Journal of Namibian Studies, 33 (2023): 5578-5596 ISSN: 2197-5523 (online)

# Development Of Flexy Customized Blouse Pattern For Mass Production

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ABSTRACT

This study is entitled Flexy Customized Pattern tool. The purpose of this study was to improvise pattern tool in mass sewing production of customized blouse uniform. Specifically, this study sought to answer the following questions: technical plan, material and cost in making the tool and its operational procedures. It further sought to determine the status of Flexy Customized Pattern tool in terms of speed, accuracy, durability and convenience, the difference in the performance efficiency of Flexy Customized Pattern made of acrylic, sintraboard and chipboard in terms of speed, accuracy, durability and convenience. The study used the self made questionnaire as an instrument in gathering data. The researcher found out that the Flexy Customized Pattern made of acrylic obtained the descriptive rating of ''very efficient'' in the aspect of speed, accuracy and convenience the tool also got the descriptive rating of ''efficient'' in the aspect of durability. On the other hand, the sintraboard flexy customized pattern obtained the descriptive rating o of ''very efficient'' in all aspect. While the flexy customized pattern made of chipboard obtained the descriptive rating of ''efficient'' in the aspect of speed, accuracy, and durability, but, the tool rated ''very efficient'' in the aspect of convenience.It is recommended that the shop instructors shall develop the tool for utilization and the administration shall support the registration of the device for patenting and the other researchers may conduct parallel studies to upgrade the performance and features of the device.

## INTODUCTION

The development of garment involves different process. It starts from taking body measurements, drafting pattern down to assembling the

garment units. Pattern drafting is considered the most critical part in obtaining a well-fit garment. Fit is the most important factor leading to the final acceptance or rejection of a garment. Fit must be designed into the original pattern through delicateness that provides9 fullness unnoticeable at an appropriate location to accommodate body bulges in slattering manner. Moreover, Good customized fit depends on the individual customer. With the onset of the industrial revolution, standardized pattern were essential to the success of ready-to-wear clothing.

Moreover, Patterns are tools that help us make a garment. If the garment fits nicely, the pattern becomes more valuable, because it is the vehicle that let us reproduce the garment. Most sewers are thrilled to have a pattern that fits well, because they can then concentrate on being creative with fabrics, embellishments, and small style changes(Murphy,1999).

Bohol Island State University, Main Campus is one of the State Universities offering Garments Technology. The production of school uniforms is done inside the school campus. In school, commercial pattern was used in the production of school uniforms. It has three standard sizes (small, medium, large) in separate piece per unit. The researcher found out that some irregular body measurements do not fit in any of the sizes. In this regard, the researcher feels the necessity of inventing an improvised tool for an easier process. Using the " Flexy Customized Basic Blouse Pattern''

The researcher aim to produce ''Flexy Customized Basic Blouse Pattern'' a pattern that conforms to the body's size and proportion, to help lessen the time, money and effort in the production of the school uniform, at Bohol Island State University, Main Campus and other basic blouse pattern design having basic style details.

**METHOD/S**

The researcher used the experimental research design to create the Flexy Customized Pattern. The perfected tool was subjected to trial utilization so as to gather data in terms of speed, accuracy, durability, and convenience in constructing garment using the tool.

The researcher used purposive sampling in selecting the respondents of the study. The participants were chosen based on their exposure to pattern drafting for them to provide accurate information regarding the study. There were three (3) 2nd year students from Diploma in Industrial

Technology major in Garments Technology, nine (9) 3rd year students from Bachelor of Science in Industrial Technology major in Garments Technology, ten (9) 3rd year students from Bachelor of Technology Education major in Garments Technology, one (1) instructress from the College of Technology and Allied Sciences, four (4) grade 10 and three (3) grade 9 students and ten (10) local tailors from tailoring shop within Tagbilaran City. A total of thirty nine (39) respondents. The researcher chose these respondents since they were exposed to theory, as well as in the actual field of constructing garments following the standard steps especially in drafting and laying out the pattern with the correct fitting. Hence, the respondents had the ability to provide accurate information regarding the study.

