

# Evaluation of Worktext in Mechanical Drafting

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**Abstract** – *This study aimed to evaluate Worktext in Drafting Technology 4 (Mechanical Drafting) for Bachelor of Technology (BT) major in Drafting Technology. It was conducted at University of Rizal System with twenty Drafting and Mechanical Technology professors as respondents. The study used the descriptive evaluative method to describe and evaluate the developed Worktext in DT 4 using the questionnaire-checklist in gathering data. They were asked to evaluate the worktext through the following: objectives, contents, activities, presentation and style, organization, creativity, evaluation, accuracy, completeness and appropriateness. It was found out that the developed worktext with respect to objectives was highly agree, contents was highly agree, activities was highly agree, presentation and style was agree, creativity was highly agree and evaluation was highly agree. Meaning that the items with highly agree interpretations attained excellent level of acceptability while those with agree interpretations obtained extensive level of acceptability with fully achieved and above average Drafting standards, respectively. It was also found out that the developed worktext in terms of accuracy was high, completeness was very high and appropriateness was likewise very high. The researcher recommends that the developed Worktext in Drafting Technology 4 may be adopted for use by the Bachelor of Technology major in Drafting Technology students.*

**Keywords** – *Drafting Technology 4, Instructional Materials, Mechanical Drafting and Worktext*

## INTRODUCTION

Mechanical Drafting makes use of the fundamental principles of technical drawing. It is concerned primarily with the functional aspects of machine and mechanism. Mechanical Drafting adheres strictly to the rules and conventions as applied to simple machine parts for the purpose of their vivid description.

The course is a four (4) unit subject with two hours lecture and six hours laboratory. Currently, no specific material, be it a text book, workbook, manual or the like caters purposely for this subject. Most objects intended for mechanical drafting are difficult, intricate and varied, and many of them are parts of machines used in other technology areas. Accuracy and precision coupled with speed and neatness are requisites for a generally acceptable production drawing.

The worktext in DT 4 may provide the much needed information and showcase vivid illustrations for easy to understand concepts in mechanical drafting. This will not replace the drafting lessons to

be prepared by the professors but designed to supplement and suggest uniformity of instructions.

Instructional tasks are the core setting in a classroom. All educators maintain an overwhelming command over learning process by making the decisions about what is to be taught, how it will be taught and what materials to be used. Instructional materials are the definite, precise and factual items in a lesson and carried out through various instructional media. It is the avenues of communication that conveys messages with an educational purpose.

Westbury [1] pointed out that textbooks and other printed materials are still considered the best instrument in enhancing positive transfer of learning because they stimulate a good human mentor to teach efficiently and effectively. Such instructional materials enhance quality instruction and therefore guarantee quality education which can be done by providing appropriate materials which serve as the principal tool and repository of standard knowledge that schools communicate a basic instrument for

organizing curricula and a basic tool for teaching and learning.

Heinich [2] regarded learning materials meaningful to master specific skills and acquire knowledge. According to him, instructional materials are not designed to become a substitute to effective teacher or to supplement the textbook but to supplement the instructional process. The present study has the same intention of providing integral exercises to the instructional process that may lead to consistent and synchronize lessons.

Louis [3] emphasized that development of instructional materials both printed and non-printed is a part of university's responsibility to assure their students' comprehensive learning that encompasses every single details in the curriculum. He added that continuous evaluation of the materials should be conducted to assess the appropriateness and timeliness of the contents. It is significantly related to the present study since the researcher want to establish a newly developed material for drafting students and to find out its effects to the educational growth and development of the learners.

One of the numerous responsibilities of a teacher is to select, prepare and utilize the most appropriate learning materials to the level of the learners.

In the study made by Rogers [4] states that there was no statistical difference between the students of the teacher-led instruction as compared to the Modular Teaching Education (MTE) drafting instruction. The difference was not strong enough to suggest that MTE instruction was more effective than contemporary instruction. And, that contradicts with the study of Matantuk, et al. [5] shows that the use of teaching modules can improve students' thinking skills as the use of student-centered approach to encourage the students to participate in the discovery of knowledge.

