



COMECH: COMPASS AND MECHANICAL PENCIL 2-IN-1 COMBO

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Abstract - This study focused on developing a Compass and Mechanical Pencil 2-in-1 Combo that was functional and able to perform its intended task of drawing circles and arcs. It was designed to provide convenience, efficiency, and accuracy for individuals working on precise measurements and drawings. The COMECH: Compass and Mechanical Pencil 2-in-1 Combo used a survey questionnaire to gather relevant data from 50 respondents comprised of 15 Graphics and Design students, 15 Drafting students, 15 Civil Engineering students, and 5 Faculty members, who were selected to answer the self-made questionnaire at Cebu Technological University-Main Campus. Based on the analysis of the collected data, each aspect of the product's qualities, including its aesthetics, performance, features, safety, and serviceability, received a high level of acceptability. Hence, the product could be considered highly acceptable, with an overall weighted mean of 4.5712, indicating its overall acceptability. The researchers' recommendations were used for further exploration and improvement of the device.

Keywords: compass, Mechanical Pencil.

Introduction

When constructing a design to teach or depict precise measurements, geometry, and shapes played a role in art. Figures were created and appropriated using either analog or digital instruments. As one example among many, drafters utilized instruments that could depict an accurate representation of measurements. Drawing instruments, such as compasses, were used to create shapes or figures with this. In his book, Hollis (2017) highlighted the advantages of using mechanical pencils for drawing and sketching. He explained that mechanical pencils offered a consistent line width, which was essential for producing precise and organized drawings. In contrast to traditional pencils, which required frequent sharpening, mechanical pencils require only a simple click to extend the lead. This quality was especially useful when working on intricate illustrations that required constant pencil use. Additionally, mechanical pencils provided a variety of lead hardness options, making it simple for artists to transition between different line weights.

Using a compass was difficult, particularly for first-time users. The tool's procedure sounded straightforward, but it took some time to become accustomed to it. Tisdell and Olmedo (2022) noted that when using a compass, it was necessary to maintain track of the tool in order to reduce the likelihood that it would be lost or forgotten. Moreover, in an industry where precise and accurate drawings were important, drawing tools were essential to attaining a high level of output, especially in professions such as architecture, engineering, and design. Several studies have highlighted the significance of using precise and efficient drawing instruments. The use of a compass and a straightedge aided to reduce errors in technical drawing, according to Freeman (2010). Artists, illustrators, designers, architects, and

engineers utilized mechanical pencils because they provided precision, consistency, and accuracy when drawing, drafting, outlining, and creating technical diagrams.

According to Iyypanda (2020), a mechanical pencil was a writing instrument with an erasable lead component that was typically used for writing, drawing, and sketching on paper or wood. The graphite rested in a well within the pencil and could be extended by clicking a button, making it simple to draw straight, consistent lines. Due to the consistent length of the pencil and the low cost of replacement leads, mechanical pencils are a cost-effective option over time.

Multiple studies have demonstrated that the consolidation of multiple instruments into one has increased productivity and convenience. Hendroanto and Fitriyani (2019) conducted a study that demonstrated how the combination of numerous drawing tools into one increased productivity and convenience. In the study, it was discovered that both students and instructors struggled frequently when drawing a simple figure or shape using multiple traditional tools. According to the findings, the currently available drawing instruments, including protractors, rulers, and compasses, are ineffective, cumbersome, fragile, and incompatible with the boards. Aside from that, some of the tools were discovered to be in poor condition, and there was a limited supply of new tools. Participants who used the combined tool completed drawing assignments more quickly and with fewer errors than those who used separate rulers, protractors, and compasses.