## RESULTS AND DISCUSSION

This section covers the design, analysis and interpretation of data. It presents information collected from performance and acceptability of flexy customized blouse pattern. The gathered data from the distributed competency tests were tabulated, analyzed and interpreted through the use of appropriate statistical treatment.

### Design

Prior to the construction of the research project, designs were made to serve as guidelines to attain best possible output. The design illustrated through the use of Auto CAD represented the unit parts of the pattern tool.

### 1. Technical plan and design in making the Flexy Customized Pattern

#### 1.1 Design

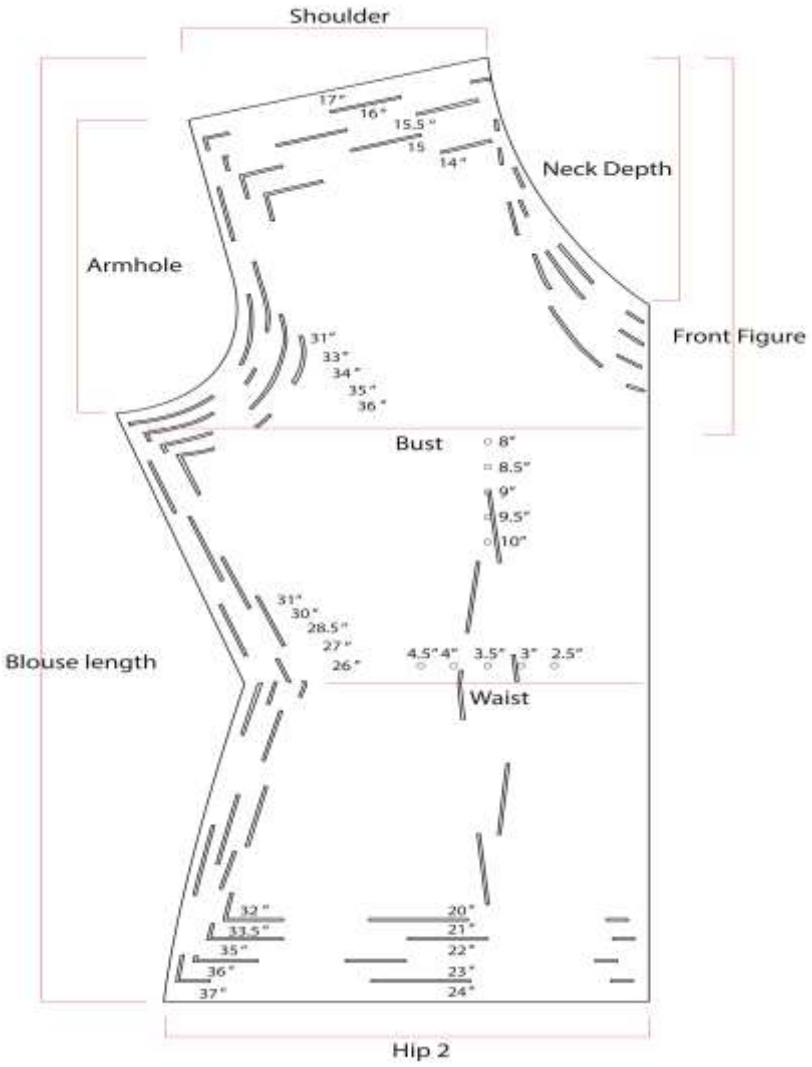



**Figure 2. Front Bodice Pattern**

This figure shows the front bodice pattern indicating the body measurements: shoulder 14'',15'',15'',5'',16'' and 17'', bust 31'',33'',34'',35'',and 36'', waist 26'',27'',28.5'',30'',31'' hip2 32'',33.5'',35'',36'',and 37, blouse length 20, 21, 22, 23, and 24.

