presents the differences on the Assessment among training directors, trainers, and trainees on the extent of implementation of competency Based System (CBT) in terms of Formulation of Objectives. Using the Kruskal-Wallis test, the results suggest comparable assessments among training directors, trainers and trainees when it comes to the formulation of objectives, (*H*=0.43, *DF*=2, *P* = 0.806).

The result implies that the three groups have the same perception when it comes to the formulation of objectives. The indicators in the formulation of objectives are equally important for the three groups in the implementation of the CBT System. They see the importance of the formulation of objectives in the implementation of CBT. In addition, the formulation of objectives zeroes in the learners' clearly defined behavioral changes that can be mastered and assessed given the conditions and processes (Hodge, 2007). Furthermore, the formulation of objectives sets the tone of the CBT System. It gives a clear direction. Thus, the respondents should work for it from the management level down to the recipients although it is the concern and prerogative of the Training Directors as managers of TVIs as indicated in the table (Z=-0.36).

Table 10: Kruskal-Wallis Test Results on Differences of Assessment among Training Directors, Trainers and Trainees on the Extent of Implementation of Competency Based System (CBT) in Terms of Structure of Learning Process

Groups	n		Median	Ave Rank		Z	
Training Directors		8		52.00	98.6		-1.65
Trainers	36		56.50	109.5		-2.86	
Trainees	250		61.00	154.5		3.38	
Overall	294	147.5					

H = 11.56 DF = 2 P = 0.003

Legend:

P - Value $< \alpha = 0.05$ - Significant at $\alpha = 0.05$ (*)

P – Value $> \alpha = 0.05$ - Not Significant at $\alpha = 0.05$ (*ns)*

Table 10 depicts the differences on Assessments among training Directors, trainers, and trainees on the extent of implementation of competency Based System (CBT) in terms of Structure of Learning Process. Through Kruskal-Wallis test, the results showed significant differences of assessments concerning the extent of implementation of competency Based System (CBT) in the aspect of Structure of Learning Process (*H* = 11.56, *DF* = 2, *P* = 0.003). Post-Hoc analysis is further performed to determine the differences of assessments on pairwise comparisons among the different groups of respondents.

Table 11: Pairwise Comparison on Differences of Assessment among Training Directors, Trainers and Trainees Concerning the Extent of Implementation of Competency Based System (CBT) on the Structure of Learning Process

Compared Groups	Variables	Sample Sizes	Median	Point Estimate	95% CI for η1 - η2	W-Value	P-Value
Training Directors Versus Trainers	Structure of Learning Process	$n_1 = 8$ $n_2 = 36$	η1=52.00, η2=56.50	1.00	(-9.00,9.00)	186.50^{ns}	0.855
Training Directors Versus Trainees		$n_1 = 8$ $n_2 = 250$	η1=52.00, η2=61.00	-6.00	(-12.00,-0.00)	638.0^{ns}	0.056
Trainers Versus Trainees		$n_1 = 36$ $n_2 = 250$	η1=56.50, η2=61.00	-5.000	(-9.000,-1.999)	3804.5^{*}	0.003

Legend:

P - Value $< \alpha = 0.05$ - Significant at $\alpha = 0.05$ (*)

P – Value $> \alpha = 0.05$ - Not Significant at $\alpha = 0.05$ (*ns*)

Table 11 reveals the differences on the assessments among training directors, trainers, and trainees concerning the Extent of Implementation of Competency Based System (CBT) in the aspect of Structure of learning process in FIS TVIs. Using the Mann-Whitney test, the results showed that the assessment of trainers is significantly higher compared to the trainees with regard to the structure of learning process (W=3804.5, p=0.003).

This result implies that the trainers have good grasp in the structure of the learning process because it is their duty to facilitate the learning process of the trainees. They are directly involved in the classroom instruction and they have a clear objective to fulfill. They are also ready to implement the formulation of objectives through the structure of learning process. Thus, it is an encouragement for the trainers to master their turf. They should create an opportunity for the trainees to develop and master the competencies which a training programme strives. In addition, trainers should make naturally instructional activities that are designed for reaching each of the indicators in the formulation of objectives. On the other hand, the trainees are more on the receiving end; they are the recipients of the structure of learning process. Thus, the structure of the learning process is not the number one concern or priority of the trainees.

However, no significant differences exist for the assessments of aforementioned factor in between training directors and trainers, as well as the training directors and trainees (w=186.50; 638.0, p=0.855, 0.056, respectively). This result indicates that the structure of learning process is the priority of the trainers and the training directors. In short, the structure of learning process is equally important for the training directors and trainers. The researchers also have taken into account that the job of the training directors is more on the managerial level and one of the things that they should manage is the implementation of the structure of learning process. Small wonder then that they have comparable assessments. In addition, the findings further revealed that there is no significant difference for training directors and trainees. This is an indication that both training directors and trainees are not directly involved in the structure of learning process. The training directors are more on the top level while the trainees are more on the receiving end.