Hence, the researchers aimed to develop a high-quality, reliable, and multi-purpose tool, which would consist of a mechanical pencil with a built-in compass, that incorporated Garvin's 8 dimensions of quality and principles of design to ensure optimal user experience and productivity. This would also be helpful to students, designers, and artists in achieving perfect figures without the hassle of removing the pencil, allowing the users to transition smoothly from writing to using a compass and vice versa. It would also have an ergonomic design that provided a comfortable grip and reduced hand fatigue during use. Although the existing multi-purpose tool combining a mechanical pencil with a built-in compass had paved the way for this type of product, such as the commercialized ones, there was still a need for innovation and improvement to provide users with a more versatile, reliable, and convenient tool.

Methods and Materials

The study utilized the descriptive method of research. The primary motive of this study was to conduct a survey to measure the acceptability of the design and development of COMECH: Compass and Mechanical Pencil 2-in-1 Combo.

This study collected data through the use of a questionnaire survey. Cebu Technological University-Main Campus college students and faculty at M.J. Cuenco Avenue, Cor. R. Palma Street, 6000 Cebu completed and responded to the survey. On a level area measuring 2.8 ha (6.9 acres), the Campus consisted of a handful of relatively close-knit, typically three- or more-story structures. Cebu Technological University-Main Campus is a public, non-sectarian, coeducational institution of higher learning established in 1911 in Cebu, Philippines.

The chosen respondents for the study were the students and faculty members from CTU-Main Campus. To answer the survey questionnaire, 50 respondents had to be bona fide students – 15 Graphics and Design students, 15 Drafting students, 15 Civil Engineering students, and 5 Faculty members.

Moreover, the study utilized a survey questionnaire that is research-made which will be used to gather data. The questionnaire uses and utilizes the Eight Dimensions of Quality by Gavin in the assessment of the acceptability of the study.

Results and Discussion

This section was concerned with the presentation of the data gathered, the outcome of the analysis, and the interpretation of the findings. The findings were presented in tables derived from the answers provided by the respondents to the questions contained in the survey questionnaire. This included the requirements and acceptability of the developed product.

Requirements In Developing Comech: Compass and Mechanical Pencil 2-In-1 Combo

The product should have smooth and precise rotation, an ergonomic design, a balanced size and weight, durable materials, resist corrosion, rust, and other environmental factors, and maintain its accuracy and stability over time. The compass needle and point should have protective covers; the mechanical pencil mechanism should have a retractable lead; the compass should be adaptable to different circle sizes; and the product should have an appealing design.

Product Design

The product design combined the functionality of a compass and a mechanical pencil, creating a versatile and convenient tool for various tasks. The device featured a sturdy, ergonomic body that incorporated the compass and mechanical pencil components. The compass aspect allowed for precise measurement and drawing of circles and arcs, while the mechanical pencil component enabled accurate and clean markings. The pencil lead could be easily adjusted for different lengths and was housed within the body, ensuring protection and minimizing the risk of breakage. This innovative combination offered efficiency and convenience, making it ideal for artists, designers, architects, and anyone needing compass and pencil functionalities in a single tool.



Figure. 1 Pictorial view of COMECH in the design of a Hidden Compass

The design was a combination of a drawing compass and a mechanical pencil. It was intended to help students and professionals achieve perfect circles and arcs without removing the pencil. The four parts of the design were made out of aluminum, which was a hard material and could last long. Aluminum was also lighter than other materials, making it suitable for the design. On the aesthetic side,

aluminum was also pleasing to the naked eye due to its shiny look. The dimensions of the design were properly chosen to avoid numbness, especially while using the mechanical pencil. The two parts of the compass were made out of engineering plastic, a type of plastic that could not be easily broken and could withstand pressure. The compactness of the design was important to avoid discomfort while using the mechanical pencil.



Figure 2. Pictorial view of COMECH in design of an opened Compass

The design was inspired by a Swiss knife, where the compass could be hidden in the upper part of the mechanical pencil. The compactness of the design was needed to easily conceal the compass. The design was made so that the compass part could be easily used. The compass part of the design could be popped out, carefully folded out in the desired angle, and used as a compass. After using the compass, it could be easily folded back to its original form and inserted into the upper part of the mechanical pencil. This design was also capable of achieving larger circles compared to the standard compass available in the market. The design's strength also lay in its accuracy in making circles. The project aimed to reduce the time required for preparing before drawing circles.