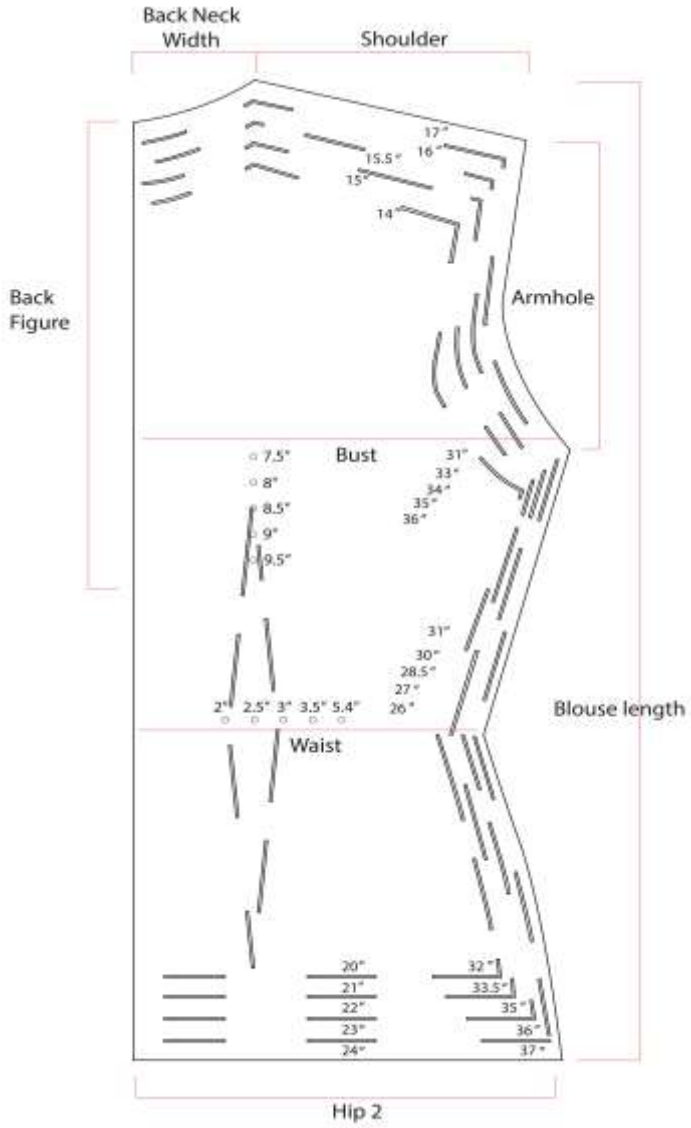



**Figure 3. Back Bodice**

The figure present the back bodice, composed of five different measurement the same with front bodice pattern : shoulder 14'',15'',15.5'',16'' and 17'', bust 31'',33'',34'',35'',and 36'', waist 26'',27'',28.5'',30'',31 hip2 32'',33.5'',35'',36'',and 37'', blouse length 20'', 21'', 22'', 23'', and 24''.

