

## USEFULNESS OF MODELLING MEDIA AS PERCEIVED BY FINE AND APPLIED ARTS STUDENTS OF AHMADU BELLO UNIVERSITY, ZARIA, NIGERIA

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### ABSTRACT

Modelling is a functional 3 dimensional arts, a fascinating creation of objects, easy to manipulate and meeting higher technical requirements. Empirical verifications confirm students are scared of modelling because of the media employed, scarcity of the media and seeming tediousness in modelling activities employing such media. With this background, this study was carried out to investigate usefulness of modelling media as perceived by fine and applied arts students of Ahmadu Bello University, Zaria, Nigeria. Survey research design was employed, with purposive sampling, constituting 114 students: 40 females, 74 males; of 200 to 400 levels. Questionnaire was employed as research instrument, subjected to content and face validation by experts. Two hypotheses were tested at 0.05 level of significance using ANOVA and T-TEST. The outcome revealed that there was significant difference in usefulness of modelling media as perceived by fine and applied arts students of Ahmadu Bello University, Zaria, Nigeria; and gender was a factor. Recommendation was made that students be exposed to different modelling media right from 200 level to improve and encourage modelling skill.

**Key words:** Gender, Modelling, Modelling media

### INTRODUCTION

There is an instinct in the creative mind that wants to employ the brain, hands and mind in the making of objects. The curiosity of individual to embark on creativity gives modelling media opportunity to be employed by man. Modelling provides the forum for such engagements. Modelling is a creative activity in the creative and visual arts, science and technology. Modelling depends on the perceived usefulness of the media that may be available for the user. Davis (1993) and Olasedidun (2014) believe that the controlling and utilising of a new tool by individuals which will invariably increase, improve and finally boost the productivity of activity is defined as the perceived usefulness. Mathwick, Malhotra and Rigdon (2001) explain that perceived usefulness is the scope to which a person believes a skill improves the job presentations. In essence, Chen and Barnes (2007) also submitted that this has pressure and significant influence on people's goal to accept a new skill. Perceived usefulness is most known and a very crucial variable in the study of individual's intention to embarking on a skill, tool and system and also as an important forerunner of user of Technology Acceptance Model (TAM), which was first expressed by Davis in 1989. Sharma and Chandel (2013) further credited the forecast that behavioural habit is determined by the intention to manipulate a skill; therefore, the perceived usefulness was the sturdy and most significant determinant of students' attitude toward embarking on technology, tool, and material and system usage in learning.

Researchers have provided and confirmed the evidence of the perceived usefulness and its impact on the learners' choice of technologies, tools, materials and system in learning (Rasimah, Ahmad, & Zaman, 2011). Also, Wong and Teo (2009) opined that perceived usefulness had a direct influence on intention to use, therefore, was ascribed as a major determinant of system supervision and that perceived usefulness has been confirmed to be the stronger of the variables in Technology Acceptance Model. Mechanical Engineering invented the technique of designing and produced a very strong and useful learning tool, from metal through modelling (Abdullah, Muda & Samad, 2008). Biological Sciences utilising modelling as a means of creating made some habitat collection in mainland especially Neotropical lizards which serves as a prey (Steffen, 2009). Researcher in Ecology engaging modelling in clay produced improvised snakes, reptile, and amphibian for educational study of the habitat (Harper and Pfennig, 2007), salamanders (Kuchta, 2005), and frogs (Saporito, 2007; Noonan and Comeault, 2009). Pre primary educators judiciously manipulate modelling media to form basic shapes, sight words, alphabets, and punctuation marks in language and numerical in arithmetic for the beginners, which are utilized along other instructional materials, which in turn renders it permanent in the learners brain (Marshall, 2005).

Modelling media are materials that are mostly utilized for the purpose of casting, building, constructing and making of objects of arts in both two and three dimensional craft forms (Usman, Odewumi, Obotuke, Apolola &

Ogunyinka, 2014). The modelling media are characterised by very malleable and of plastics components (Ajala, 2009; Ibrahim-Banjoko, 2009). The modelling media include Clay, Plaster of Paris, Plastercine, Sawdust, Cement, Fibre glass, Paper Mache, Metal dust and Marble dust. Giving further explanations to these, Cement is a powdered material of different colours that needs to be mixed with sand and water before it can be used. It is extremely strong when set and can be used for hollow cast sculpture suitable for indoors and outdoors but mostly used for direct and casting modelling. Also, Papier Mâché is prepared by using pieces of pounded paper and adhesives. It takes a very long time to set when used in the execution of modelling works directly and in casting (Dianne & Williams, 1992).