Table 12: Kruskal-Wallis Test Results on Differences of Assessment among Training Directors, Trainers and Trainees on the Extent of Implementation of Competency Based System (CBT) in Terms of Manner of Assessment Method

Groups	n	Median	Ave Rank	Z
Training Directors	8	59.50	124.5	-0.78
Trainers	36	60.00	137.1	-0.79
Trainees	250	62.50	149.7	1.08
Overall	294		147.5	
H = 1.30 DF = 2 P = 0.521				
H = 1.31 DF = 2 P = 0.521 (adjusted for ties)				

Legend:

P - Value $< \alpha = 0.05$ - Significant at $\alpha = 0.05$ (*)

P – Value $> \alpha = 0.05$ - Not Significant at $\alpha = 0.05$ (*ns)*

The Kruskal Wallis test result (Table 16) revealed no significant differences on the Assessment among training directors, trainers, and trainees on the extent of implementation of Competency-Based System (CBT) in terms the manner of assessments methods. That is, the perception among the different groups of respondents showed the same level of ratings on the extent of assessment regarding the manner of assessment methods used (H = 1.30, DF = 2, P = 0.521).

This result indicates that when it comes to the manner of assessment methods, the groups have the same perceptions. The manner of assessment method is equally important for them. In fact, every group is happy when all trainees pass the National Assessment. This is actually the aim of the training program. Truly, the triumph of one is the triumph of all. Thus, they have to work for it although it is the top priority of the trainees as indicated in the table (Z=1.08). The trainees after all have to pass the National Assessment given by TESDA at the end of the training.

Impact Analysis on the Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives, Structure of Learning Process and Manner of Assessment Method in the Salesian Philippine South Province (FIS) Technical Vocational Institutes (TVIs) as Perceived by Training Directors

The results shown below determine the Principal Component Analysis on the factors affecting the Extent of Implementation of Competency Based System (CBT). The results revealed that each of the factors is independent from one another as evidenced by the nonzero acute angles in between them as shown in Figure 3 below. That is, the factors affecting the Extent of Implementation of Competency Based System (CBT) are free from multi-collinearity problems.

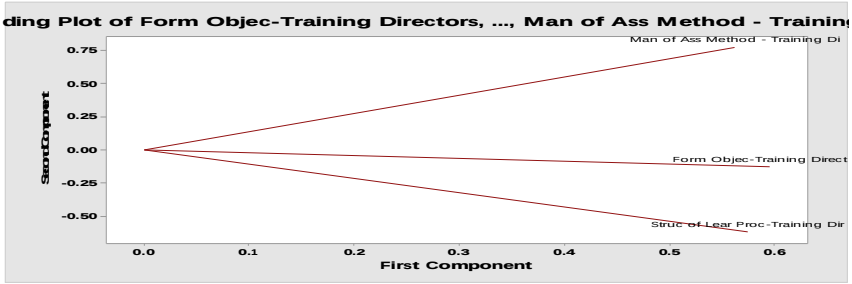


Figure 3: Multicollinearity Results on the Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives, Structure of Learning Process and Manner of Assessment Method as Perceived by Training Directors

Table 13: Eigenanalysis of the Correlation Matrix

Eigenvalue	2.5077	0.3238	0.1685
Proportion	0.836	0.108	0.056
Cumulative	0.836	0.944	1.000

The results revealed that the first eigenvector or principal component represents 83.60% of the total variance. This finding is sufficient enough to represent the indicators in the implementation of CBT System in FIS TVIs. These indicators include the Formulation of Objectives, Structure of Learning process and Manner of Assessment Method.

Table 14: Principal Component Analysis Results on the Extent of Implementation of Competency Based System (CBT) Per Assessment of Training Directors

Variables	PC1	PC2	PC3
Formulation of Objectives	0.595	-0.129	-0.793
Structure of the Learning Process	0.574	-0.622	0.532
Manner of Assessments Method	0.562	0.772	0.297

Using the first principal component analysis results, the index of the extent on the Implementation of CBT System as perceived by the Training Directors can be modeled by the equation given by

Extent of Implementation of CBT System as perceived by the Training Directors = 0.595 on Formulation of Objectives+0.574 *on Structure of Leaning Process + 0.562 * on Manner of Assessment Method*

The model suggests that the extent of Implementation of CBT System as perceived by the Training Directors varies directly with the factors affecting them. More specifically, the extent of Implementation of CBT System is mainly characterized by formulation of objectives followed by structure of learning process while relatively affected by the manner of assessment of method. This finding implied that the Training Directors have to work more on the Formulation of Objectives so as to give direction both for the trainers and trainees in the implementation of the CBT System. In addition, the findings show the order of interventions, namely: first, the formulation of objectives, secondly, the structure of learning process and lastly, the manner of assessment method.