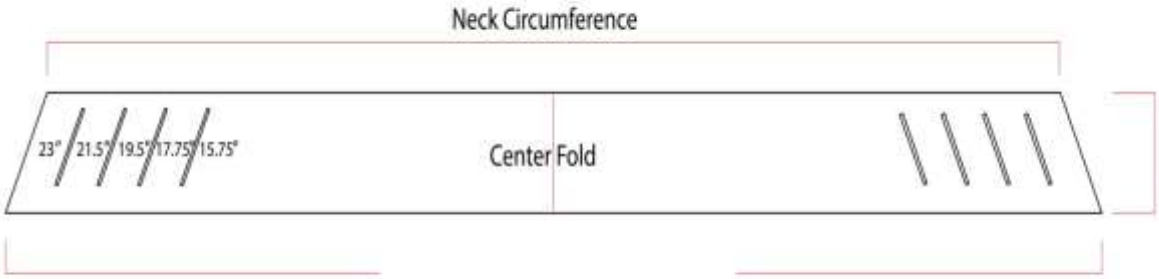
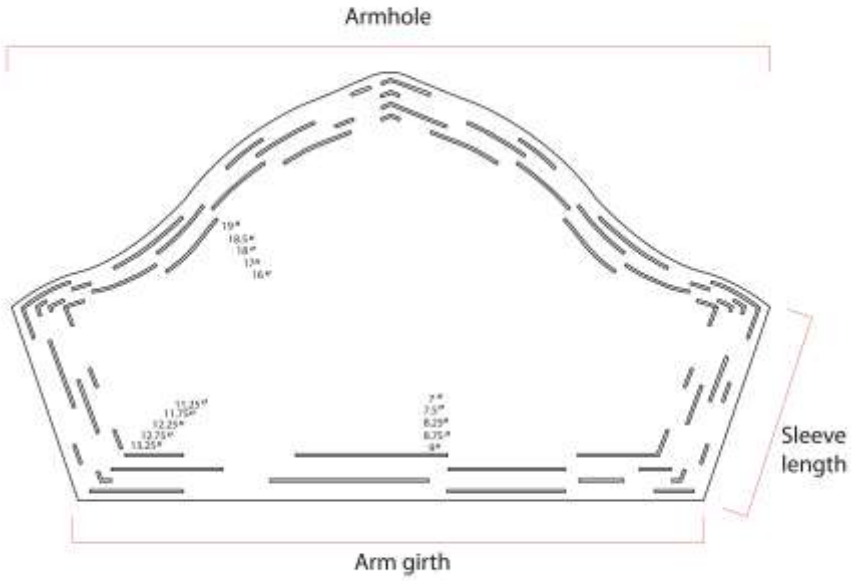



**Figure 4. Collar**

The figure represents the collar unit of the blouse pattern indicating the five measurements 15.75'', 17.75'', 19.5'',21.5'' and 23''.




The figure represents the sleeve unit of the blouse pattern for blouse uniform marked with different body measurements: armhole 16'', 17'', 18'', 18.5'' and 19'',sleeve length 7'', 7.5'', 8.25'', 8.75'' and 9'', arm girth 11.25'', 11.75'',12.25'', 12.75'', and 13.25''.

**Table 1**

**2.1 Performance of Flexy Customized Pattern in terms of Speed**

| | **Acrylic made pattern** | **Sintra board made pattern** | **Chip board made pattern** |
|---|---|---|---|
| **Speed** | | | |
| Time and Operation | | | |
| Draft and follow the pattern of a blouse within 5 minutes | **10** | **25** | **4** |
| Draft and follow the pattern of a blouse within 10 minutes | **20** | **10** | **9** |
| Draft and follow the pattern of a blouse within 15 minutes | **5** | **4** | **30** |
| Draft and follow the pattern of a blouse within 20 minutes | **2** | **2** | **35** |

**ANOVA: single Factor**

**Summary**

| **Groups** | **Count** | **Sum** | **Average** | **Variance** | **Rank** |
|---|---|---|---|---|---|
| **Column 1**<br>For acrylic made pattern | 4 | 41 | 10.25 | 62.25 | 2 |
| **Column 2**<br>For sintra board made pattern | 4 | 78 | 19.5 | 233.6667 | 1 |
| **Column 3**<br>For chip board made pattern | 4 | 37 | 9.25 | 62.25 | 3 |

As shown in the table 1, the Flexy Customized Pattern made of sintra board got the highest rank, which means that the sintra board can performed best in terms of speed. Meanwhile, the next in rank is sintra board made pattern and the last in rank is the chip board made pattern. It is reflected that the respondents preferred most of using the sintra

board made pattern for it can produce more blouse at the short period of time than acrylic and chipboard made pattern.

