

Development and Validation of a Basic Drawing Workbook

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Abstract:- Design, utilization and improvement of instructional materials in which its role in the country's educational system at all levels of instruction is directed towards improving the quality of education in the country. A developmental study was conducted on the validity and reliability of a developed workbook in Basic Drawing along the areas of content in terms of objectives, contents, organization and mechanics and procedures. And further determined its format validity in terms of accuracy, illustrations, presentation, readability, time allotment, and usefulness. Three experts, and faculty and students of the University of Eastern Philippines rated the workbook. The entire study was completed during the School Year 2018-2019. Results of the study showed that the bases for the workbook were determined by the faculty handling drawing in three years in the UEP System who revealed that students have poor performance in drawing subject. From the bases, suggested inputs in the workbook included lettering, oblique drawing, isometric drawing, geometrical figures, polygon construction, ellipse drawing, orthographic drawing, one point perspective, two point perspective and section construction. The assessment of the experts with respect to content validity showed strongly agreed and found the items to be much valid in terms of content, particularly on the learning objectives, contents, organization and mechanics, and procedures. Similarly, the assessment of the faculty on content validity revealed that all of the respondents also agreed on its contents, particularly in the areas of learning objectives, contents, organization and mechanics, and procedures of the workbook and items were found to be much valid. On format validity, results indicated that all of the respondents have agreed and found the workbook to be much valid, particularly on the format in terms of accuracy, illustrations, perspectives, readability, time allotment and usefulness of the workbook. There were significant differences on all aspects of the workbook in terms of acceptability between the faculty and students. Thus, the study failed to reject the null hypothesis. However, when the workbook was subjected to reliability test, results showed that the workbook did not meet the requirements for a reliable material in all of its aspects considering that all of the values in accuracy, illustrations and presentations, readability, time allotment, and usefulness were below the acceptable value of 0.70. As such, the workbook still needed further improvement.

Keywords:- Validation; Development; Workbook; Basic Drawing.

I. INTRODUCTION

Quality education and human resources are two most important determining factors of progress and development of a nation. In fact, it is embodied in the 1987 Philippine Constitution that, "the State shall protect and promote the right of all citizens to quality education at all levels". Such mandate is being supported by R.A. 9155 or the Governance of Basic Education Act of 2001 and R.A. 6655 or the Free Secondary Education Act. These fundamental laws have laid down the tenets for accessibility and realization of education among its citizenry.

Vis-à-vis this mandate for quality education and pursuant also to Republic Act 10533 otherwise known as, "An Act Enhancing The Philippine Basic Education System By Strengthening Its Curriculum And Increasing The Number Of Years For Basic Education, Appropriating Funds Therefor and For Other Purposes, specifically in Section 5 (g/h) which states that- "(g) The curriculum shall use the spiral progression approach to ensure mastery of knowledge and skills after each level; and (h) The curriculum shall be flexible enough to enable and allow schools to localize, indigenize and enhance the same based on their respective educational and social contexts. The production and development of locally produced teaching materials shall be encouraged and approval of these materials shall devolve to the regional and division education units".

The said mandate shall be attained through the design, utilization and improvement of instructional materials with the aim of upgrading the country's educational system at all levels of instruction thereby contributing to the attainment of national goals and development. As such, State Universities are also compelled to produce instructional materials for use in various subject areas. Congruent to this, Executive Order No. 46, was issued to create the Presidential Commission on Educational Reforms to refine a comprehensive and feasible program of reforms in the three (3) educational levels- basic education, secondary, and higher education, in facing the new millennium and the educational challenge of the future. The DepEd, the Congress, and colleges and universities and other stakeholders had the impression that the basic education and higher education are deficient not only in books but

also resource materials which adversely affect the quality of learning that students get.

In addressing this educational challenge, Murcia (2006) pointed out that the greatest task in the educational process is given to the teachers. There is so much demand from them, and they are, by and large, the focal person in any educational process. In the desire to give students quality and relevant education, the teachers take the frontier of the mainstream in the many challenges in the system. Therefore, it is very clear that teachers are the strong links that can change the direction of education. The elevation of the students' achievement levels lies in their hands.

Thus, to make teaching more effective, the teacher should be creative in finding alternative solutions to these problems. One best way to do this is through the development of additional learning materials like laboratory instruction guides, modules, workbooks and manuals, and other resource materials. The use of learning materials is one of the solutions that could make education a truly enlightening experience to both teachers and students. One way of maintaining the interest of the learners is to provide them with activities which they could perform individually after being given the proper motivation, guidance, instruction and encouragement by the teacher. The use of programmed instruction, for example, as a teaching tool such as, workbook or module could make learning more interesting.

Against this background, at the University of Eastern Philippines (UEP), where the researcher is currently teaching, teachers are encouraged to conduct investigations on how to improve the learning capabilities of those students who have low academic performance syndrome. In fact, the researcher, a drawing subject professor, has utilized various teaching methodologies in imparting the needed knowledge to his students. However, it is sad to note that despite his efforts to improve their performance in the subject, students always find difficulty to understand the lessons. Similar observations were revealed by faculty members handling the subject from other campuses. Thus, they claimed that there is a need for the development of instructional materials like manuals and workbooks in drawing, due to dearth of materials.

Relative to this, drawing is one of the skills that should be developed by the Engineering, BSIT, Industrial Arts and Home Economics students. Basic Drawing courses train students in three important skills: observing, memorizing, and hand-and-eye coordination. However, it has been observed that students show less interest and motivation whenever they are confronted with physical theories and principles and application in class through the conduct of laboratory activities. Up to this time, very few of them realize the essence of such useful knowledge. Some faculty members accounted this as might be due to limited emphasis and exposure of students to drawing as a subject during high school.

Therefore, workbook in Basic Drawing as an instructional material was developed through this study with the hope of motivating students' interests for the subject thereby enhancing the learning of any skills-related task for mastery level. In addition, majority of the technical schools, as well as, some tertiary institutions are required to improvise and design large, normally wooden drawing tools and gadgets such as triangles, T-square, scales and other tools to instill the interest of the students.