The present study used Drafting Modular Instruction in teaching DT 4 (Mechanical Drafting) proves its effectivity as evaluated by Drafting and Mechanical Technology experts.

According to Ali [6] in his study that learning module is a self-learning package dealing with one specific subject matter unit. It is structured in such a way that learner can identify he objectives he/she wants to achieve, select the appropriate material, follow a learning sequence by selecting from a variety of methods of presentation, and evaluate his/her own achievements.

Similarly with the Worktext in DT 4, proper selection of objectives must be appropriately considered as well as the style and presentation including evaluation instrument to give assurance that learning will take place.

According to the Department of Curriculum and Instruction of Anne Arundel County Public School [7] that instructional materials must support curriculum standards and addresses the needs of the students as a lifelong learner. More so, it must reflect quality writing, production technique and is user friendly.

In the study of Selga [8] it is revealed that worktext contributes to the achievement of specific objectives of the subject, provides for the development of higher cognitive skills, was well-organized and well-designed and was suitable to the ability of the students.

The following criteria were used by Laroza [9] in her study in determining the validity of her developed modules in Personality Development and Public Relations, objectives, subject matter, organization and presentation, language and style and usefulness. In the same manner that the Worktext in DT 4 closely made use of objectives, presentation, style and organization in establishing acceptability of the instructional material.

Another study which is relevant to the present study is the work of Cruz [10] which is entitled "Development and Validation of Worktext in Drawing 2". Both use the same trade area of Drafting Technology and the manner of presentation of worktext.

The focus of the present study is on the evaluation of the Drafting Professors on the developed worktext while the former made use of students as respondents through experimentation. Cruz explained that the developed worktext contributed to the improvement of students' accomplishments in Drawing. He further stressed that the worktext in Drawing 2 is effective and acceptable for use as instructional material in teaching the subject.

The burdens of Drafting students in photocopying discussions and drawings which in most cases are excessive and not even related or needed to the topics being discussed are enormously heavy and do not directly supplement lectures and demonstrations made by the Professors. Likewise, copying intricate, complicated and varied given mechanical objects slices a big part to the time allotted in finishing drawing plates. Thus, affects the quality of submitted

work leading to lower grades or even failures. Time can guarantee quality of working drawings meeting the basic criteria of Drafting which are accuracy, correctness of work, legibility, speed and neatness. The very reasons why the researcher dwells on this study to provide evaluated instructional materials to possibly institute changes for the improvement in Mechanical Drafting.

### **OBJECTIVES OF THE STUDY**

The study aimed to evaluate the developed worktext in Mechanical Drafting for students of Drafting Technology in school year 2012 – 2013 in the University of Rizal System, Morong, Rizal, Philippines

Specifically, it sought answers to the following problems: how do professor respondents evaluate the Worktext in DT 4 as to objectives, contents, activities, presentation and style, organization, creativity and evaluation? And, how do the professor respondents evaluate the proposed Worktext in DT 4 in terms of accuracy, completeness and appropriateness?

### **METHODS**

This study used the descriptive evaluative method of research in analyzing the data gathered which led to realize the objectives which is to develop and evaluate worktext in DT 4 based on the requisites of the students and curriculum primarily utilized questionnaire – checklist as instrument in gathering the needed data to evaluate the developed Worktext in DT 4.

The descriptive evaluative survey method according to Calmorin [11] is designed to carefully appraise the worthiness of the current study. It involved collection of data in order to answer questions concerning the current status of the study. And since the nature of the study involves the gathering and interpreting detailed information, the researchers believe that it is the most appropriate to be used as basis for developing and evaluating the worktext in DT 4.

The study also made use of documentary analysis. Documentary analysis refers to acquiring information which is contained in documents, records, reports, statistics and manuscripts. Documentary analysis was done specifically on syllabi used in teaching the subject for the last five years.