**Table 2 Performance of Flexy Customized Pattern in terms of Accuracy**

| | **Acrylic made pattern** | **Sintra board made pattern** | **Chip board made pattern** |
|---|---|---|---|
| **Accuracy** | | | |
| The tool can draft front bodice following the accurate measurement | **20** | **10** | **9** |
| The tool can draft back bodice following the accurate measurement | **19** | **15** | **5** |
| The tool can draft sleeve following the accurate measurement | **20** | **15** | **4** |
| The tool can draft collar following the accurate measurement | **15** | **20** | **4** |

**ANOVA: Single Factor**

**Summary**

| **Groups** | **Count** | **Sum** | **Average** | **Variance** | **Rank** |
|---|---|---|---|---|---|
| **Column 1**<br>For Acrylic made pattern | 4 | 74 | 18.5 | 5.666667 | 1 |
| **Column 2**<br>For sintra board pattern | 4 | 60 | 15 | 16.66667 | 2 |
| **Column 3**<br>For chipboard made pattern | 4 | 22 | 5.5 | 5.666667 | 3 |

Table 2 projects the performance of Flexy Customized Pattern in terms of accuracy. The table shows that the acrylic made pattern got the highest rank in terms of accuracy. Moreover, the respondent found out that acrylic made pattern is easy to use in drafting a blouse for it is transparent. Thus, next in rank is the sintra board pattern followed by chipboard made pattern. In addition acrylic made pattern preferred most by the respondents for they can see the markings on the cloth while the sintra board and chip board made pattern are opaque in which the respondents could not able to see the marked lines on the cloth. However, the three pattern have the same measurements the tools are just differ in the characteristics of the materials that could affect the performance.

**Table 3 Status of Efficiency of the Flexy Customized Pattern in Terms of Speed**

**N=39**

| Speed | Acrylic Flexy Customized Pattern | | Sintraboard Flexy Customized Pattern | | Chipboard Flexy Customized Pattern | |
|---|---|---|---|---|---|---|
| | **WM** | **Description** | **WM** | **Description** | **WM** | **Description** |
| • **The pattern increases the rate of production** | 3.79 | Efficient | 3.69 | Very Efficient | 2.82 | Less Efficient |
| • **The pattern affords quick adjustments for varied and irregular figure types of patron** | 3.84 | Very Efficient | 3.61 | Very Efficient | 2.76 | Efficient |
| • **The pattern saves time in drafting** | 3.92 | Very Efficient | 3.82 | Very Efficient | 2.97 | Efficient |
| • **It can be used quickly without** | 3.89 | Very Efficient | 3.89 | Very Efficient | 2.92 | Efficient |

| | | | | | | |
|---|---|---|---|---|---|---|
| **making other pattern** | | | | | | |
| • **Can draft 5 pieces blouses within 5 minutes** | 3.76 | Very Efficient | 2.32 | Efficient | 2.28 | Less Efficient |
| **Average WM** | 3.84 | Very Efficient | 3.65 | Very Efficient | 2.75 | Less Efficient |

Table 3 shows the students' perception towards the Flexy Customized Pattern Drafting Tool in terms of Speed.

As shown in the table 2, all of the items under speed of Flexy Customized Pattern made of acrylic weighted mean of 3.84 describe as "very efficient" by the respondents. However, the Flexy Customized Pattern made of sintraboard tool was rated 3.65 which means "very efficient" while, Flexy Customized pattern made of Chipboard was rated 2.75 which means "Less Efficient". This implies that the Flexy Customized Pattern made of acrylic and sintraboard are efficient in the aspect of accuracy specifically providing markings of exact lines based on measurements

Table 3 presents the status of Flexy Customized Pattern tool in terms of its Accuracy.

As shown from the table, all items under accuracy of flexy customized pattern made of acrylic and sintraboard was rated as "very efficient" with average weighted mean of 3.89 for acrylic and 3.73 for sintraboard respectively. While all items of the flexy customized pattern made of chipboard was rated "efficient" with an average weighted mean of 2.84.