Paper Sculpture can directly be explored by using gum or glue and laminated paper. When it is dried, it is extremely hard and water resistant and can be sanded and smoothed mostly for construction of a strong armature made from paper and cardboard (Odewumi, Okeke, Abdulhammed, Uzoma, & Okuche, 2015). Plaster of Paris (P.O.P) is a powerful medium in the process of mould making, direct, carving and casting. It is also used in clinical modelling of fractures. The lowest grade is suitable for making the mould while the higher grade will produce high quality plaster casts and sculptures where structural strength is required. It is normally stored in a dry place to prevent it not to absorb moisture from the atmosphere in order not to retard the rate at which it sets and affects its final strength (Usman, Odewumi, Obotuke, Apolola, & Ogunyinka, 2014).

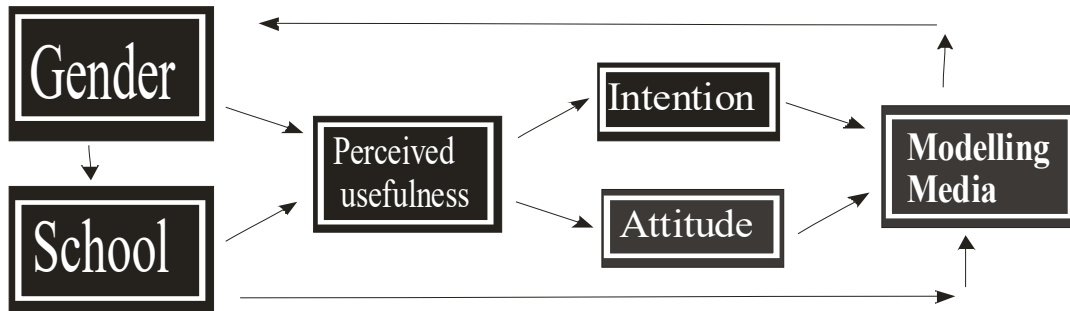
Plasticine is a soft modelling medium of different colour, characterised as very flexible and adhesive in nature, which makes it easy to disconnect pieces and fix them together without any special jointing methods needed for other materials. It is widely used for modelling, very easily found, non-toxic when compared with other materials (Kothar and Luckham 2014). Clay has a long history of modelling. It is the most common modelling medium from the earth; a very rich medium of modelling in art, flexible, malleable, easy to use and fragile in the dry state. Clay has the second value of the opportunity to be recycled after drying, which makes it useful than other modelling media, and especially the ease of its availability in most settings (Mathieu, 2003). Clay with grog is most suitable for modelling and casting of domestic utensils. Researchers have confirmed the durability of modelling of sculptures from clay throughout the ages and its worldwide usage (Mathide, 2014).

Review of empirical studies on perceived usefulness of modelling media in teaching and learning reveal among others that the use of modelling media is prominent for both the children and the adult in learning some concepts associated with alphabets and letters (Marshall, 2003). Modelling media can also be a motivating factor in the creation objects with different modelling media; however, the success in producing the products elicits permanent joy in the students (Warwick, 2005). The special students are not left out in modelling, they love and manipulate modelling media to form different objects regardless of their impairment during learning (Chandrakant & John, 2014).

On gender, research reveal that perceived usefulness of modelling media allows both men and women to be equally and deeply involved in clay modelling making crafts and associated materials. Women, it is revealed, outnumber men in modelling of cooking utensils employed for domestic purposes (Sacca, 1996). It was also discovered by Dorn (2001) that boys prefer usefulness of clay to other modelling media, assisting them to embark solely on producing flower vase of different patterns as relief on the product, than girls. In another finding of cultural and gender studies it was suggested that women were the first pot makers and that women prefer usefulness of clay medium to any modelling media (Burgess, 2000). Although men perceive usefulness of clay for buildings and structures, women utilise perceived usefulness of clay to produce domestic wares and also, men's perceived usefulness of modelling media especially cement for modelling of outdoor figures, structural designs, and inner poles (Opoku-Asare, 2008). The ceilings and walls structures of buildings were product of perceived usefulness of Plaster of Paris (Ajala, 2009).

Many models have been proposed overtime in the integration of technology in instruction. One of the most notable among them is the Technology Acceptance Model (TAM), which was from the Theory of Reasoned Action (TRA) to the field of Instructional System Design (Olasedidun, 2014). The Instructional System Design Model (ISD) is the systematic approach to the development of instructional specifications, employing learning, instructional theories and, models to ensure the quality of instructions. There has been a widespread research on these variables that has evolved out of the Theory of Reasoned Action. Furthermore, Davis, (1989) explained how individuals make a decision to accept and use a particular technology. It is also used to predict user acceptance based on perceived usefulness and ease of use. Venkatesh and Morris (2000) suggested that TAM's perceived usefulness will be influenced by perceived ease of use, because the easier a technology is to use, the more useful it can be. Also, TAM considers that an individual's intention to use a system will be verified by perceived usefulness of that system. The model implies that when a new package is given to the users, perceived usefulness will impact their urge about how and when they will use the package. Since the perceived

usefulness is said to determine the students utilisation of modelling media, there is need to ascertain whether the present research could agree or not. For the purpose of this study, the conceptual framework in fig 1 is generated to guide the study.