The respondents involved in the study are twenty (20) Drafting Technology and Mechanical

Technology Professors and Instructors in the College of Industrial Technology, College of Engineering and URS – Cainta.

A questionnaire – checklist was used as instrument in gathering the needed data. This was used to determine the acceptability of the Worktext in DT 4. The questionnaire – checklist was adapted and modified from the questionnaire of Laroza [9]. It was then validated by research experts and later tested.

The criteria included in the questionnaire – checklist is objectives, contents, activities, presentation, organization, creativity, evaluation, accuracy, completeness and appropriateness.

### **Procedure**

The study was conducted during the school year 2012 – 2013 at University of Rizal System – Morong. A research proposal was presented to the CIT Research Committee for proper documentation. Upon College resolution number (CIT Research Res. # 10 – 06 – 11) was given, the Worktext in DT 4 was developed.

The questionnaire – checklist on the acceptability was administered to all Drafting Professors and selected Mechanical Technology Professors of the University as respondents. The responses were tallied, computed, analyzed and interpreted. The summary of findings, conclusions and recommendations were made.

### **Statistical Treatment**

The weighted mean was the statistical tool utilized in the interpretation of gathered data in determining the level of acceptability of the developed Worktext in DT 4 as perceived by the professor respondents in terms of objectives, contents, activities, presentation, organization, creativity, evaluation, accuracy, completeness and appropriateness.

The given scale was used to interpret the weighted mean scores for the assessment of Objectives, Contents, Activities, Presentation, Organization, and Evaluation of the developed worktext: 4.20-5.00: Highly Agree (HA); 3.40-4.19: Agree(A); 2.60-3.39: Moderately Agree (MO); 1.80-2.59: Disagree(D); 1.00-1.79: Highly Disagree (HD).

The given scale was used to interpret the weighted mean scores for the assessment of Accuracy, Completeness, and Appropriateness of the developed worktext: 4.20-5.00: Very High (VH); 3.40-4.19:

High (H); 2.60-3.39: Moderate (M); 1.80-2.59: Sometimes(S); 1.00-1.79: Never (N).

## RESULTS AND DISCUSSION

This study has two major activities, the development of the actual instructional material and its evaluation.

### The Development Phase

Prior to the writing of the instructional material, the syllabi used in teaching Drafting Technology 4 in years 2006 to 2011 was reviewed utilizing documentary analysis. The common topics included the course outline were carefully selected based on the course description, competencies required by TESDA and in-depth interviews from Professors already taught the subject. It was found out that in writing and designing the worktext, the considered topics were Bench Works, Machine Drawing, Caricature on Mechanical Safety Rules and Precautions, Sheet Metal, Screw Threads, Gears and Ironworks and Design.

Production/Working drawing of mechanical objects and structures concerned primarily with the functional aspects of machine and mechanism and should therefore adheres strictly to the standards, rules and conventions of Mechanical Technology.

The worktext was exhaustively written that covers all the basic ground that needs to be covered in order for the student users to fully understand the subject. Illustrations and figures were carefully selected and drawn based on Drafting standard operating procedure.

It was subjected to series of critiquing from experts in Mechanical and Drafting Technology, book writing and language. All comments and suggestions were considered in the revision of the worktext to further improve the material before it was subjected to Drafting and Mechanical professor and instructor respondents for evaluation.

As presented in table 1, objectives, as perceived by the professor respondents, item “the objectives are fitted to the level and needs of the students” is rank second with a weighted mean of 4.60 and interpreted as “highly agree” while first in rank is the item “the objectives are realistic and simple” with a weighted mean of 4.90 and interpreted as “highly agree”.

Last in rank is the item “the objectives suit the particular topic” with a weighted mean of 4.30 and interpreted as “highly agree”.