**Table 4 Status of Efficiency of the Flexy Customized Pattern in Terms of Accuracy**

**N=39**

| **Accuracy** | **Acrylic Flexy Customized Pattern** | **Sintraboard Flexy Customized Pattern** | **Chipboard Flexy Customized Pattern** |
|---|---|---|---|

| | WM | Description | WM | Description | WM | Description |
|---|---|---|---|---|---|---|
| • The pattern size guides have clear and accurate measurement | 3.94 | Very Efficient | 3.69 | Very Efficient | **2.82** | **Efficient** |
| • It gives exact line based on perforated lines. | 3.84 | Very Efficient | 3.76 | Very Efficient | **2.76** | **Efficient** |
| • The Pattern provides accurate markings that would cover all the necessary measurements of the patron | 3.84 | Very Efficient | 3.64 | Very Efficient | **2.97** | **Efficient** |
| • Can shape straight and curve lines precisely | 3.92 | Very Efficient | 3.79 | Very Efficient | **2.92** | **Efficient** |
| • The calibration are the same with that of a tape measure. | 3.92 | Very Efficient | 3.76 | Very Efficient | **2.28** | **Efficient** |
| **Average WM** | 3.89 | Very Efficient | 3.73 | Very Efficient | **2.84** | **Efficient** |

This implies that the Flexy customized pattern made of acrylic and sintraboard are more accurate in providing guide lines in lay-outing process compared to the pattern made of chipboard. This implies that the tools made of acrylic and sintraboard are more efficient in providing markings and exact lines based on measurements.

Table 5 shows the status of efficiency of the Flexy Customized Pattern Tool in terms of Durability.

The data reveals that one item under durability of Acrylic Flexy Customized Pattern was rated as 1.8 in one item, which means “less efficient”. This implies that the Acrylic Flexy Customized Pattern will easily break when bended, unlike the other two materials which are made of sintraboard and chipboard. On the other hand, Flexy Customized Pattern made of sintraboard is rated as 2.64 on the aspect of waterproof property which is describe as ‘’efficient’’. It implies that the tool is not waterproof and will be eventually damage upon exposure to wet. Moreover, Flexy Customized pattern made of chipboard rated as 1.71 means ‘’not efficient’’

**Table 5 Status of Efficiency of the Flexy Customized Pattern in terms of Durability**

**N=39**

| **Durability** | **Acrylic Flexy Customized Pattern** | | **Sintraboard Flexy Customized Pattern** | | **Chipboard Flexy Customized Pattern** | |
|---|---|---|---|---|---|---|
| | **WM** | **Description** | **WM** | **Description** | **WM** | **Description** |
| • Can withstand strenuous movement during pattern drafting | 3.28 | Very Efficient | 3.71 | Very Efficient | 3.66 | Very Efficient |
| • The tool is stable and stays in place when used | 3.53 | Very Efficient | 3.76 | Very Efficient | 3.61 | Very Efficient |
| • The tool will not easily break when its bended | 1.8 | Less Efficient | 3.89 | Very Efficient | 3.89 | Very Efficient |
| • The Pattern is durable, it is not easily damage or affected even when | 3.58 | Very Efficient | 3.51 | Very Efficient | 2.20 | Efficient |

| | | | | | | |
|---|---|---|---|---|---|---|
| repeatedly used. | | | | | | |
| • The pattern has waterproof material and is not damaged or affected even when exposed to wet. | 3.82 | Very Efficient | 2.64 | Efficient | 1.71 | Not Efficient |
| Average WM | 3.21 | Very Efficient | 3.50 | Very Efficient | 3.02 | Very Efficient |

This implies that the tool is not waterproof and will damaged immediately upon exposure to wet condition. On the other hand, Acrylic Flexy Customized Pattern was rated “very efficient” in the some aspects, which means it can withstand strenuous movement during lay-outing.

The tool is stable and stays in place when used, the tool is not easily damaged or affected even when repeatedly used and it has waterproof material and is not damaged or affected even when exposed to varied environmental condition.

Generally, the data reveals that in the aspect of durability the sintraboard material is very efficient material in making flexy customized pattern with the average weighted mean of 3.50, followed by the acrylic material with the average weighted mean of 3.21 and last the chipboard material with the weighted mean of 3.02.