### Research Questions

These research questions would be answered in this study

1. Which of the following modelling media do you use?
2. What is the perceived usefulness of modelling media among the 200, 300, 400 and 500 level Fine and Applied arts students of Ahmadu Bello University Zaria, Nigeria?
3. What is the perceived usefulness of modelling media among Fine and Applied Arts' male and female students of Ahmadu Bello University Zaria, Nigeria?

### Research Hypotheses

1. There is no significant difference between the Fine and Applied arts 200, 300, 400 and 500 level students of Ahmadu Bello University Zaria, on the perceived usefulness of modelling media
2. There is no significant difference between the Fine and Applied arts male and female students of Ahmadu Bello University Zaria, Nigeria on the perceived usefulness of modelling media.

## METHODOLOGY

### Research Design

The study was a descriptive research survey type.

### Sample and Sampling Technique

The sample for the study was drawn employing purposeful sampling of students of 100, 200,300 and 400 levels of the Department of Fine and Applied Arts of Amadu Bello University Zaria. A total of 114 students constituting 40 males and 70 females were employed for the research.

### Research instrument

The instrument for this study was a questionnaire, named Perceived Usefulness of Modelling Media (PUMD). The questionnaire consists of two sections A, and B. Section A sought to find out the modelling media the students frequently use, while section B dealt with student's perception on perceived usefulness of modelling media. This section is divided into 10 items numbered 1 - 10 and were patterned after the five point-Likert rating scale format of Strongly Agree (SA) - 5 points, Agree (A) - 4 points, Disagree (D) - 3 points Strongly Disagree (SD) - 2 points and Undecided (UD) -1 point.

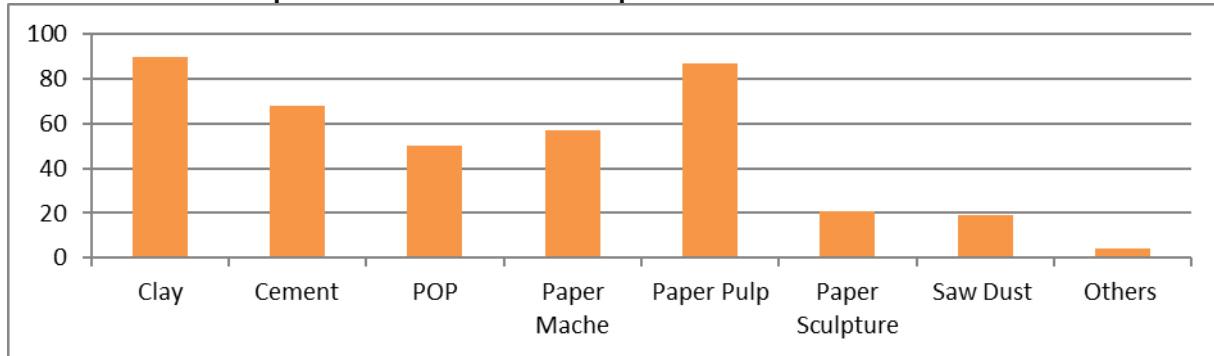
### Validation of Research Instrument

The research instrument was tested and found to satisfy face, content and construction validity. It was given to two lecturers in the Department of Educational Technology, University of Ilorin, Nigeria, and a Lecturer in the Department of Fine and Applied arts Obafemi Awolowo University Ile Ife, Osun State, Nigeria, with background knowledge in fine and applied arts. The instrument was further subjected to pilot study and reliability test before using the research instrument. The reliability of the instrument was administered on undergraduate students of Department of Educational Technology and Fine and Applied arts of Obafemi Awolowo University, Ile Ife, OsunState, Nigeria. The Cronbach's alpha value obtained for the reliability was 0.82. The level of significance adopted for the analysis was  $P \leq 0.05$ . This level of significance formed the basis for accepting or rejecting the hypotheses.

**RESULT**

Research question 1: Which of the following modelling media do you use?

**This Bar and Pie chart provides answer for research question 1.**



Bar chart on the modelling media used.

**Hypothesis 1: There is no significant difference between the Fine and Applied arts 200, 300, 400 and 500 level students of Ahmadu Bello University Zaria, on the perceived usefulness of modelling media**

This hypothesis was tested using the ANOVA statistic methods to compare the perceived usefulness of 200, 300, 400 and 500 level students of Fine and Applied Arts Department of Ahmadu Bello University Zaria, Nigeria on modelling media.