Product Layout

The product layout involved integrating the two tools into a cohesive design that optimized functionality and user experience. In the orthographic view, the layout showcased a sleek and ergonomic form, with the compass and mechanical pencil components seamlessly blending. The compass part featured a sturdy, adjustable arm with a sharp point for accurate measurements, while the mechanical pencil section incorporated a comfortable grip and a retractable lead mechanism for effortless writing

and drawing. The isometric view provided a three-dimensional representation, emphasizing the compactness and portability of the combined tool. The layout prioritized intuitive operation, allowing users to easily switch between compass and pencil modes, making it a versatile and convenient tool for precision work, technical drawings, and artistic pursuits.

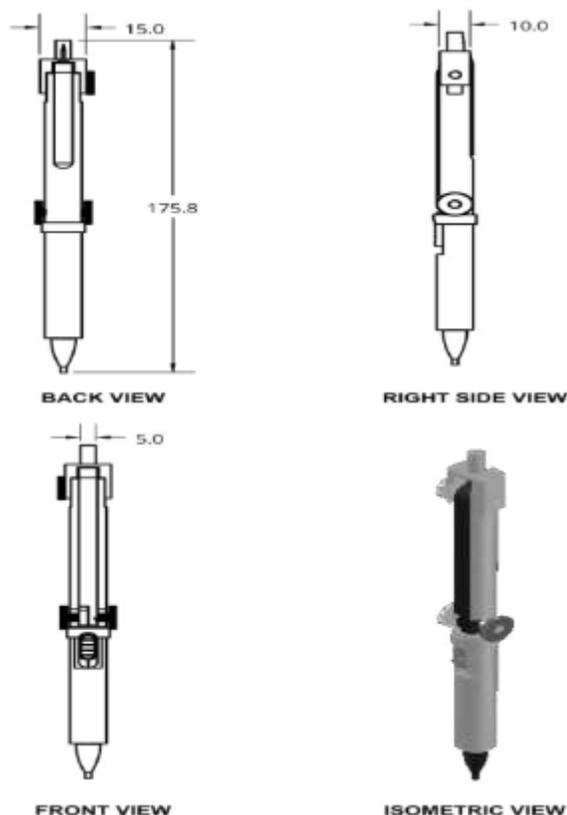


Figure 3. Orthographic layout and Isometric view of COMECH in Hidden Compass

Materials, Tools, and Equipment

The table below presented the Bill of Materials and Equipment for the COMECH: Compass and Mechanical Pencil 2-in-1 Combo. It consisted of one (1) Aluminum Alloy Rod, one (1) Engineering Plastic (Black), one (1) Knurled Thumb Screw, two (2) Knurled Thumb Nuts, one (1) Grub Screw, two (2) Tube Washers, and one (1) Mongol Mechanical Pencil.

Table 1
List of Materials

Part No.	Part Specification	Uses
1.	Aluminum Alloy Rod	Used to prevent bending or breaking under normal usage conditions, enhancing the pencil's durability.
2.	Engineering Plastic (Black)	Used for durability, lightweight construction, and precision for accurate measurements and drawing.

3.	Knurled Thumb Screw	Used for secure and convenient adjustment of the compass legs for accurate measurement and circles.
4.	Knurled Thumb Nuts	Used in the compass legs part to tighten or loosen for accurate measurements, improved grip, and ease of adjustment.
5.	Grub Screws	Used to provide a secure and adjustable grip for precise measurements and drawing.
6.	Tube Washer	Used to provide stability and prevent wobbling during precise drawing or measurement.
7.	Mongol Mechanical Pencil	Used the shaft and cone for the mechanical pencil part of the product.