Table 6 present the status of efficiency of the Flexy Customized Pattern tool in terms of convenience. As shown from the table above all the materials used in making Flexy

**Table 6 Status of Efficiency level of the Flexy Drafting Tool in terms of Convenience**

**N=39**

| Convenience | Acrylic Flexy Customized Pattern | | Sintraboard Flexy Customized Pattern | | Chipboard Flexy Customized Pattern | |
|---|---|---|---|---|---|---|
| | WM | Description | WM | Description | WM | Description |
| • **The pattern is easy to use** | 33.87 | Very Efficient | 3.82 | Very Efficient | 22.79 | Efficient |
| • **The pattern is handy** | 33.35 | Very Efficient | 33.41 | Very Efficient | 33 | Efficient |
| • **It provides accessible lines for adjustment of sizes or measurement** | 33.74 | Very Efficient | 33.69 | Very Efficient | 22.92 | Efficient |
| • **It is light in weight making easy to carry or handle** | 3.66 | Very Efficient | 33.89 | Very Efficient | 33.89 | Very Efficient |
| • **The tool is easy to packed** | 44 | Very Efficient | 44 | Very Efficient | 44 | Very Efficient |
| **AVERAGE MEAN** | 33.72 | Very Efficient | 33.76 | Very Efficient | 33.32 | Very Efficient |

pattern was rated ''very efficient'' in terms of convenience 3. Thus, all items under convenience of acrylic flexy customized pattern and sintraboard flexy customized pattern was rated by the respondents ''very efficient''. The tools provide more sharp lines thus makes marking more convenient during lay-outing blouse. However, three items under chipboard flexy Customized pattern was rated ''efficient''. This means that the chipboard flexy customized pattern is less convenient to the user.

**Table 7 Summary of the efficiency level of the Flexy Customized Pattern tool in all aspect**

| Tool | Speed | | | Accuracy | | | Durability | | | Convenience | | | General Mean and Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WM | Des | Rank | WM | Des | Rank | WM | Des | Rank | WM | Des | Rank | |
| Acrylic Made Pattern | 3.84 | Very Efficient | 1 | 3.89 | Very Efficient | 1 | 3.21 | Very Efficient | 2 | 3.72 | Very Efficient | 1 | (1) 3.67 |
| Sintra board Made Pattern | 3.65 | Very Efficient | 1 | 3.73 | Very Efficient | 2 | 3.50 | Very Efficient | 1 | 3.76 | Very Efficient | 1 | (2) 3.66 |
| Chipboard Made Pattern | 2.75 | Efficient | 3 | 2.84 | Efficient | 3 | 3.02 | Efficient | 3 | 3.32 | Very Efficient | 3 | (3) 3.98 |

Table 7 presents the efficiency level of Flexy Customized Pattern tool in the aspect of speed, accuracy, durability, and convenience.

The acrylic flexys Customized Pattern tool and sintra board was rated ''very efficient'' in the aspect of speed, accuracy, durability and convenience this denote the tool can best perform in lay-outing operation process and are acceptable by the respondents, while chipboard flexi customized pattern tool was rated ''efficient'' in the aspects of speed, accuracy durability and ''very efficient'' in the aspect of convenience. It means that the tool can efficiently perform as a guide in drafting and lay-outing pattern to the cloth. It can be deduced that acrylic and sintraboard flexy customized pattern are both highly in recommended in drafting and lay-outing pattern on fabric.

Table 8 shows the difference of the efficiency level of the three tool material in the process of lay-outing pattern

From the table, it shows that there is no significant difference in the efficiency between the Acrylic Flexy Customized Pattern from the Sintra

board Flexy Customized Pattern in terms of speed, accuracy, durability and convenience.