Table 1. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Objectives

Objectives	WX	VI	R
1. Worktext is accompanied by a list of specific objectives.	4.40	HA	3.5
2. The objectives suit the particular topic.	4.30	HA	5
3. The objectives are realistic and simple.	4.90	HA	1
4. The objectives are fitted to the level and needs of the students.	4.60	HA	2
5. The objectives are attainable.	4.40	HA	3.5
<b>Average Weighted Mean</b>	<b>4.52</b>	<b>HA</b>	

Legend: HA – Highly Agree

In general, the computed average weighted mean with respect to evaluation of the respondents in terms of objectives is 4.52 and interpreted as highly agree. This connotes that objectives set for the utilization of the worktext are suited to the learning needs of the students and all are attainable.

This implies the significance of the stating of objectives which are realistic, specific and fitted to the needs and level of the students.

The result supports the study of Laroza [9] that when objectives are clearly stated the great assistance to the students to have full understanding of the concepts to be discussed, accessible and achievable.

Table 2. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Contents

Contents	WX	VI	R
1. Sequences of the topic jive with the topics in Mechanical Drafting.	4.30	HA	2
2. Contents of the lessons and self-tests support the objectives	4.20	HA	4
3. Contents include the necessary topics and self-tests that will lead to the enhancement of learning.	4.20	HA	4
4. Lessons are clear and well presented.	4.20	HA	4
5. Guide questions help students to understand better and recall	4.40	HA	1
<b>Average Weighted Mean</b>	<b>4.20</b>	<b>HA</b>	

Legend: HA: Highly Agree

In terms of contents, as perceived by the respondents, items “the sequences of the topic jive with the topics in Mechanical Drafting” and “the

guide questions help students to understand better and recall the concepts discussed more easily” ranked first with weighted mean of 4.40 and interpreted as “highly agree”. All other items except item number 1 shared the same rank and all obtained a weighted mean of 4.20 and interpreted as “highly agree”.

Furthermore, the table reveals the average weighted mean with respect to the evaluation of the professors is 4.20 and verbally interpreted as highly agree. It can be deduced from the result that respondents found out that the contents of the developed worktext is extensive that covers all lessons encompassing the syllabus to develop needed and required competencies.

It implies that Drafting Professors believed that the adequacy of instructional contents addresses the needs of the stakeholders wherein it is specifically and hierarchal in arrangement and provides the students to explore.

Table 3. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Activities

Activities	WX	VI	R
1. Worktext provides variety of learners’ activity.	4.60	HA	2.5
2. Activities are relevant to the topics.	4.60	HA	4
3. Activities are relevant to the objectives of lesson	4.30	HA	5
4. Activities are relevant, interesting and self-motivating to the learners.	4.80	HA	1
5. Activities are presented from the simple ones to the more complex examples.	4.60	HA	2.5
<b>Average Weighted Mean</b>	<b>4.54</b>	<b>HA</b>	

Legend: HA – Highly Agree

In can be gleaned from table 3 that the first in rank is item “the activities are relevant, interesting and self-motivating to the learners” with a computed weighted mean of 4.80 and interpreted as “highly agree”. Last in rank is item “the activities are relevant to the objectives of the lesson” with weighted mean of 4.30 and interpreted as “highly agree”.

It was very evident that all five items obtained an average weighted mean of 4.54 and verbally interpreted as highly agree.

The findings imply that the developed worktext provides suitable, satisfactory, sufficient and equal to

the needs of the learning tasks based on the Drafting operating procedures and standards.

Table 4. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Style and Presentation

Style and Presentation	WX	VI	R
1. Presentation is clear observing correct grammar.	4.20	HA	1.5
2. Language is clear and comprehensive in terms of vocabulary.	4.20	HA	1.5
3. Structure, style and format are appropriate to the target clientele.	4.00	A	4.5
4. Directions can be followed by the students without much help from the professor.	4.10	A	3
5. There are sample provisions for learning new meanings.	4.00	A	4.5
<b>Average Weighted Mean</b>	<b>4.10</b>	<b>A</b>	

Legend: HA – Highly Agree, A - Agree

As presented in table 4, as perceived by the respondents, “the presentation is clear observing correct grammar” and “the language is clear and comprehensive in terms of vocabulary” tied in rank first with weighted mean of 4.20 and interpreted as “highly agree”. Next in rank is “the directions can be followed by the students without much help from the professor” with weighted mean of 4.10 and interpreted as “agree”. Last in rank are shared by items “the structure, style and format are appropriate to the target clientele” and “there are sample provisions for learning new meanings” interpreted also as “agree” with weighted mean of 4.00.