**TABLE 1: ANOVA statistics on the perceived usefulness of 200, 300, 400 and 500 level students of fine and applied arts department of Ahmadu Bello University Zaria, on modelling media:**

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	311.780	4	77.945	1.057	.381
Intercept	21375.951	1	21375.951	289.865	.000
FACTOR	311.780	4	77.945	1.057	.381
Error	8038.158	109	73.745		
Total	121971.000	114			
Corrected total	8349.939	113			

Table 1 indicates that the calculated F value of 1.057 is significant because the significant value of .381 is greater than 0.05 alpha level. The result implies that there is no significant difference in the perceived usefulness of modelling media among 200, 300, 400 and 500 level fine and applied arts students of Ahmadu Bello University Zaria. Therefore, the null hypothesis is accepted. The result implies that students in 200, 300, 400 and 500 levels do not differ in their perceived usefulness of modelling media.

**Hypothesis 2: There is no significant difference between Fine and Applied arts male and female students of the department of fine and applied arts of Amadu Bello University Zaria on perceived usefulness of modelling media.**

This hypothesis was tested employing the t-test statistic to compare the male and female students means of Fine and Applied arts on the perceived usefulness of Amadu Bello University Zaria on modelling media. **TABLE 2: t-test on the perceived usefulness of modelling media of male and female students of fine and applied arts department, of Amadu Bello University Zaria:**

Gender	No	X	SD	df	F	Sig.
Male	40	29.9500	8.578	112	-1.487	.948
Female	74	32.4459	8.535			

Table 2 indicates that the calculated  $t(114) = -1.487, p=.948$ . The result implies that there is no significant difference in the perceived usefulness of modelling media of male and female fine and applied arts students of Amadu Bello University Zaria. Therefore, the null hypothesis is accepted. That implies that the male and

female fine and applied arts students of Ahmadu Bello University, Zaria, do not differ in their perceived usefulness of modelling media.

### DISCUSSION OF FINDINGS

The result of ANOVA shows that there is no significant difference in scores of the students on the perceived usefulness of modelling media. This study revealed that there is influence on the students on the perceived usefulness of modelling media. This finding was in congruence with the conclusion of Mahesh Ganesapillai, Arunagirani and Iyyasami Regupathi (2009), Sorby (2010), Ambose and Cheong (2011) based on their review on the importance of clay modelling on educational programme. The t-test analysis shows that gender differences for perceived usefulness of modelling media are not different. This finding agrees with the conclusion of Chen (2010), Taibah (2012) and Al-Suqri (2014) based on their reviewed on TAM model on teaching and learning in educational setting.

It can be concluded that modelling media can be equated with the technological devices such as computer assisted instructional packages, video packages and photo series packages that bring about improvement in students' achievement, speeds up learning rate, enhances better retention, and encourages the development of better attitude in learners. The perceived usefulness of modelling media among the Ahmadu Bello university Zaria, fine and applied arts students should be developed so that students will be skilful and enjoy using the modelling media frequently and benefit from it. Educators should be encouraged to provide modelling media to the fine and applied arts students, monitor the modelling media, encourage the uses and vary the modelling media right from the 200 level assignments. This will expose and widen their scope of modelling skills, foster mastery and competence of the students to enable them specialise in modelling aspect of arts.

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**APPENDIX I**

**QUESTIONNAIRE ON PERCEIVED USEFULNESS OF MODELLING MEDIA.**

Which of the following modelling media are you using? Tick as many as may be applicable to you.

Clay ( )	Cement ( )	Plastics of Paris ( )
Paper Mach ( )	Paper pulp ( )	Paper sculpture ( )
Fiber glass ( )	Wax ( )	Marble dust ( )
Soap ( )	Saw dust ( )	Metal dust ( )
Specify others		

**SECTION C**

Instruction: Kindly respond to all the items in section by putting a tick ( ) in the column that best represents your view on each of the item using the format below as guide. SA (Strongly Agree). A (Agree), UD (Undecided), D (Disagree), SD (Strongly Disagree).

S / N	STATEMENT	SA	A	D	SD	UD
1	Modeling media usage will reduce stress and tension.					
2	Modeling media usage will give control over my modelling					
3	Modeling media will support the critical part of my modeling task.					
4	Modeling media usage will reduce boredom.					
5	The use of modeling media will make my skill more diverse					
6	The use of modeling media will be earn more productive					
7	Modeling media will enhance my effectiveness in art					
8	Modeling media usage will increase my daily productivity in art.					
9	Modeling media will make me finish the content of my modeling task quickly					
10	The modeling will be much more easy with the use of modeling media					