The researcher strongly believed that the study, most importantly, the output which was a Basic Drawing Workbook could serve as one potent tool in addressing the problem on the dearth of instructional materials, particularly in Drawing subject. Furthermore, the output was an attempt of the researcher to address the lack of workbook in the subject that would cater to the limited exposure of students to Drawing and the need to develop a material that aims to provide practical and hands on exercises targeting in sequence the development of skills of the learners. Feedbacks from the faculty members handling Drawing were analyzed and resulted to the enclosure and sequence of the proposed workbook with the following topics: uses of drawing instruments, practice of lettering, orthographic projection, conventional section, surface and section, and project designing, with the hope of solving the students difficulty and ultimately, contribute to quality education.

II. OBJECTIVES OF THE STUDY

The study aimed to develop and validate a workbook in Basic Drawing in the College of Education, University of Eastern Philippines, University Town, Northern Samar.

Specifically, this study answered the following questions:

- What are the bases for the development of the workbook on Basic Drawing?
- What are the inputs to the workbook in Basic Drawing in terms of the following:
 - preliminaries;
 - ✓ description;
 - ✓ learning outcomes;
 - ✓ researcher/ adviser ;
 - content; and
 - Design?
- What is the assessment of the experts handling Basic Drawing with respect to content and format validity in terms of:
 - learning objectives;
 - content;
 - organization and mechanics; and
 - procedures?

- What is the assessment of the teacher- respondents on the workbook content validity in terms of the following:
 - learning objectives;
 - content;
 - organization and mechanics; and
 - procedures?
- What is the assessment of the faculty and student-respondents on the workbook in Basic Drawing on the format validity in terms of the following:
 - accuracy;
 - illustration;
 - presentations;
 - readability;
 - time allotment; and
 - usefulness?
- Is there a significant difference between the evaluation of the faculty and student respondents on the acceptability of the workbook?
- How reliable is the workbook in Basic Drawing on the Assessment of the respondents?
- Based on the findings of the study, what validated Basic Drawing Workbook can be proposed?

Null Hypothesis

Based on the problems posed in the study, the following hypothesis was tested.

H₀₁. There is no significant difference between the evaluation of the teacher and student respondents on the acceptability of the workbook.

III. METHODOLOGY

The study employed descriptive developmental method of research. Descriptive research according to Manuel and Medel (1976) involves the description, recording, analysis, and interpretation of the present nature, composition or processes of phenomena. The study was conducted at the University of Eastern Philippines system which specifically includes the UEP main campus; UEP-Laoang campus and UEP-PRMAC campus. The respondents of the study were the professors of the Technological University of the Philippines (TUP), the faculty members, and the students of the University of Eastern Philippines (UEP). Purposive sampling was used to determine the respondents of the study. This was deemed the most appropriate sampling method for the study since the researcher has set a certain criteria in selecting the respondents. Two sets of instruments were used in this study – the focus group discussion guide, and an adapted assessment questionnaire. The research instruments that were used in this study to assess and evaluate the content and format validity of the developed workbook were adapted from the studies of Ramos (2004), Gidayawan (2009), and Robiso (2010).

IV. RESULTS AND DISCUSSION

A. Bases for the Development of the Workbook in Basic Drawing

The bases for the development of the workbook were determined by the faculty respondents. In an interview with the respondents, they revealed that majority of their students have poor performance in drawing due to lack of instructional materials containing detailed instructions on basic drawing activities which students can easily follow, especially those who do not have background in drawing in high school.

B. Inputs to the Workbook in Basic Drawing

In the development of the workbook, some inputs were needed so as to determine the necessary parts for the workbook to conform to the requirements of an instructional material. As such, the researcher conducted an interview with the UEP faculty members and students so as to solicit the needed information. Based on the results of the interview, the following were the inputs:

The preliminaries of the workbook should contain the general description of the workbook, the desired learning outcomes and other requirements of the subject teacher in Basic Drawing. These parts were deemed necessary in order to set the parameters and provide an over-all perspective as to the target skills that the workbook aims to achieve at the end of course.

After reconciling with the parts of the preliminaries, the researcher also asked the respondents as regards the subject content necessary for a Basic Drawing course. From the responses of the respondents during the interview, they expressed that the workbook should primarily address the areas in which the students find difficult in drawing. Specifically, the following subject contents were suggested by the respondents to be included in the workbook: littering, oblique drawing, isometric drawing, geometrical figures, polygon construction, ellipse construction, orthographic, one point perspective, two point perspective and section construction. Each topic or lesson should facilitate independent learning of the students and application of the concepts learned from the course during regular classes while at the same time, provide an avenue in enhancing their skills through practical and hands on exercises. In addition, the lessons should be aligned in the course syllabus of the subject.

Moreover, the respondents also suggested that aside from the content of the workbook, it should also consider the design, format and lay-out so as to ensure that the workbook triggers the interest of the students because visual appeal of the instructional material while maintaining readability and appropriateness of font style, lay-out, size, color and format of the book.

It also includes the subject content and the design; such as format, layout like the font size, font style, size, color, shape and format of the paper.

On the other hand, one of the TUP experts had been teaching the subject Basic Drawing for 36 years and after he had read, reviewed and scrutinized the developed workbook, the following suggestions were arrived.

The line weights on drawing representations should be indicated and the objectives on each chapter should be stated. Below each page of the activity the word “checked by” should be printed. He further suggested that the developed workbook, should follow the proper proportions of letters and the step by step procedure. On the other hand, Isometric Drawing should be another chapter of the workbook and must observed consistency in giving procedures drawing per subject matter. It must also include drawing the six principal views on orthographic drawing and let students do the labelling to practice freehand lettering.

Moreover, axonometric must come first on projection chapter which must emphasize more on isometric and to include procedural drawing with re-aligning lines of graphs and line weights.

In like manner, Dr. Balais, who had been handling Basic Drawing for 30 years at TUP: suggested that the following factors are to be considered: freehand drawing, Instrumental drawing, and computer drawing, where objectives should start from simple to more complex.