Impact Analysis on the Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives, Structure of Learning Processes and Manner of Assessment Methods in the Salesian Philippine South Province (FIS) Technical Vocation Institutes (TVIs) as Perceived by Trainers

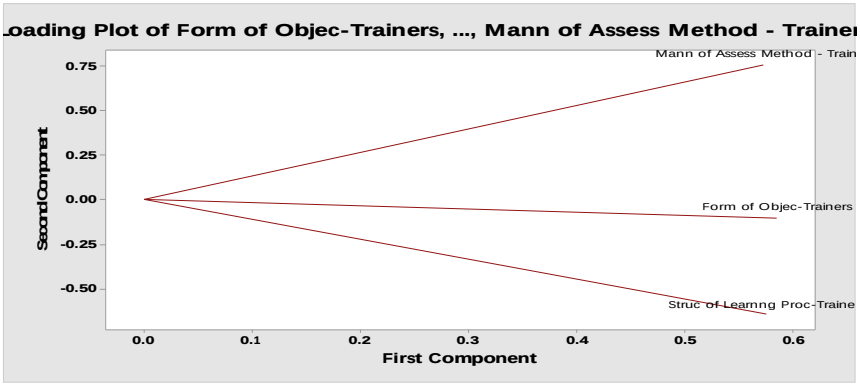


Figure 4: Multicollinearity Results on the Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives, Structure of Learning Processes and Manner of Assessment Methods as Perceived by Trainers

Figure 4 shows the Multicollinearity results on the Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives, Structure of Learning Process and Manner of Assessment Method as perceived by Trainers. This result reveals that each of them is independent from one another as shown by the nonzero acute angles in between the two indicators. This means that the indicators affecting the implementation of CBT System are free from multicollinearity problems.

Table 15: Eigenanalysis of the Correlation Matrix

Eigenvalue	2.8228	0.1246	0.0526
Proportion	0.941	0.042	0.018
Cumulative	0.941	0.982	1.000

This results show that the first eigenvector or principal component represents 94.10% of the total variance. This finding is very highly sufficient to represent the indicators in the implementation of CBT System in FIS TVIs. These indicators include the Formulation of Objectives, Structure of Learning process and Manner of Assessment Method.

Table 16: Principal Component Analysis Results on the Extent of Implementation of Competency Based System (CBT) Per Assessment of Trainers

Variables	PC1	PC2	PC3
Formulation of Objectives	0.585	-0.105	-0.804
Structure of the Learning Process	0.575	-0.645	0.503
Manner of Assessment Methods	0.572	0.757	0.316

Using the first principal component analysis results, the index of the extent in the Implementation of CBT System as perceived by the Trainers can be modeled by the equation given by

Extent of Implementation of CBT System as perceived by the Trainers = 0.585 on Formulation of Objectives+0.575 *on Structure of Leaning Process + 0.572 * on Manner of Assessment Method*

The model implies that the extent of Implementation of CBT System as perceived by the Trainers varies directly with the factors affecting them. Specifically, the extent of Implementation of CBT System is mainly determined by formulation of objectives followed by structure of learning process while relatively affected by the manner of assessment of method. This implies that the Trainers have to exert more effort in the Formulation of Objectives to give direction to the trainees in the implementation of the CBT System. In addition, this table shows the order of interventions, namely: the formulation of objectives, the structure of learning process, and the manner of assessment method.

Impact Analysis Concerning the Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives, Structure of Learning Processes and Manner of Assessment Methods in the Salesian Philippine South Province (FIS) Technical Vocation Institutes (TVIs) as Perceived by Trainees



Figure 5: Multicollinearity Results on the Extent of Implementation of Competency Based System (CBT) in Terms of Formulation of Objectives, Structure of Learning Processes and Manner of Assessment Methods as Perceived by Trainees

Figure 5 shows the Multicollinearity results on the Extent of Implementation of CBT in Terms of Formulation of Objectives, Structure of Learning Process and Manner of Assessment Method as perceived by Trainees. This result reveals that each of them is independent from one another as shown by the nonzero acute angles in between the two indicators. This means that the indicators affecting the implementation of CBT System are free from multicollinearity problems.