As shown in the table, each part served a crucial role in the construction and operation of the device. The Aluminum Alloy Rod provides structural support, the Engineering Plastic (Black) contributed to the aesthetic and functional aspects, the Knurled Thumb Screw allowed for easy adjustment, the Knurled Thumb Nuts secured various components in place, the Grub Screws helped with fine-tuning, the Tube Washers assisted with smooth movement, and the Mongol Mechanical Pencil enabled precise and accurate drawing or writing. These parts were carefully chosen to ensure the desired performance and functionality of the COMECH device, meeting the objectives of the capstone project.

Table 2 provided information about the tools and equipment that were used in the development of the COMECH: Compass and Mechanical Pencil 2-in-1 Combo.

Table 2. Tools and Equipment used

Tools and equipment	Description
Lathe Machine	is to remove metal from a piece of work to give it the required shape and size. The lathe is the most versatile of all machine tools which is used to machine cylindrical shapes.
Sand Paper	used to remove material from surfaces, whether to make them smoother (for example, in painting and wood finishing), to remove a layer of material (such as old paint), or sometimes to make the surface rougher (for example, as a preparation for gluing).
Professional Grinding Set	is a machine or tool for sharpening, smoothing, or polishing the surface of something.
Caliper	used for measuring external or internal dimensions, having two hinged legs resembling a pair of compasses and in-turned or out-turned points.

Ruler	a long, narrow, flat piece of plastic, metal, or wood with straight edges where centimeters or inches, or both are printed.
Super Glue	a very strong quick-setting adhesive, based on cyanoacrylates or similar polymers.

The table above listed various tools and their descriptions, highlighting their specific functions and purposes in the development process. The lathe machine shaped and sized the components, sandpaper refined the surfaces, the professional grinding set helped with smoothing and polishing, the caliper ensured accurate measurements, the ruler aided in drawing and measuring straight lines, and the super glue provided strong adhesive properties.

By using these specific tools and equipment, the development team was able to effectively create the COMECH product, ensuring precise dimensions, smooth surfaces, and reliable assembly. Each tool served a unique purpose and contributed to the overall quality and functionality of the final product.

Acceptability In the Development of Comech: Compass and Mechanical Pencil 2-In-1 Combo

The acceptability of COMECH: Compass and Mechanical Pencil 2-in-1 Combo as perceived by the chosen experts as to its Aesthetic, Performance, Features, Safety, and Serviceability. Aesthetics referred to the overall visual appeal of the product, while Features encompassed its functional capabilities and those of its individual components. Performance pertained to the effectiveness of the product when utilized, whereas Serviceability focused on the ease of repairing the product. Finally, Safety concerns user-friendliness and resistance to potential harm associated with the product. The evaluation was conducted by selected respondents and experts to gather insights into their perceptions and opinions regarding each of these dimensions.

Aesthetic

The table below presented the summary of COMECH's acceptability as to aesthetics, with the overall rating for this criterion being "Highly Acceptable," garnering an average weighted mean of 4.53 that further confirms the overall highly positive preference of the users regarding the product's aesthetics.

Table 3. Summary of Acceptability as to Aesthetic

2.1 Aesthetic	HA	M	FA	LA	NA	\bar{X}	VD
	5	A	3	2	1		
		4					
2.1.1. Simple structure.	34	15	1	0	0	4.66	HA
2.1.2. Advance Design.	30	18	2	0	0	4.56	HA
2.1.3. Comfortable to touch.	24	17	7	1	1	4.24	HA
2.1.4. Design is balanced and proportioned.	33	14	2	1	0	4.58	HA
2.1.5. Beautiful appearance.	32	14	3	1	0	4.54	HA

2.1.6. Good rigidity.	29	20	1	0	0	4.56	HA
2.1.7. High efficiency of illustrating circles.	37	12	1	0	0	4.72	HA
2.1.8. Creativeness and originality.	36	10	4	0	0	4.64	HA
2.1.9. Size is acceptable.	30	12	8	0	0	4.44	HA
2.1.10. Weight is tolerable.	26	17	6	1	0	4.36	HA
Average Percentage	62	30	7	1	0		
Average Weighted Mean						4.53	HA