The third expert from TUP also suggested that proper line weighs on its drawing representations, with objectives on each chapter must be included in the developed workbook. All of their suggestions based were considered to form as bases in the development of the workbook.

C. Assessment in terms of Content Validity of the Workbook by the Experts

Table 1 presents the results on the assessment in terms of content validity of the Basic Drawing workbook as perceived by the experts in drawing. The areas that were assessed were on learning objectives, content, organization and mechanics, and procedures.

Criterion	μ	DESC	Interpretation
Learning Objectives			
The objectives are clearly stated	4.00	A	Much Valid
The statements are measurable	3.96	A	Much Valid
The learning objectives are result oriented	4.17	A	Much Valid
The statements are time bounded	3.58	A	Much Valid
Average	3.93	A	Much Valid
Content			
Activities are based on the content of the course syllabus	3.57	A	Much Valid
Activities are properly organized and proceeds from simple to complex	4.18	A	Much Valid
Activities stimulate creative and analytical thinking	4.00	A	Much Valid
Average	3.92	A	Much Valid
Organization and Mechanics			
Components of the activities are systematically lined up and facilitate the attainment of the objectives and expected learning outcomes	3.87	A	Much Valid
Activities are in proper sequence and are based on the hierarchy of the course content and syllabus	4.13	A	Much Valid
Procedures of the activities are within the level of comprehension of the students	3.58	A	Much Valid
Average	3.86	A	Much Valid
Procedures			
Procedures are clearly stated	3.68	A	Much Valid
The language and vocabulary are easy to follow	3.47	A	Much Valid
Procedures guide the statements in doing the activities	4.00	A	Much Valid
Average	3.72	A	Much Valid
GRAND MEAN	3.86	A	Much Valid

Table 1:- Mean Ratings on the Content Validity of the Workbook as Assessed by the Experts

As indicated in Table 1, the assessment of the experts showed that on the content validity of the workbook in terms of learning objectives, were all found to be “much valid with an average mean rating of 3.93. Specifically, each benchmark statement has obtained the following mean ratings: the learning objectives were clearly stated (4.0); were measurable (3.96); learning objectives were result oriented (4.17); and statements were time bounded (3.58). From among the statements, the highest mean rating was attributed to “learning objectives were result oriented” with 4.17 mean rating and the lowest was obtained by the condition, “statements were time bounded”.

With these results, it can be inferred that the experts have perceived the learning objectives to have been well stated to trigger the necessary skill or application of the course through doing exercises which would generate results

or outputs from the students. On the other hand, for the condition, “statements were time bounded”, the experts were of the belief that the learning objectives, although were crafted so well, still did not reflect very clearly in terms of time limits as to when the contents or lessons be completed.

On the content of the workbook, the following were the mean ratings: “the activities were based on the content of the course syllabus” (3.57); “the activities stimulated creative and analytical thinking (4.00); and “activities are properly organized and proceeds from simple to complex (4.18). All mean ratings were interpreted as “much valid” which resulted to an average mean rating of 3.9 interpreted as “much valid”.

From the results, it can be deduced that the experts assessed the contents to have triggered the concepts and

skills necessary to be acquired in Basic Drawing by the students. These concepts and skills were in line with what the course requires vis-à-vis the course syllabus and they were organized in such a way that students have to learn first simple drawing skills before going through more complicated exercises.

On the aspect of organization and mechanics, the mean ratings were as follows: “activities were systematically lined up which facilitated the attainment of the objectives and the learning outcomes” (3.87); “the activities were properly sequenced based on the hierarchy of the course content and syllabus” (4.13); and “the procedures of the activities were at the level of comprehension among the students” (3.58) which were all interpreted as “much valid”. As such, this criterion variable has obtained an average mean rating of 3.86 interpreted as “much valid”.

It can be gleaned from the results that this aspect was rated a little bit lower as compared to learning objectives and content. However, it still garnered a high rating considering that all conditions were rated as “much valid”. This simply implies that based on the perception of the experts, the workbook has complied with the requirements in terms of organization and mechanics making the workbook suitable and reader-friendly.

In terms of the procedure in the workbook, the following conditions were rated accordingly: “procedures

were clearly stated” (3.68); “the language and vocabulary used were easy to follow” (3.47); and “procedure guides the statement in doing the activities” (4.00). As can be gleaned from the results, it was on the clear procedure that guides reader to do the activities that have obtained the highest mean rating while the lowest was on the vocabulary used. The results obtained an average mean rating of 3.72.

It can be deduced from the results in the aspect of procedure that the experts have perceived the workbook to have clear procedures making the students more guided and facilitated as they go through with the different exercises.

Generally, the grand mean on the content validity of the workbook as assessed by the experts in the Technological University of the Philippines was 3.86 interpreted as “much valid” which simply implies that the experts were in agreement that the workbook has conformed to the requirements for it to be valid in terms of its learning objectives, content, organization and mechanics and the procedures.

D. Assessment in terms of Content Validity of the Workbook by the Teacher-Respondents

The assessment of the teacher-respondents on the workbook in terms of content validity was based on its learning objectives, content, organization and mechanics and procedures. Table 2 presents the results.

Criterion	μ	DESC	Interpretation
Learning objectives			
The objectives are clearly stated	3.94	A	Much Valid
The statements are measurable	4.04	A	Much Valid
The learning objectives are result oriented	4.12	A	Much Valid
The statements are time bounded	3.99	A	Much Valid
Average	4.02	A	Much Valid
Content			
Activities are based on the content of the course syllabus	3.98	A	Much Valid
Activities are properly organized and proceeds from simple to complex	4.25	A	Much Valid
Activities stimulate creative and analytical thinking	4.18	A	Much Valid
Average	4.14	A	Much Valid
Organization and Mechanics			
Components of the activities are systematically lined up and facilitate the attainment of the objectives and expected learning outcomes	3.99	A	Much Valid
Activities are in proper sequence and are based on the hierarchy of the course content and syllabus	3.58	A	Much Valid
Procedures of the activities are within the level of comprehension of the students	3.78	A	Much Valid
Average	3.78	A	Much Valid
Procedures			
Procedures are clearly stated	4.15	A	Much Valid
The language and vocabulary are easy to follow	4.18	A	Much Valid
Procedures guide the statements in doing the activities	3.88	A	Much Valid
Average	4.07	A	Much Valid
GRAND MEAN	4.00	A	Much Valid

Table 2:- Mean Ratings on the Content Validity of the Workbook as Assessed by the Teacher-Respondents

As reflected in Table 2, the assessment of the teacher-respondents showed that on the content validity of the workbook in terms of learning objectives, were all found to be “much valid with an average mean rating of 3.93. Specifically, each benchmark statement has obtained the following mean ratings: the learning objectives were clearly stated (3.94); learning objectives were measurable (4.04); learning objectives were result oriented (4.12); and statements were time bounded (3.99). As such, this aspect has obtained an average mean rating of 4.02 interpreted as “agree” or equivalent to “much valid”.