As gleaned on the result, the average weighted mean on the evaluation of the professors in terms of presentation and style is 4.10 and verbally interpreted as agree.

It implies that the Professors consider the developed worktext as well presented, well-structured and illustrated and all the lessons are supported by practical activities.

The result was supported by the study of Cruz [10] in his Developed Worktext in Drawing 2 that learners can easily follow system of instruction because the style and presentation are effective.

The table 5 reveals that as perceived by the professor respondents, “the lessons and self-tests of the worktext are arranged in ascending order of

difficulty” ranked first with weighted mean of 4.30 and interpreted as “highly agree”.

Table 5. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Organization

Organization	WX	VI	R
1. Contents of the worktext are well organized.	4.10	A	4
2. Lessons and self-tests of the worktext are arranged in ascending order of difficulty.	4.30	HA	1
3. Organization of the lessons and self-tests develops drafting awareness.	4.20	HA	2
4. Worktext is adept and appropriate.	4.10	A	4
5. Worktext is useful supplement to reinforce the transfer of learning.	4.10	A	4
<b>Average Weighted Mean</b>	<b>4.16</b>	<b>A</b>	

Legend: HA – Highly Agree, A - Agree

Next in rank is “the organization of the lessons and self-tests develops drafting awareness” also interpreted as “highly agree” with a weighted mean of 4.20. Last in rank are shared by the rest of the items with weighted mean of 4.10 and all are interpreted as “agree”.

As manifested by the results, the obtained average weighted mean on the evaluation of the respondents with respect to organization is 4.16 and interpreted verbally as high.

The result connotes that the professors agreed that the organization of the lessons, all information, enhancement activities and practical drawing exercises incite the students thinking and manipulative skills.

The table 6 indicates that as perceived by the professors, ranked first are shared by “illustrations effectively capture the interest of the students” and “the worktext provides drafting insight that would lead the students to apply what has been learned” with weighted mean of 4.40 and interpreted as “highly agree”. Next in rank are also shared by the other three items, all obtained 4.30 weighted mean and interpreted as “highly agree”. Last in rank is “the worktext adds new knowledge and skills that would lead the students to apply what is learned.

Table 6. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Creativity

Creativity	WX	VI	R
1. Worktext adds new knowledge and skills that would lead the students to apply what is learned.	4.20	HA	5
2. Worktext contributes to the acquisition of concepts, understanding and drafting insights.	4.30	HA	3.5
3. Worktext provides contribution to the addition of new insights in English language skills.	4.30	HA	3.5
4. Illustrations effectively capture the interest of the students.	4.40	HA	1.5
5. Worktext provides drafting insight that would lead the students to apply what has been learned.	4.40	HA	1.5
<b>Average Weighted Mean</b>	<b>4.32</b>	<b>HA</b>	

Legend: HA – Highly Agree

As gleaned on the result, the creativity as perceived by the professor respondents obtained an average weighted mean of 4.32 and verbally interpreted as highly agree. It implies that the developed worktext is prepared imaginatively and the professors believed that the interests of the learners will be stimulated and captured by the illustrated contents, competency, comprehension and erudition among learners.