Table 17: Eigenanalysis of the Correlation Matrix

Eigenvalue	2.8014	0.1257	0.0729
Proportion	0.934	0.042	0.024
Cumulative	0.934	0.976	1.000

This finding shows that the first eigenvector or principal component represents 93.40% of the total variance. This finding is very highly sufficient enough to represent the indicators in the implementation of CBT System in FIS TVIs. These indicators include the Formulation of Objectives, Structure of Learning process and Manner of Assessment Method

Table 18: Principal Component Analysis Results Concerning the Extent of Implementation of Competency Based System (CBT) as Perceived by Trainees

Variables	PC1	PC2	PC3
Formulation of Objectives	0.572	0.818	-0.067
Structure of the Learning Process	0.581	-0.345	0.737
Manner of Assessment Methods	0.579	-0.461	-0.672

Applying the first principal component analysis, the index of the extent in the Implementation of CBT System as perceived by the Trainees can be modeled by the equation given by

Extent of Implementation of CBT System as perceived by the Trainees = 0.572 on Formulation of Objectives+0.581 *on Structure of Leaning Process + 0.579 * on Manner of Assessment Method*

The above model suggests that the extent of Implementation of CBT System as perceived by the trainees varies directly with the factors affecting them. More specifically, the extent of Implementation of CBT System is mainly characterized by structure of learning process followed by the manner of assessment method while relatively influenced by formulation of objectives. These findings imply that the Trainees have to work more on the Structure of the learning process. Their concern is to understand the lesson given by the Trainers so as to pass the National Assessment. Logically, the second priority is the Manner of Assessment. They want to learn many methods of assessment because they want to pass the Assessment. Their last concern is the formulation of objectives which is actually the concern of the trainers and training directors.

A. Proposed Intervention Schemes To Improve The Implementation Of Tesda's CBT System In FIS TVIS

The overall result of the survey in relation to the extent of TESDA's CBT System implementation in the eight FIS TVIs particularly in the three main aspects of the CBT system was very satisfactorily implemented as perceived by the training directors, trainers and trainees. Although, it is highly regarded, there is still room for improvement because it has not yet reached the highest rating which is the excellent rating.

The study presents intervention schemes to maintain CBT components with higher ratings and to uplift CBT components with lower ratings. The following are the CBT components with higher ratings and lower ratings, categorized by the three main aspects of CBT with their corresponding over-all mean and the suggested intervention schemes.

B. Intervention Schemes

1) On the Formulation of Objectives

Top 1 - Rated 5.97 over 7.00: The training design includes an in-house training and on-the-job training that reinforces mastery of the competencies.

Intervention: Technology develops and advances. This affects the industry's emerging practices and processes. The OJT program of the FIS TVIs should keep up with these advances.

2) Structure of Learning Process

Top 1 - Rated 5.77 over 7.00: The in-center training and on-the-job training are closely link and integrated that progress of the trainee in his/her specific qualification is monitored and reinforced.

Intervention: The learning process in the OJT is guided by the Training Plan in collaboration with the industry trainer and in-center trainer. It is recommended that in-depth discussion between both parties be done before the start of the OJT so as to lay-out the appropriate learning processes. Quarterly evaluation and follow up should also be done.

3) Manner of Assessment Method

Top 1 - Rated 6.41 over 7.00: The successful undertaking of the On-the-Job Training (OJT) or Learnership of Apprenticeship is required for the completion of the training program.

Intervention: As such, evaluation of the learner in the OJT should be continuously aligned to the expected outcomes required in the industry or field of work.

Code for the Plan for Intervention Schemes:

FO = Formulation of Objectives;

SLP = Structure of the Learning Process;

MAM= Manner of Assessment Method

Table 19 PLAN FOR INTERVENTION SCHEMES

Code	Indicators	Intervention	Resource	Budget	Date
FO#10_ TOP 1	No.10: The training design includes an in-house training and on-the-job training that reinforces mastery of the competencies, which has the rating of 5.97.	• Planning of the Industry immersion Program for the Training Directors and Trainers	• Training Directors • Trainers • Industry Liason Officer • Industry Representative • Industry Trainers	Php 25,000.00 x 8 FIS TVIs = Php 200, 000.00	March
SLP#08_ TOP 1	(No. 8) "The in-center training and on-the-job training are closely link and integrated that progress of the trainee in his/her specific qualification is monitored and reinforced"	• Implementation of Industry Immersion Program		Php 10,000 / person	April onwards
MAM#10_ TOP 1	(No. 10) The successful undertaking of the On-the-Job Training (OJT) or Learnership or Apprenticeship is required for the completion of the training program.	• Quarterly evaluation and follow up		Php 10,000 x 8 FIS TVIs = Php 80,000.00	Quarterly
FO#10_ TOP 3	No. 4: The basis for evaluating or assessing the mastery of the trainee on each competency is taken from the TESDA regulations or Industry Standards,	• Dialogue and Planning with Industry Partners for the Session Plan and Training Plan	• Training Directors • Trainers	Php 35,000 x 8 FIS TVIs = Php 280, 000.00	March to May (Yearly)