It can be implied that on the part of the teachers, the content validity in terms of learning objectives were clearly laid down by the researcher. For them, these objectives have met the necessary learning outcomes that the workbook intends to achieve.

In terms of content of the workbook, the following were the mean ratings: “the activities were based on the content of the course syllabus” (3.98); “the activities stimulated creative and analytical thinking (4.25); and “activities are properly organized and proceeds from simple to complex (4.18). All mean ratings were interpreted as “much valid” which resulted to an average mean rating of 4.14 interpreted as “much valid” or “agree.”

The results manifest that teachers were confident that the contents of the workbook were in line with the required concepts and skills necessary for students to learn in a drawing subject. These concepts were drawn out from the mandated topics outlined in the course syllabus and were arranged in such a manner that students were given the opportunity to gradually develop their drawing skills from simple to complex.

Meanwhile, the aspect of procedure in the workbook has obtained the following results: “procedures were clearly stated” (4.15); “the language and vocabulary used were easy to follow” (4.18); and “procedure guides the statement in doing the activities” (3.86). As can be gleaned from the results, it was on the vocabulary used which the highest mean rating was obtained while the lowest was on procedure that guides reader to do the activities. The results obtained an average mean rating of 4.07.

With the results indicated, the teachers were of firm disposition that the activities or exercises contained in the workbook are in proper sequence and vertically aligned with the course content and syllabus. Moreover, procedures in doing the activities were easy to grasp by the students whenever they need to answer or do the activity.

The grand mean of the assessment of the teacher-respondents on the workbook content was 4.00 which could be interpreted as much valid. The data could be implied that on the side of the teachers, the indicators or criteria in making workbook have been meet in all aspects.

E. Assessment of the Teachers and Students on the Format Validity of the Workbook

The assessment of the teachers and student-respondents on the workbook in Basic Drawing subject on format validity were based on accuracy, illustration, presentation, readability, time allotment and usefulness. Table 3 presents the results on the mean ratings of the format validity of the workbook in terms of accuracy.

Criterion	Teachers			Students			Teacher and Students		
	μ	DESC	Int.	μ	DESC	Int.	μ	DESC	Int.
ACCURACY									
Can develop students' accuracy in:									
Identifying/classifying different kinds of lines	4.35	A	Much Valid	3.67	A	Much Valid	4.01	A	Much Valid
drawing and sketching different kinds of lines	4.09	A	Much Valid	3.87	A	Much Valid	3.98	A	Much Valid
drawing arcs, curves and circles	4.13	A	Much Valid	3.90	A	Much Valid	4.01	A	Much Valid
Can improve students' accuracy in:									
following procedures	4.12	A	Much Valid	3.57	A	Much Valid	3.84	A	Much Valid
following instructions and directions	4.24	A	Much Valid	3.27	U	Valid	3.75	A	Much Valid
using the appropriate drawing instruments	3.99	A	Much Valid	3.68	A	Much Valid	3.83	A	Much Valid
Can improve students' accuracy in:									
freehand drawing of different kinds of lines	3.58	A	Much Valid	3.60	A	Much Valid	3.59	A	Much Valid
sketching different classifications of letters	4.37	A	Much Valid	3.97	A	Much Valid	4.17	A	Much Valid
sketching different letter styles	4.12	A	Much Valid	4.01	A	Much Valid	4.06	A	Much Valid
developing accurately the used of guidelines	4.00	A	Much Valid	3.50	U	Valid	3.75	A	Much Valid
familiarizing the different instruments, their uses and how to use them properly	4.13	A	Much Valid	3.58	A	Much Valid	3.85	A	Much Valid
constructing and applying geometric forms	3.67	A	Much Valid	3.24	U	Valid	3.45	U	Valid
Average Mean	4.07		Much Valid	3.66	A	Much Valid	3.85	A	Much Valid

Table 3:- Mean Ratings on the Format Validity of the Workbook in Basic Drawing in Terms of Accuracy

Table 4 presents the results on the assessment of the Basic Drawing Workbook by both teachers and students respondents on format validity in terms of accuracy. Data revealed that the average mean rating obtained was 3.85 interpreted as “much valid”. Specifically, almost all of the conditions were rated as “much valid” except for four statements and these were on, “following instructions and directions” (3.27); “developing accurately the use of guidelines” (3.50); and “constructing and applying geometric forms” (3.45) which were rated by the students to be “valid” only.

Data imply that although generally speaking, the accuracy of the workbook was high as evidenced by high mean ratings, there were areas needing further improvement, particularly on the directions and guidelines and in applying geometric figures in which the respondents have found to be a higher skill. On the other hand, there were teacher respondents who considered identifying different kinds of lines, following instructions and directions, as well as, in sketching different classification of letters as “very much valid” having mean ratings of 4.35, 4.24, and 4.37, respectively. These conditions that obtained “very much valid” results manifest that these were the areas on accuracy that have met high acceptance on the part of the respondents and were clearly manifested in the workbook itself.