Legend: HA - Highly Acceptable, MA - Moderately Acceptable, FA - Fairly Acceptable, LA - Least Acceptable, NA - Not Acceptable, \bar{X} - Weighted Mean, VD - Verbal

Description

Table 3 summarized the acceptance of aesthetics based on the responses of 50 participants. This implied that the aesthetics of the product were generally acceptable when considering the individual questions, the most highly regarded element was the effectiveness of illustrating circles, while the lowest was the comfort of touch, followed by the tolerability of weight. These suggested that the product's comfort of touch and the tolerability of its weight still needed improvement to enhance its overall aesthetics. The average weighted mean score of 4.53 suggested an overall rating of Highly Acceptable for the aesthetics. The high rating merely meant that the project's aesthetics met or exceeded the expectations of most participants.

Performance

Table 4 presented the summary of the acceptability as to the performance of the COMECH. The overall findings from the table demonstrated a notably high level of acceptability, consistently being regarded as "Highly Acceptable" based on its average weighted mean of 4.69. This summary of the acceptability as to the performance of COMECH firmly established the potential users' highly positive assessment of its performance.

Table 4. Summary of Acceptability as to Performance

(n=50)

2.2 Performance	HA	M	FA	LA	NA	\bar{X}	VD
	5	A	3	2	1		
		4					
2.2.1. Consistent performance	29	19	2	0	0	4.54	HA
2.2.2. Portability is effective.	35	11	4	0	0	4.62	HA
2.2.3. Sturdy and does not breakeasily.	33	14	3	0	0	4.6	HA
2.2.4. Does not compromise the user's safety.	29	19	2	0	0	4.54	HA
2.2.5. Steadiness of needle point.	32	17	0	1	0	4.6	HA

2.2.6. Can produce measurements accurately.	38	11	0	1	0	4.72	HA
2.2.7. Glides smoothly across the paper.	40	9	1	0	0	4.78	HA
2.2.8. Built-in pencil is functional.	44	4	2	0	0	4.84	HA
2.2.9. Can create circles and arcs of varying sizes.	44	5	1	0	0	4.86	HA
2.2.10. Compatible with different types of paper or surfaces.	42	7	0	1	0	4.8	HA
Average Percentage	73	23	3	1	0		
Average Weighted Mean						4.69	HA

Legend: HA - Highly Acceptable, MA - Moderately Acceptable, FA - Fairly Acceptable, LA - Least Acceptable, NA - Not Acceptable, \bar{X} - Weighted Mean, VD - Verbal

Description

As shown in table 6, the performance evaluation survey indicated that the project's performance was highly acceptable. Most respondents (73%) rated the performance as highly acceptable, and no respondents (0%) rated it as not acceptable, indicating a highly satisfactory level of performance. The ability to create circles and arcs of varying sizes received the highest rating ($\bar{X} = 4.86$), indicating that this performance aspect was the strongest. Consistent performance and maintaining user safety rated the lowest, with an average of both 4.54, but these were still highly acceptable. The overall average weighted mean was 4.69 out of 5, which was also considered highly acceptable. However, the result also highlighted the areas that needed improvement, particularly in terms of consistent performance and maintaining user safety, which required further attention to ensure that the project continued to perform at a highly acceptable level.

Features

Table 5 presented the summary of how the respondents or potential users perceived COMECH in terms of acceptability as to its features. The overall result revealed that the average weighted mean for the features was 4.598 out of 5, indicating a high acceptability level, which suggests that the features of the product align well with their preferences and expectations of such a combo tool.