		• Implementation of the Revised Session Plan and Training Plan	• Industry Liason Officer • Industry Representative • Industry Trainers	Php 10,000 x 8 FIS TVIs = Php 80, 000.00	June to March (Yearly)
FO#10_ TOP 2	No. 7: The equipment, tools, accessories and supplies are identified, sufficient and suitable for achieving mastery of the Learning Outcomes	• Planning for Facilities, Tools and Equipment Upgrading	• Training Directors • Trainers • Project Development Office of FIS	Php 25,000.00 x 8 FIS TVIs = Php 200, 000.00	March
		• Submission of Project Proposals for Facilities, Toos and Equipment Upgrading		Php 5,000 x 8 FIS TVIs = Php 40, 000.00	April
FO#02_ T0P 10	(No. 2) Each competency (ex. Common 9: Repair weld, etc…) has a Competency Based Learning Module which is used as a complete and effective guide for trainees to achieve mastery	• Intensive Seminar and Workshop on Trainers Methodology	• Training Directors • Trainers	Php 20,000 x 8 FIS TVIs = Php 160,000.00	March to May

PLAN FOR INTERVENTION SCHEMES

Code	Indicators	Intervention	Resource	Budget	Date
FO#03_ TOP 9	(No. 3) Each competency has the complete number of Learning Outcomes (ex. LO1: Perform root pass, etc…) that make a trainee competent; and these Learning Outcomes are presented using various suitable training methods (ex. print, audio, videos, simulation, practical demonstration, etc) with corresponding evaluation tools that aim to check the mastery of the trainee	• Seminar and Workshop on CBT Methods of presentation and assessment	• Trainers	Php 20,000 x 8 FIS TVIs = Php 160,000.00	May
FO#08_ TOP 8	(No. 8) The training aids/materials/places (print, audio, and visual) are identified, labeled, sufficient, complete and suitable for achieving mastery of the learning outcomes	• Seminar and Workshop on CBT Didactics	• Trainers	Php 20,000 x 8 FIS TVIs = Php 160, 000.00	May
SLP#04_ TOP 2	(No. 4) “the materials for the presentation and practice/demonstratualtion are sufficient for mastery	• Seminar and Workshop on Maintenance Program	• Trainers	Php 20,000 x 8 FIS TVIs = Php 160, 000.00	May
MAM#06_ TOP 3	(No. 6) The needed tools, equipment, and venue for the completion of the evidences for institutional assessment are complete, functional and suitable.	• Seminar and Workshop on Inventory Program	• Trainers	Php 20,000 x 8 FIS TVIs = Php 160, 000.00	May
SLP#02_ TOP 3	(No.2) “each method includes the mechanism of presentation (trainer’s part), practice/demonstrate (trainee’s part) and feedback (trainer-trainee) aimed at mastery	• Seminar and Workshop on Training Delivery (Presentation, Practice and Feedback)	• Trainers	Php 20,000 x 8 FIS TVIs = Php 160, 000.00	June
MAM#08_ TOP 10	(No. 8) The result is immediately relayed and explained to the trainees after the institutional assessment with corresponding recommendations.				
SLP#10_ TOP 10	(No.10) The system allows for learner to enter and exit training programs at different times and levels and to receive a corresponding award for the competencies attained at any point	• Seminar and Workshop on Multiple Entry Program	• Training Directors • Trainers	Php 20,000 x 8 FIS TVIs = Php 160, 000.00	June
SLP#06_ TOP 9	(No. 6) The learning method is competency-based and modular in structure where one module addresses the learning of one competency and the learner proceeds from one module after another until all competencies of the	• Seminar and Workshop on Modular programs	• Training Directors • Trainers	Php 20,000 x 8 FIS TVIs = Php 160, 000.00	June

	qualification are attained.				

Table 20 PLAN FOR INTERVENTION SCHEMES

Code	Indicators	Intervention	Resource	Budget	Date
SLP#09_ TOP 8	(No. 9) The training system recognizes and credits the previously learned knowledge, skills and attitudes either through work experiences or previous training after verification of supporting documents and appropriate testing of the said acquired knowledge, skills and attitudes.	• Seminar and Workshop on Recognition of Prior Learning (RPL)	• Training Directors • Trainers	Php 20,000 x 8 FIS TVIs = Php 160, 000.00	July
MAM#09_ TOP 2	(No. 9) The successful undertaking of the National Assessment for qualifications With Training Regulations (WTR) is required for the completion of the training program.	• Forum on the Standard Conduct of the National Assessment	• Training Directors • Trainers	Php 100,000.00	July
MAM#03_ TOP 10	(No. 3) Trainees evaluate their readiness to take the institutional assessment and can postpone institutional assessment when more practice is needed for mastery.	• Seminar and Workshop on the Method of Institutional Assessment and Personal Readiness	• Training Directors • Trainers	Php 20,000 x 8 FIS TVIs = Php 160, 000.00	July
MAM#01_ TOP 9	(No. 1) The institutional assessment of a certain qualification uses the “competent” and “not-yet-competent” scheme.				