Criterion	Teachers			Students			Teacher and Students		
	μ	Desc	Int.	μ	Desc	Int.	μ	Desc	Int.
ILLUSTRATIONS									
Drawing and images show clear and simple illustration	4.27	A	Much Valid	4.00	A	Much Valid	4.13	A	Much Valid
Motivate students' interest, making learning effort	4.38	A	Much Valid	3.48	U	Valid	3.83	A	Much Valid
Provide visual cues	4.15	A	Much Valid	3.37	U	Valid	3.78	A	Much Valid
Guide the students to follow directions/procedures	4.28	A	Much Valid	3.67	A	Much Valid	3.97	A	Much Valid
Describe to the learning objective	4.00	A	Much Valid	3.58	A	Much Valid	3.79	A	Much Valid
Average	4.22	A	Much Valid	3.62	A	Much Valid	3.91	A	Much Valid
Presentations									
The exercises present topics which are chronologically arranged in accord with the syllabus, orderly present the	4.58	SA	Very Much Valid	3.88	A	Much Valid	4.13	A	Much Valid
Objectives	4.19	A	Much Valid	4.00	A	Much Valid	4.09	A	Much Valid
Procedures	4.00	A	Much Valid	3.37	U	Valid	3.88	A	Much Valid
activities/ games	4.00	A	Much Valid	3.58	A	Much Valid	3.79	A	Much Valid
Well and properly organized activities	4.15	A	Much Valid	4.00	A	Much Valid	4.07	A	Much Valid
Procedures are clearly presented in step by step manner to improve students' interest	4.15	A	Much Valid	3.87	A	Much Valid	4.01	A	Much Valid
higher order thinking skills	4.60	SA	Very Much Valid	3.57	A	Much Valid	4.08	A	Much Valid
masterly level in drawing	3.90	A	Much Valid	3.77	A	Much Valid	3.83	A	Much Valid
the procedures are easy to follow and guide the students to work independently on time	4.15	A	Much Valid	3.88	A	Much Valid	3.91	A	Much Valid
Average	4.19	A	Much Valid	3.73	A	Much Valid	3.95	A	Much Valid

Table 4:- Mean Ratings on the Format Validity of the Workbook in Basic Drawing in Terms of Illustrations and Presentations

Table 5 presents the mean ratings on the format validity of the workbook in Basic Drawing in terms of illustrations and presentations. As reflected in the table, only two conditions have obtained “very much valid” results” and these were, “the exercises present topics which are chronologically arranged in accordance with the syllabus” with a mean rating of 4.58 and “procedures are clearly presented in step by step manner to improve students’ higher order thinking skills” with a mean rating of 4.60 as perceived by the teachers in the area of presentations. This implies then that on the part of the teachers, these conditions have satisfactorily met the requirements on the test of validity in terms of format, particularly on the way the concepts were presented. Meaning to say, the workbook has complied with the mandates of the University, in particular, and the Commission on Higher Education, in terms of providing students with topics that would develop their higher order thinking skills and topics were so arranged so as to facilitate better understanding of the concepts.

On the other hand, there were some conditions which were perceived to be only on the average in as far as format validity was concerned. Out of the four conditions given in illustration, there were two which were rated as “undecided: or equivalent to valid while there was one condition rated by the teachers as “undecided” in the area of presentation. All the rest of the conditions were rated as “much valid”. This implies then that although there were areas which were not really perceived to be good, still the workbook has met the requirements in terms of illustrations and presentations for it to be valid.

Criterion	Teachers			Students			Teacher and Students		
	μ	Desc	Int.	μ	Desc	Int.	μ	Desc	Int.
Readability									
The language/ terms, signs and symbols:									
are stated in correct grammar	4.21	A	Much Valid	3.27	U	Valid	3.74	A	Much Valid
are easy to understand	4.11	A	Much Valid	4.14	A	Much Valid	4.12	A	Much Valid
use sufficient familiar vocabulary to ensure learning	4.67	SA	Very Much Valid	4.11	A	Much Valid	4.39	A	Much Valid
are appropriate to target level	3.69	A	Much Valid	3.47	U	Valid	3.58	A	Much Valid
Average	4.17	A	Much Valid	3.75	A	Much Valid	3.95	A	Much Valid
Time Allotment									
The time set for specific activity:									
provides sufficient duration to complete each activity/plate	4.27	A	Much Valid	4.00	A	Much Valid	4.13	A	Much Valid
gives ample time for the pre- activity discussions.	4.07	A	Much Valid	4.11	A	Much Valid	4.09	A	Much Valid
contains sufficient time for analyzing procedures, helping students develop the ability to discover and conceptualize	4.29	A	Much Valid	3.27	U	Valid	3.78	A	Much Valid
Average	4.21	A	Much Valid	3.79	A	Much Valid	4.00	A	Much Valid
Usefulness									
The actual value of the workbook:									
serves its purpose	4.64	SA	Much Valid	3.67	A	Much Valid	4.15	A	Much Valid
makes the activities of the students systematic and well directed	3.48	U	Valid	3.57	A	Much Valid	3.52	A	Much Valid
helps the students to perform the activity with confidence	4.06	A	Much Valid	3.39	U	Valid	3.72	A	Much Valid
Average	4.06	A	Much Valid	3.54	A	Much Valid	3.79	A	Much Valid
Grand Mean	4.14	A	Much Valid	3.68	A	Much Valid	3.90	A	Much Valid

Table 5:- Mean Ratings on the Format Validity of the Workbook in Basic Drawing in Terms of Readability, Time Allotment, and Usefulness

Moreover, on the aspect of readability as reflected in Table 6, the teacher- respondents found out that the languages, signs and symbols were stated in correct grammar and used sufficient familiar vocabulary to ensure learning having obtained the means of 4.21 and 4.67, respectively, which were interpreted as “very much valid”.

On the other hand, in relation to time allotment, teacher respondents found out that the time set for specific activity provides sufficient duration to complete each activity or plate. The workbook also contains sufficient time for analyzing procedure and helping students develop their ability to discover and conceptualize things having obtained mean ratings of 4.27 and 4.29, respectively interpreted as “very much valid”. Furthermore, in terms of usefulness the actual value of the workbook serves its purpose, according to the teacher respondents gaining a mean rating of 4.64 which is interpreted as “very much valid”.