**Table 8 Difference in the Efficiency level of the three tool in the process of lay-outing pattern**

| | Level of Significance | Computed F Value | Tabular Value | Interpretation | Decision |
|---|---|---|---|---|---|
| Tool 1 vs Tool 2 vs Tool 3 | 0.05 | 10.73 | 4.2564 | Significant | Reject Ho |
| | Level of Significance | Computed F Value | Tabular Value | Interpretation | Decision |
| Tool 1 vs Tool 2 | 0.05 | 0.9646 | 0.016667 | Insignificant | Accept Ho |
| Tool 1 vs Tool 3 | 0.05 | 0.014 | 0.016667 | Significant | Reject Ho |
| Tool 2 vs Tool 3 | 0.05 | 0.0026 | 0.016667 | Significant | Reject Ho |

However, the data revealed that there is a significant difference between the Acrylic Flexy Customized Pattern from Chipboard Flexy Customized Pattern and the Sintraboard Flexy Customized Pattern from the Chipboard Flexy Customized Pattern.

This means that the sintraboard and acrylic flexy customized pattern are more efficient in all aspects than flexy customized pattern made of chipboard. Thus, the sintraboard made pattern is more efficient than acrylic and chipboard made pattern.

**The results of the study revealed the following findings:**

1. The Profile of Flexy Customized Pattern

Flexy Customized Pattern is fabricated to come up with customized drafting pattern for blouse and other similar details with dimensions or different body measurements. The material used in he fabrication were those available in the local market such as acrylic, sintraboard and chipboard and for precise construction of the Flexy Customized Pattern is done using the latest technology, Auto.CAD in the FABLAB and laser cutter machine in the Blue Arrow.

2. Status of Efficiency of the Flexy Customized Pattern

The Flexy Customized Pattern made of Acrylic obtained the descriptive rating of “Very Efficient” in the aspect of speed, accuracy and convenience. On the other hand, the tool was rated “Efficient” in the aspect of durability. While Flexy Customize Pattern made of Sintraboard obtained the descriptive rating of “Very Efficient” in all aspect, and the Flexy Customized Pattern made of chipboard obtained the descriptive rating of “Efficient” in the aspect of speed, accuracy and durability. The tool was also rated “Very Efficient” in the terms of convenience. This means that the Sintraboard Flexy Customized Pattern Tool can perform the lay-outing operation more efficiently than the Flexy Customized Pattern made of Acrylic and Chipboard.

3. Efficiency level of the Flexy Customized Pattern in three tools

The researcher found out that the sintraboard obtained ‘’very efficient’’ in all aspects, thus, the acrylic was rated ‘’efficient’’ in the aspect of durability. On the other hand, the chipboard obtained ‘’efficient’’ in general weighted mean. In construction process, the three materials for the pattern have similar construction procedure it only differs in chipboard. Moreover, in operational procedure in manipulating the pattern tool the three patterns have the same handling. The sintraboard material in making the tool flexy customized pattern is more efficient and affordable with regards to cost and performance, while acrylic is the most expensive material for the tool. Chipboard material is the cheapest material but less efficient with regards to performance.

4. Difference in the efficiency level of the Flexy Customized Pattern in three tools.

There is significant difference in the efficiency level of the flexy customized pattern, according to the tabulated value tool 1 vs. tool 2 there is no significant, tool 1 vs. tool 3 there is significant and tool 2 vs. tool 3 there is significant difference.

## CONCLUSION

With the aid of research instruments and thorough analysis, the researcher concluded that the Sintra board Flexy Customized Pattern is very efficient in drafting blouse for the garment technology students, for the On-the-Job trainee students, teacher and dressmaker as it provides advantages for the users. Such as accurate measurement, making the tool handy and increase mass production for it is customized. As it is an improved tool to enhance the process of lay-outing and producing blouse uniform .Moreover, Sintraboard Flexy Customized Pattern Tool can perform the lay-outing operation more efficiently than the Flexy Customized Pattern made

## RECOMMENDATIONS

Based on the significant findings and conclusions of this study, these are the following recommendation:

1. The BISU administration may produce the Flexy Customized Pattern drafting tool as one of the income generating product and as an institutions instructional tool property. Thus, BISU administration may patent the product.
2. The garments technology instructors of the university may utilize the Flexy Customized Pattern in their mass sewing production activity.
3. Students may utilize the Flexy Customized Pattern as their tool at hand especially on the job trainees students.
4. Future researchers may replicate this study for furthers improvements of the findings.

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