Table21 Intervention Schemes Ghant Chart

no.	Intervention Schemes Ghant Chart	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Jan	Feb
1	Planning of the Industry immersion Program for the Training Directors and Trainers												
2	Implementation of Industry Immersion Program												
3	Quarterly evaluation and follow up												
4	Dialogue and Planning with Industry Partners for the Session Plan and Training Plan												
5	Implementation of the Revised Session Plan and Training Plan												
6	Planning for Facilities, Tools and Equipment Upgrading												
7	Submission of Project Proposals for Facilities, Toos and Equipment Upgrading												
8	Intensive Seminar and Workshop on Trainers Methodology												
9	Seminar and Workshop on CBT Methods of presentation and assessment												
10	Seminar and Workshop on CBT Didactics												
11	Seminar and Workshop on Maintenance Program												
12	Seminar and Workshop on Inventory Program												
13	Seminar and Workshop on Training Delivery (Presentation, Practice and Feedback)												
14	Seminar and Workshop on Multiple Entry Program												
15	Seminar and Workshop on Modular programs												
16	Seminar and Workshop on Recognition of Prior Learning (RPL)												
17	Forum on the Standard Conduct of the National Assessment												
18	Seminar and Workshop on the Method of Institutional Assessment and Personal Readiness												

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Table 22.
INTERVENTION Schemes Monitoring Sheet

no.	INTERVENTION SCHEMES MONITORING SHEET	Date	implemented	Not Implemented	Remarks
1	Planning of the Industry immersion Program for the Training Directors and Trainers	March			
2	Implementation of Industry Immersion Program	April onwards			
3	Quarterly evaluation and follow up	Quarterly			
4	Dialogue and Planning with Industry Partners for the Session Plan and Training Plan	March to May (Yearly)			
5	Implementation of the Revised Session Plan and Training Plan	June to March (Yearly)			
6	Planning for Facilities, Tools and Equipment Upgrading	March			
7	Submission of Project Proposals for Facilities, Toos and Equipment Upgrading	April			
8	Intensive Seminar and Workshop on Trainers Methodology	March to May			
9	Seminar and Workshop on CBT Methods of presentation and assessment	May			
10	Seminar and Workshop on CBT Didactics	May			
11	Seminar and Workshop on Maintenance Program	May			
12	Seminar and Workshop on Inventory Program	May			
13	Seminar and Workshop on Training Delivery (Presentation, Practice and Feedback)	June			
14	Seminar and Workshop on Multiple Entry Program	June			
15	Seminar and Workshop on Modular programs	June			
16	Seminar and Workshop on Recognition of Prior Learning (RPL)	July			
17	Forum on the Standard Conduct of the National Assessment	July			
18	Seminar and Workshop on the Method of Institutional Assessment and Personal Readiness	July			

IV. SUMMARY, FINDINGS, CONCLUSION, RECOMMENDATIONS

A. Summary

The Salesians of Don Bosco (SDB) in the Philippine South Province (FIS) has been running the TVIs for the past 50 years. Many of them were run before by the Salesian Missionaries from different countries. They brought their machines and technology to the country.

Considering that vocational and technical education plays a vital role in the development of a country, the FIS has renewed its commitment to espouse TESDA's CBT System in the TVIs so as to produce trainees who are both nationally and globally competitive.

In view of this thought, the main purpose of this study was to assess the implementation of TESDA's CBT System in the FIS TVIs so as to make some intervention schemes in its implementation.

B. Findings

The following are the findings of the study:

1) Based on the results of the survey, the demographic profile of the respondents is as follows:

- 110 (44%) of the trainees took Vocational Courses prior to their studies in the TVIs.
- Age – the 18-21 age group comprised 65.2% of the respondents.
- 55 (22%) of the respondents stayed for 9-10 months in the Training Center. It is very interesting to know that many of the respondents are familiar with CBT System.
- Out of 8 training directors, only 3 are TMC1 holder and all of them do not have industry experience.
- A good number of the trainers are TESDA qualified. Out of 36, 15 (41.66) are TMC1 holder. Many of them have multiple NCs.

2) As to the registered and audited qualifications offered in TVIs, only 24 of them are audited and registered.

3) As to the extent of the implementation of the CBT System in the training programs of FIS TVIs as perceived by the training directors, trainers, and trainees in the aspects of formulation of objectives, structure of learning process and manner of assessment method, the study shows that the overall rating was of 5.64 which belong to the category of very satisfactorily implemented.