It can be gleaned from the data that the assessment of both the teacher and student respondents in terms of the format validity of workbook was “much valid” having a grand mean of 3.90. This means that in terms of accuracy, illustrations, presentations, readability, time allotment, and usefulness, the workbook was highly accepted as an instructional material by the respondents and it addresses the needs, interest and level of teaching and learning among the academic members of the University.

F. Significant Difference on the Evaluation of the Teacher and Student Respondents on the Acceptability of the Workbook

Table 6 reflects the test of significant difference on the evaluation of the teacher and students respondents on the acceptability of the workbook in various aspects, namely accuracy, illustrations, presentations, readability, time allotment, and usefulness. The T-test for independent sample was used to test for significant difference on the assessment made by teachers and students on the acceptability of the workbook.

In terms of accuracy, Table 5 reflects that there was no significant difference established between the two groups of

evaluators with a computed value of $t = 2.07$ and significance value of $\alpha = 0.09$ which was greater than the 0.05 level of significance. Thus, the study failed to reject the null hypothesis.

This means that, generally, both teachers and students considered the workbook to have possessed accuracy. However, one indicator of accuracy showed that teachers evaluated with workbook to improve accuracy in following instructions and directions was significantly higher than the rating given by the students. It implies that the two evaluators have different perceptions on this criterion. Thus, it resulted to rejection of the null hypothesis particularly in this condition.

Criterion	Teacher		Student		Mean Diff	t- value	Sig.
	X	sd	x	Sd			
Can develop students' accuracy in:							
identifying/classifying different kinds of	4.35	0.63	0.67	0.50	0.68	3.42ns	0.09
drawing and sketching different kinds of	4.09	0.63	3.87	0.52	0.22	1.11 ns	0.25
drawing arcs, curves and circles	4.13	0.57	3.90	0.47	0.23	1.16 ns	0.15
Can improve students' accuracy in:							
following procedures	4.12	0.61	3.57	0.54	0.55	2.77 ns	0.10
following instructions and directions	4.24	0.76	3.27	0.62	0.97	4.88*	0.05
using the appropriate drawing instrument	3.99	0.68	3.68	0.56	0.31	1.56 ns	0.38
Can improve students' accuracy in:							
freehand drawing of different kinds of line	3.58	0.76	3.60	0.67	-0.02	-0.10 ns	0.27
sketching different classifications of letter	4.37	0.76	3.97	0.62	0.40	2.01ns	0.62
sketching different letter styles	4.12	0.75	4.01	0.61	0.11	0.55ns	0.38
developing accurately the use of guidelines	4.00	0.70	3.50	0.67	0.50	2.51ns	0.09
familiarizing the different instruments, their uses and how to use them properly	4.13	0.83	3.58	0.68	0.55	2.77ns	0.27
constructing and applying geometric figures	3.67	0.60	3.24	0.49	0.43	2.16 ns	0.32
Average	4.07	0.69	3.66	0.57	0.41	2.07ns	0.09

Table 6:- Test of Significant Difference on the Assessment of the Faculty and Student Respondents on the Acceptability of Workbook in terms of Accuracy

It could be possible that students did not see what the teachers have seen about the accuracy of the workbook along this criterion. Considering that they have a differing perspective since teachers have to treat the workbook as an instructional material while the students have to consider such as a learning material, then this could have influenced their varying perceptions which resulted then to differences on the assessment. Following instructions and directions are usually exercised by the students and not the teachers. This finding, therefore, should be given attention considering that students are the ones who are going to make use of the materials. But, in general, the two groups of respondents

were one in saying that in terms of accuracy, the workbook was still perceived to be acceptable.

In terms of illustrations, significant differences were found on two conditions and these were on, “motivate students’ interest, making learning effective” and “provide visual clues” having t-values of 4.53 and 3.92, respectively. They were found to have yielded significant differences since their values were lesser than 0.05 level of significance. Hence, the study failed to reject the null hypothesis in these two conditions. This implies therefore that the teachers and the students have differed in their perceptions as regards the acceptability of the workbook when it comes to motivating the interest of the students and in providing visual clues.

Criterion	Teachers		Students		Mean Diff	t- value	Sig.
	X	Sd	x	Sd			
Illustrations							
Drawing and images show clear and simple illustration	4.27	0.81	4.00	0.66	0.27	1.36 ns	0.52
Motivate students' interest, making learning effective	4.36	0.82	3.48	0.67	0.90	4.53*	0.03
Provide visual clues	4.15	0.82	3.37	0.67	0.78	3.92*	0.05
Guide the students to follow directions/procedures	4.28	0.81	3.67	0.66	0.61	3.07 ns	0.27
Describe to the learning objective	4.00	0.81	3.58	0.66	0.42	2.11 ns	0.08
Average	4.23	0.81	3.62	0.67	0.60	3.00 ns	0.07
Presentations							
The exercises present: topics which are chronologically arranged in accordance with the syllabus, orderly present the :							
Objectives	4.19	0.78	4.00	0.64	0.19	0.96 ns	0.50
Procedures	4.00	0.69	3.37	0.57	0.63	3.17 ns	0.06
activities/ plates	4.00	0.67	3.58	0.55	0.41	2.06 ns	0.10
Well and properly organized activities	4.15	0.59	4.00	0.48	0.15	0.75 ns	0.40
Procedures are clearly presented in step by step manner to improve students:							
Interest	4.15	0.58	3.87	0.48	0.28	1.41 ns	0.44
higher order thinking skills	4.60	0.59	3.57	0.48	1.03	5.18**	0.01
mastery level in drawing	3.90	0.68	3.77	0.54	0.13	0.63 ns	0.30
the procedures are easy to follow and guide the students to work independently on time	4.15	0.69	3.68	0.56	0.47	2.36 ns	0.29
Average	4.19	0.66	3.73	0.54	0.47	2.34 ns	0.17

Table 7:- Test of Significant Difference on the Assessment of the Faculty and Student Respondents on the Acceptability of Workbook in terms of Illustrations and Presentations

On the other hand, if results are to be analyzed based on the ratings of the students and the teachers, it can be gleaned from the table that the students have given lower ratings than the teachers. It follows therefore that the significant difference was rooted from the presumption that students have perceived the workbook to be less motivating and less appealing in terms of visual effects as have been thought by the teachers.

