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Developmental Study on the Reliability of Basic Drawing Workbook

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Abstract. A developmental study was conducted on the reliability of a developed workbook in Basic Drawing. Three experts, and faculty and students of the University of Eastern Philippines rated the workbook. 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 workbook was subjected to reliability test and the 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. As such, the workbook still needed further improvement.

Keywords: Bases, input, reliability, workbook, basic drawing

I. INTRODUCTION

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-andeye 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.

II. 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 criterion 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).

III. RESULTS AND DISCUSSION

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.

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.

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 1 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.

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.

Table 1. Test of Relationships on the Assessment of the Workbook by the Faculty and Student Respondents on the Two Rating Periods in Terms of Accuracy

Criteria	Pearson r (rating periods)	Sig. (2-ailed)
Accuracy		
Can develop students' accuracy in:		
identifying/classifying different kinds of lines	0.23	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	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

As reflected in Table 2, 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.

Table 2. 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

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 students';		
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

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 (table 3).

Table 3. Test of Relationships on the Assessment of the Workbook by the Faculty andStudent Respondents on the Two Rating Periods in Terms of Readability, Time Allotment, And Usefulness

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 students 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

IV. CONCLUSION

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. Reliability of the workbook was not fully established due to varying perspectives and factors affecting the evaluation of the workbook in terms of reliability.

REFERENCES

1. Gidayawan, Cyrene R. (2009). Proposed Mathematics Skillbook for Grade V Pupils: Its Acceptability. Unpublished Master's Thesis, Eulogio "Amang" Rodriguez Institute of Science and Technology.
2. Manuel, Bienvinido B. &Medel, Paz C., (1976).A Practical Guide to Methodology of Research and Thesis Writing, GIC Enterprises and Company, Inc., Manila.
3. Ramos, J. (2004). Development and Evaluation of Instructional Manual in Engineering Drawing 1.Unpublished Master's Thesis, Rizal Technological University, Rizal.
4. Robiso, V. (2010). A Proposed Instructional Workbook in Mechanical Drawing 1 And 3: Its Acceptability. Unpublished Dissertation, Eulogio "Amang" Rodriguez Institute of Science and Technology.