The formulation of objectives has the rating of 5.68. As for the top 3 indicators, the following are the results:

a) No. 10 'The Program for On-the-job Training or Industry Experience' which has the rating of 5.97.

b) No. 7 'The set of equipment, tools, accessories and supplies that are allotted for the program' which has the rate of 5.90.

c) No. 4 'The standards used for evaluating mastery' which has the rating of 5.89

The structure of learning process has the rating of 5.48 which belong to the category of very satisfactorily implemented. As for the top 3 indicators, the following are the results:

- The 'in-center training and OJT are closely linked and monitored' is the highest in the structure of learning process which has the rating of 5.77.
- The second highest is 'the materials for presentation and demonstration are sufficient for mastery' which has the rating of 5.71.
- The third highest is 'each method includes the mechanism of presentation, practice and feedback' which has the rating of 5.71

The manner of assessment method has the rating of 5.78 which belongs to the category of very satisfactorily implemented. As for the top 3 indicators, the following are the results

- OJT as part of assessment and completion ranks first. It has the rating of 6.41.
- The second highest is 'successful National Assessment is required' which has the rating of 6.09.
- The third highest is 'the needed tools are complete, functional and suitable' which has the rating of 5.82

It is noticed that the indicators, which garnered the highest ratings in each aspect of the CBT, included the component of the On-the-Job Training. This is a significant data that speaks of the emphasis of the FIS TVIs on industry related training.

4) There was no significant difference in the perceptions of training directors, trainers, and trainees on the extent of implementation of CBT System in the training programs of FIS TVIs in terms of formulation of objectives and manner of assessment method. However, there was a significant difference between the Trainers and Trainees in the Structure learning process. This means that both trainers and trainees are not on the same page in the implementation of the CBT System. The trainers should prioritize the transfer of learning to the trainees. They are directly involved in the learning process whereas the trainees are on the receiving end.

5) Based on the analysis, the following are the results of the level of impact of factors affecting the extent of implementation of CBT System as perceived by the training directors, trainers, and trainees:

- The *Extent of Implementation of CBT System as perceived by the Training Directors is 0.595 on Formulation of Objectives, 0.574 on Structure of Leaning Process, and 0.562 on Manner of Assessment Method*
- Using the first principal component analysis results, the index of the extent on the Implementation of CBT System as perceived by the Trainers can be modeled by the equation given by *Extent of Implementation of CBT System as perceived by the Trainers is 0.585* on Formulation of Objectives, 0.575 *on Structure of Leaning Process and 0.572 * on Manner of Assessment Method*
- Applying the first principal component analysis, the index of the extent on the Implementation of CBT System as perceived by the Trainees can be modeled by the equation given by *Extent of Implementation of CBT System as perceived by the Trainees is 0.572* on Formulation of Objectives, 0.581 *on Structure of Leaning Process and 0.579 * on Manner of Assessment Method*

C. Conclusion

From the findings, the researchers concluded that the implementation of TESDA's CBT System in FIS TVIs was very satisfactorily implemented (5.64). The three groups have the same perceptions that the Main Aspects of CBT System are equally important in the implementation of CBT System.

Each group is in the right tract. They are working on the priority depending on their status as training directors, trainers, and trainees. The rating depicts also that there is still implementation that need to improve in order to reach the goal of Extremely Implemented. Thus, the intervention scheme will help in the comprehensive implementation of TESDA's CBT System. It will also help in maintaining the standard of FIS TVIs.

The researchers also concluded that the "On-the-Job Training" which garnered the highest rating in each aspect of CBT suited well to the over-rating of "very satisfactorily implemented" of CBT because of the OJT's emphasis on industry-related training. Moreover, the supporting theories of task analysis theory for the formulation of objectives; operant conditioning theory and mastery learning theory for the structure of learning process; and minimum competency test theory for the manner of assessment method, which are all anchored on industry developmental experiences, corresponded well to the findings of this research where its highest rated components on each aspect of CBT is the industry laden On-the-Job-Training.

1) Ethical Approval

Not applicable

2) Availability of date and materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

D. Recommendations

Based on the analysis of the findings, the following recommendations are presented:

1) Primary Recommendations

a) The researchers together with the FIS TVIs delegation in-charge should present the study with its proposed intervention schemes to the rectors of the different houses in FIS for queries, comments and suggestions.
b) The study with its revisions should be presented to the Provincial Superior and the Provincial Councilors for approval.
c) All training director of various FIS TVIs should be oriented towards the approved intervention schemes for its implementation.
d) A team of CBT experts should be formed with the task of guiding, assisting and monitoring the full implementation of the CBT System in the eight FIS TVIs
e) The CBT expert team should visit the eight FIS TVI once a year in order to evaluate the CBT system implementation.
f) The CBT expert team will conduct a yearly forum and updates, involving the eight FIS TVIs, in relation to the CBT system implementation.
g) The FIS should make a Career development plan and ongoing program both for the Training Directors and trainers.
h) The FIS should provide enough fund necessary for CBT training, curriculum development, purchase of materials, books, tools, equipment, renovate buildings so that the venue will be lighted and ventilated, and for the research development office of the FIS TVIs.
i) There has to be Stronger Partnership with the industry and private sector for higher employability of the graduates and industrial attachment should be forged.