However, since the average result obtained no significant difference, then it implies that in general, the two groups of respondents were in agreement that the workbook was acceptable in terms of illustration.

In the aspect of presentations, results revealed that two conditions have obtained highly significant difference these were on, “the exercises present topics which are chronologically arranged in accordance with the syllabus” and “exercises present higher order thinking skills” having t-values of 4.53 and 5.18, respectively which were lesser at

0.05 level of significance. Thus, in these two particular aspects, the null hypothesis was rejected.

The highly significant results imply that some students find the material not presented chronologically or in accordance with the syllabus. They have significantly lower mean compared to rating given by the teachers. In addition, teachers rated to the workbook to target the higher order thinking skills of the students. This, however, was not true according to the students. In fact, there was highly significant difference found on this indicator having a significance value of 0.01.

However, taking it as a whole, result shows that in terms of presentations, the workbook was perceived similarly by both respondents. Meaning to say, there was no disagreement on the part of the teachers and the students in their perception that the workbook has passed the requirements of acceptability in terms of illustrations.

Criterion	Teacher		Student		Mean Difference	t-value	Significant
	x	sd	x	Sd			
Readability							
The language/ terms, signs and symbols:							
are stated in correct grammar	4.21	0.57	3.27	0.47	0.94	4.73*	0.04
are easy to understand	4.11	0.61	4.14	0.50	-0.03	-0.15	0.51
use sufficient familiar vocabulary to ensure learning	4.67	0.76	4.11	0.62	0.56	2.82	0.09
are appropriate to target level	3.69	0.68	3.47	0.56	0.22	1.11	0.24
Average	4.17	0.66	3.75	0.54	0.42	2.12	0.11
Time Allotment							
The time set for specific activity:							
provides sufficient duration to complete each activity/plate.	4.27	0.82	4.00	0.67	0.27	1.36	0.10
gives ample time for the pre – activity discussions.	4.07	0.82	4.11	0.67	-0.04	-0.20	0.41
contains sufficient time for analyzing procedures, helping students develop the ability to discover and conceptualize	4.29	0.81	3.27	0.66	1.02	5.13**	0.01
Average	4.21	0.82	3.79	0.67	0.42	2.10	0.27
Usefulness							
The actual value of the workbook:							
serves its purpose	4.64	0.67	3.67	0.55	0.97	4.88*	0.02
makes the activities of the students systematic and well directed	3.48	0.68	3.57	0.56	-0.09	-0.45	0.64
helps the students to perform the activity with confidence	4.06	0.72	3.39	0.59	0.67	3.37	0.11
Average	4.06	0.69	3.54	0.57	0.52	2.60	0.27
Overall	4.14	0.63	3.68	0.50	0.46	2.32	0.22

Table 8:- Test of Significant Difference on the Assessment of the Faculty and Student Respondents on the Acceptability of Workbook in terms of Readability, Time Allotment, and Usefulness

In terms of readability, teachers had significantly higher rating as compared to the students. This means that most students did not see the workbook to have clear presentation of its topics. They also considered the material to have some grammatical errors. This is something that teachers have to disagree as manifested with a higher mean rating of 4.21. However, the general means in this categories were found to be not significant with a computed value of $t = 2.12$ and a significance value of 0.11 which was higher than the 0.05 level of significance.

In terms of time allotment, significant difference was found on the time spent in analyzing procedures and helping students develop the ability to discover and conceptualize. Students have found this criterion short of the requirements for an acceptable workbook as compared to the rating given by the teachers. In fact, the computed value of $t = 5.13$ had significant value of 0.01 which means that there was a highly significant difference between the two groups of respondents. This finding implies that the two groups of respondents have varying perceptions as regards the acceptability of the workbook in terms of time allotment.

With differing perceptions, it can be deduced further that there is a need for the workbook to be reviewed following students' observation. This is an important issue that needs to be given utmost attention considering that students are the ones who will be using the workbook and not the teachers.

Lastly, the usefulness of the workbook was generally found to be acceptable according to the two groups of respondents with a computed value of $t = 2.60$ and a significance value of 0.27 which is greater than the 0.05 level of significance. However, one indicator, that is, its use and intended purpose, students' mean of 3.67 was found significantly lower compared to the mean of the teachers of 4.64. This means that students have found the workbook not following its intended purpose. Some of them considered the instructional material as not being used for students' learning. It implies further that some students did not find the material to be of help, particularly in developing their knowledge and skills in Basic Drawing.

G. Reliability of the Basic Drawing Workbook

The next following table presents the results on the test of reliability of the Basic Drawing Workbook as perceived by the teachers and students. Pearson r was used in determining the significant relationship on the two rating periods and in establishing the reliability of the material.

In terms of accuracy, Table 9 shows that many of the areas have obtained either significant or highly significant relationships. The items which have shown highly significant relationships were on drawing arcs, curves and circles, can improve students' accuracy in following procedures, following instructions and directions while those that obtained significant relationships were on the conditions, drawing and sketching different kinds of lines, can improve students' accuracy in using the appropriate drawing instruments, sketching different letter styles,

sketching different classifications of letters, developing accurately the use of guidelines, familiarizing the different instruments, their uses and how to use them property, and constructing and applying geometric forms.