Table 7. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Evaluation

Evaluation	WX	VI	R
1. There are sufficient discussions in each lesson.	4.10	A	5
2. The self - tests serve to facilitate better understanding of the lesson discussed.	4.20	HA	3
3. The lessons and self-tests are suited to the level of the students.	4.20	HA	3
4. The discussion and self-tests are in line with the lessons presented.	4.20	HA	3
5. The activities and tests stimulate critical thinking.	4.40	HA	1
<b>Average Weighted Mean</b>	<b>4.22</b>	<b>HA</b>	

Legend: HA – Highly Agree, H - Agree

As seen from table 7, the professor respondents perceived that “the activities and tests stimulate critical thinking” ranked first with computed mean of 4.40 and interpreted as “highly agree”. Next in rank are shared by items 2, 3 and 4 with weighted mean of 4.20 and also interpreted as “highly agree”. Last in rank is “there are sufficient discussions in each lesson” with weighted mean of 4.10 and interpreted as “agree”.

It can be noted that based on the perception of the respondents, evaluation got an average weighted mean of 4.22 and interpreted as highly agree. It implies that the self-test included in the developed worktext conformed to the abilities of the students.

The results are further strengthened by the findings of Cruz [10] that evaluation must provide information for teachers which will serve as basis for decision making related to any aspects of the instructional materials and thus if necessary for redesigning of the instructional materials. The results of every evaluation conducted to every lesson delivered are strong evidences that indeed the topic has brought an impact to any subject particularly to educational disciplines.

Table 8. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Different Aspects

Aspects	Ave. WX	VI	R
➤ Objectives	4.52	Highly Agree	2
➤ Contents	4.20	Highly Agree	5
➤ Activities	4.54	Highly Agree	1
➤ Presentation and Style	4.10	Agree	7
➤ Organization	4.16	Agree	6
➤ Creativity	4.32	Highly Agree	3
➤ Evaluation	4.22	Highly Agree	4
<b>Gen. Average Weighted Mean</b>	<b>4.29</b>	<b>Highly Agree</b>	

It could be reflected from table 8 that “activities” ranked first with 4.54 average weighted mean and interpreted “highly agree”. Next in rank are shared by “objectives” interpreted as “highly agree” with average weighted mean of 4.52 followed by “creativity” with average weighted mean of 4.32 and also interpreted as “highly agree”. Last in rank is “presentation and style” with an average of weighted mean of 4.10 and interpreted as “agree”. In general, the grand mean obtained is 4.29 and interpreted as “highly agree”.

It implies that the respondents agree that the developed Worktext in DT 4 (Mechanical Drafting) is worthy training material for teaching the subject. Furthermore, the professors believed that the developed worktext possesses the qualities and features of a sound and valuable learning implement to acquire the needed drafting competencies of the students.

Table 9. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Accuracy

	Accuracy	WX	VI	R
1. Explanation and Presentation of Contents.		4.00	High	3
2. Practice Appropriate Skills		4.10	High	1.5
3. Diagnosis Measurement		4.10	High	1.5
<b>Average Weighted Mean</b>		<b>4.06</b>	<b>High</b>	

As presented in table 9, accuracy, as perceived by the professor respondents, items “practice appropriate skills” and “diagnosis measurement” are ranked first with a weighted mean of 4.10 and interpreted as “high”. Last in rank is item “explanation and presentation of contents” with a weighted mean of 4.00 and interpreted as “high”.

In general, the respondents evaluated the developed worktext in terms of accuracy as high with an average weighted mean of 4.06. It implies that the developed worktext is factual and precise and can evaluate the skills of the Drafting students.

Table 10. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Completeness

Completeness	WX	VI	R
Perception	4.40	Very High	1.5
Visual Literacy and Design	4.40	Very High	1.5
Text Design and Readability Level	4.30	Very High	4
Memory	4.20	Very High	6
Cognitive and Behavioral Psychology	4.30	Very High	4
Adult and General Learning Theory	4.30	Very High	4
<b>Average Weighted Mean</b>	<b>4.32</b>	<b>Very High</b>	

In terms of completeness, as perceived by the respondents, items “perception”, “visual literacy and design” and “cognitive and behavioral psychology” ranked first all with a weighted mean of 4.40 and

interpreted as “very high”. Next in rank are also shared by items “text design and readability level”, “cognitive and behavioral psychology” and “adult and general learning theory” which are interpreted as “very high” with 4.30 weighted mean. Last in rank is the “memory” with weighted mean of 4.20 and interpreted “very high”.