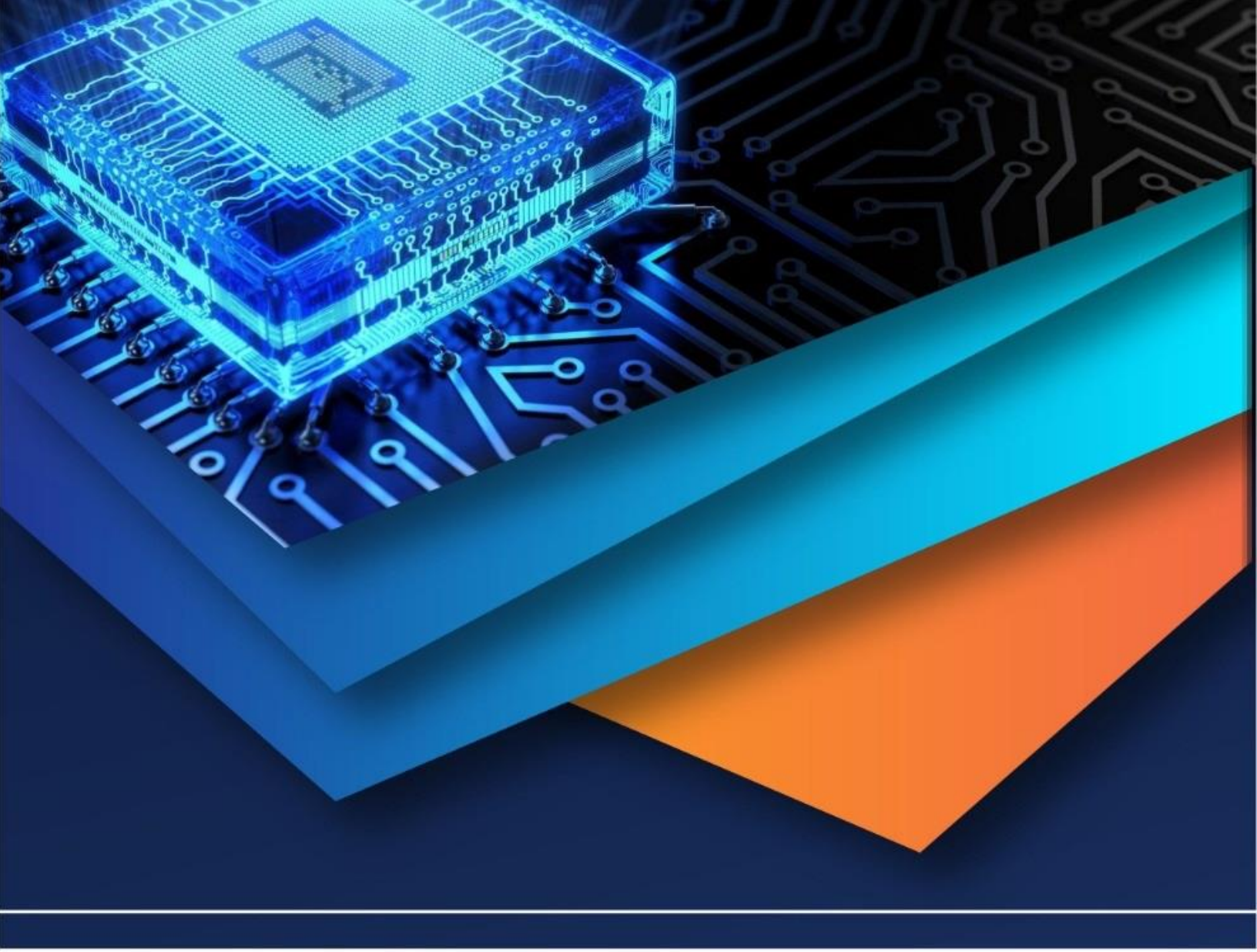
2) Secondary Recommendations

For future researchers:

a) Maximize some more the demographic profile of the respondents, conduct a correlation study between age, educational qualification, years in TVIs;
b) Conduct a Focus Group Discussion (FGD) to unravel the underlying problems, difficulties, and discover the opportunities and threats encountered by the training directors, trainers, and trainees in each FIS TVIs.
c) Incorporate the findings of this study to the ongoing implementation of the intervention scheme provided by the researchers.

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