Criteria	Pearson r (rating period)	Sig. (2-tailed)
Accuracy		
Can develop students' accuracy in:		
identifying/classifying different kinds of lines	0.23 ^{ns}	0.06
drawing and sketching different kinds of lines	0.33*	0.05
drawing arcs, curves and circles	0.56**	0.00
Can improve students' accuracy in:		
following procedures	0.48**	0.01
following instructions and directions	0.56**	0.01
using the appropriate drawing instruments	0.38*	0.03
Can improve students' accuracy in:		
freehand drawing of different kinds of lines	0.12 ^{ns}	0.29
sketching different classifications of letters	0.56*	0.04
sketching different letter styles	0.44*	0.02
developing accurately the use of guidelines	0.67*	0.06
familiarizing the different instruments, their uses and how to use them property	0.22*	0.07
constructing and applying geometric forms	0.33*	0.04

Table 9:- Test of Relationships on the Assessment of the workbook by the Faculty and Student Respondents on the Two Rating Periods in terms of Accuracy

This implies therefore that there was no consistency on the responses along freehand drawing of different kinds of lines, developing use of guidelines, and being familiar with different drawing instruments, its uses and how to use them properly. As such, the workbook was not able to establish reliability in the aspect of accuracy. This is something that the study should consider in the revision of the workbook.

Criteria	Pearson r (rating periods)	Sig. (2-tailed)
Illustrations		
Drawing and images show clear and simple illustration	0.38*	0.02
Motivate students' interest, making learning effective	0.39*	0.04
Provide visual clues	0.22*	0.06
Guide the students to follow directions/procedures	0.44*	0.01
Describe the learning objective	0.56*	0.00
Presentations		
The exercises present:		
topics which are chronologically arranged in accordance with the syllabus;	0.44*	0.03
orderly present the :		
Objectives	0.35*	0.04
Procedures	0.35*	0.04
activities/ plates	0.11*	0.13
Well and properly organized activities	0.46*	0.02
Procedures are clearly presented in step by step manner to improve student		
Interest	0.25*	0.05
higher order thinking skills	0.10*	0.17
mastery level in drawing	0.10*	0.16
the procedures are easy to follow and guide the student to work independently on time	0.38*	0.02

Table 10:- Test of Relationships on the Assessment of the workbook by the Faculty and Student Respondents on the Two Rating Periods in terms of Illustrations and Presentations

As reflected in Table 10, the reliability of the workbook in terms illustrations and presentations has also obtained a significant relationship in two rating periods. This means to say that the workbook did not pass the requirement for reliability and it was found to be inconsistent in yielding responses from the respondents. This finding was based on the result of Pearson r in two rating periods which was 0.38. For a material to be reliable, it should at least obtain a value closer to 1.0 or at least 0.70. However, in this case, the result was only 0.38 which was way below the requirement for a material to be judged as reliable.

V. CONCLUSIONS

Based on the findings of the study, the study has drawn out the following conclusions:

- The development of the workbook was borne out of necessity from among the teachers and the students of the University of Eastern Philippines who have felt the need for a strategic remedy to the poor performance of the students in drawing subject.
- At the time of the conduct of the study, the University was in dire need of instructional materials in different subject areas which are suited in the context and level of students and one of which was on Basic Drawing.
- The development of an instructional material like a workbook can only be made appropriate and possible if inputs and suggestions are drawn from experts, stock knowledge of individuals handling or teaching the subject and from students who have the direct experience as to the difficulty of the concepts and skills involved in the subject.
- The teachers and students have evaluated the workbook based on their prior knowledge and understanding of the concepts and the necessary skills needed to be acquired in basic drawing.
- The teachers and students were not aware that although on the face of the workbook, it seemed valid and acceptable, still it did not really maintain consistency in measuring what it is supposed to measure.
- Reliability of the workbook was not fully established due to varying perspectives and factors affecting the evaluation of the workbook in terms of reliability.
- The workbook although needing improvement in order to attain good reliability was a considered to be a noble undertaking relevant in addressing the need for an instructional material for students taking drawing subject.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations are forwarded:

- The visual clues of the workbook may be reviewed to suit them to the needs of the learners.
- The vocabulary used in the workbook may be revised to adopt the learning level of the students.
- The steps or procedures may be revised to adjust to the higher order thinking skills and mastery level of the students.
- Instructions in the workbook may be revised along freehand drawing of different kinds of lines, suited to the availability of drawing instruments.
- The workbook should undergo further validation and reliability tests by subjecting it to other groups of respondents.
- Other technique of discussions may be used to gather additional inputs in developing workbook.
- Wider scope of respondents may be included to elicit difficulties of other schools, and widen the usefulness of the workbook.

Criteria	Pearson r (rating periods)	Sig. (2-tailed)
Readability		
The language/ terms, signs and symbols:		
are stated in correct grammar	0.60*	0.00
are easy to understand	0.20*	0.08
use sufficient familiar vocabulary to ensure learning	0.60*	0.06
are appropriate to target level	0.40*	0.04
Time Allotment		
The time set for specific activity:		
provides sufficient duration to complete each activity/plate.	0.20*	0.28
gives ample time for the pre – activity discussions.	0.40*	0.01
contains sufficient time for analyzing procedures, helping student develop the ability to discover and conceptualize	0.51*	0.03
Usefulness		
The actual value of the workbook:		
serves its purpose	0.50*	0.00
makes the activities of the students systematic and well directed	0.40*	0.01
helps the students to perform the activity with confidence	0.60*	0.01

Table 11:- Test of Relationships on the Assessment of the Workbook by the Faculty and Student Respondents on the Two Rating Periods in terms of Readability, Time Allotment, and Usefulness

As to its readability, results indicate that all indicators have shown significant relationship between first and second rating. It means that respondents were not certain and consistent with their assessment relative to the readability of the workbook. It could be implied that the language is not very clear based on the evaluators’ perceptions and therefore, did not yield credible results. It implies then for the need to revise some of the vocabulary used and grammar to ensure a more reliable instructional material.

In terms of time allotment, significant relationship was also found between first and second rating, particularly on the sufficiency to complete each activity or plate. On the other hand, usefulness of the workbook has also yielded significant relationship as evidenced by Pearson r values lower than the value of 1 or even at least 0.70. Generally, the reliability test showed that the workbook did not possess consistency in developing the skills of students.

- Development of workbook on higher level of skills may be recommended.
- Comments and suggestions of the workbook from other experts in the field may be solicited for further improvement of the workbook.
- Faculty members should be given opportunities in attending trainings on developing workbooks and other instructional materials.
- A similar study on developing and validating workbook in other subject areas may be undertaken to improve the performance of the students.

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