Furthermore, the table reveals the average weighted mean with respect to the evaluation of the professors of the developed worktext is 4.32 and interpreted verbally as very high. It can be deduced from the result that the developed worktext is extensive that include all topics specified in the syllabus for mechanical drafting.

As presented in table 11, as perceived by the professors, “sequence statements of performance objectives” and “instructional strategies” are in rank first with weighted mean of 4.40 and interpreted as “very high”. Next in rank are shared by “learner and trainee characteristics”, “analysis of job, task and contents” and “performance measurement” with weighted mean of 4.20 and also interpreted as “very high”. Last in rank is “setting resources and

Table 11. Evaluation of the Professors on the Developed Worktext in DT 4 with Respect to Appropriateness

Appropriateness	WX	VI	R
1. Learner and Trainee Characteristics	4.30	Very High	4
2. Setting Resources and Constraints	4.20	High	6
3. Analysis of Job, Task and Contents	4.30	Very High	4
4. Sequenced Statements of Performance Objectives	4.40	Very High	1.5
5. Performance Measurement	4.30	Very High	4
6. Instructional Strategies	4.40	Very High	1.5
<b>Average Weighted Mean</b>	<b>4.32</b>	<b>Very High</b>	

constraints” interpreted as “high” with weighted mean of 4.20.

It can be noted that based on the evaluation of the respondents, appropriateness got an average mean of 4.32 and interpreted as very high. It implies that the professors believed that the developed worktext is suitable and applicable in intensifying and enriching the knowledge and understanding of the students in Mechanical Drafting which lead to gainful manipulative skills development. Furthermore, the

developed instructional material is beneficial to the professor handling the subject for easy teaching.

Table 12. Evaluation of Professors on the Developed Worktext in DT 4with Respect to Different Aspects

Aspects	Ave. WX	VI	R
➤ Accuracy	4.06	High	3
➤ Completeness	4.32	Very High	1.5
➤ Appropriateness	4.26	Very High	1.5
<b>Grand Mean</b>	<b>4.23</b>	<b>High</b>	

It could be gleaned from table 12 that the professor respondents perceived that “completeness” and “appropriateness” shared the same rank with 4.32 average weighted mean and interpreted as “very high”. “Accuracy” was ranked last of 4.06 average weighted mean and interpreted as “high”. In general, the grand mean obtained 4.23 and interpreted as “high”.

In summary, as evaluated by the professor respondents the Worktext in DT 4 is acceptable as an instructional material in teaching and learning Mechanical Drafting. It means that there are still several lessons to improve to fully attain and achieve the maximum competence expected from DT students.

#### CONCLUSION AND RECOMMENDATION

The developed worktext obtained very high evaluation rating from the Professors in terms of its objectives, contents, activities, creativity and evaluation which presentation and style and organization attained above average ratings. Likewise, the developed worktext received very high evaluation rating from the respondents with reference to completeness and appropriateness but in relation to accuracy, above average was obtained.

Based on the summary of findings it was found out that the developed Worktext in DT 4 is acceptable and can be utilized as instructional materials by both the students and professors for facilitating teaching-learning process.

The following recommendations are hereby offered. Utilization of the developed Worktext in DT 4 is strongly recommended in Bachelor of Technology major in Drafting Technology. Experimentation stage on the use of the developed worktext may be conducted to a group of DT 4 students to determine the outcome of the developed worktext would result to a significant change in the performance of the students. Revision and modification of the developed



worktext should be done regularly to fit the learning needs and abilities of the students. Consider other standards set by TESDA or the industry in the revision and enrichment of the developed worktext particularly the use of the modern technologies. Content validation of the worktext must be done in the future. Development of worktext/workbooks in other Drafting subjects may be conducted to effectively and productively learn Drafting Technology. Maybe duplicated in other colleges to determine applicability and effectivity of the interventions. Further study is strongly recommended using other factors and other variables.

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