Table 5. Summary of Acceptability as to Features

(n=50)

2.2 Features	HA	M	FA	LA	NA	\bar{X}	VD
	5	A	3	2	1		
		4					
2.3.1. Make COMECH safer and cleaner.	32	16	2	0	0	4.6	HA
2.3.2. Can hold different softness of lead.	24	22	4	0	0	4.4	HA
2.3.3. Built-in pencil does not hinder the performance of the compass.	38	11	1	0	0	4.74	HA

2.3.4. Sturdiness of the built-in extendable pencil.	28	15	6	1	0	4.4	HA
2.3.5. Stability of the joints to hold the legs.	33	11	5	1	0	4.52	HA
2.3.6. When using the product, I can move my fingers and control the product without giving too much force on its grip.	34	12	3	1	0	4.58	HA
2.3.7. Improve results by illustrating circles.	32	15	3	0	0	4.58	HA
2.3.8. Effective locking mechanism to hold radius in place.	35	11	3	1	0	4.6	HA
2.3.9. Spreadability of legs according to preference.	38	11	1	0	0	4.74	HA
2.3.10. Functionality of the built-in pencil.	41	9	0	0	0	4.82	HA
Average Percentage	67	26	6	1	0		
Average Weighted Mean						4.598	HA

Legend: HA - Highly Acceptable, MA - Moderately Acceptable, FA - Fairly Acceptable, LA - Least Acceptable, NA - Not Acceptable, \bar{X} - Weighted Mean, VD - Verbal

Description

According to Table 7, the features being evaluated were highly acceptable, with 67% of respondents considering them as such and none rating them as not acceptable. This emphasized that the product's features were generally well-received and met the respondents' expectations. The functionality of the built-in pencil garnered the highest rating ($\bar{X} = 4.82$). However, the areas that received the lowest ratings, such as the capacity to hold different softness of lead and the sturdiness of the built-in extendable pencil, both with a mean of 4.4, needed to be examined further to see if there were ways to improve them. The overall average weighted mean was 4.598 out of 5, which was deemed entirely highly acceptable, indicating that the product's features had met the respondents' preferences.

Safety

The table 6 highlighted an overview of how the respondents perceived COMECH in terms of its overall safety. The majority of the respondents rated it as "Highly Acceptable," indicating that most of them found COMECH to be highly safe and reliable, garnering an average weighted mean of 4.55.

Table 6 Summary of Acceptability as to Safety

(n=50)

2.4 Safety	HA 5	M A 4	FA 3	LA 2	NA 1	\bar{X}	VD
2.4.1. Does not emit a toxic smell.	45	4	1	0	0	4.88	HA
2.4.2. Non-hazardous materials.	41	9	0	0	0	4.82	HA

2.4.3. Does not pose a threat to thenatural environment.	38	8	4	0	0	4.68	HA
2.4.4. Parts don't easily come off loose.	31	17	2	0	0	4.58	HA
2.4.5. Does not possess the risk ofbeing used as a weapon.	17	21	11	1	0	4.08	MA
2.4.6. Surface does not cause irritation.	35	14	0	1	0	4.66	HA
2.4.7. Point isn't sharp enough to cause injury.	22	21	6	1	0	4.28	HA
2.4.8. Needle points can be easilyhidden.	35	10	2	1	1	4.5	HA
2.4.9. Doesn't cause discomfort whenbeing used.	30	14	2	3	1	4.38	HA
2.4.10. Does not pinch the user whenused.	34	14	2	0	0	4.64	HA
Average Percentage	66	26	6	1	1		
Average Weighted Mean						4.55	HA

Legend: HA - Highly Acceptable, MA - Moderately Acceptable, FA - Fairly Acceptable, LA - Least Acceptable, NA - Not Acceptable, \bar{X} - Weighted Mean VD - Verbal

Description

Table 6 reflected respondents' assessments of the product's safety. The product was rated Highly Acceptable by most of the 50 respondents (66%), with an average weighted mean of 4.55, indicating an overall high level of acceptability. However, 26% of respondents rated the product as Moderately Acceptable, suggesting that the product still needed further improvement. Notably, the lack of risk as a weapon received a rating of Moderately Acceptable, which implied that it needed to be considered in the product's design. The findings presented in Table 8 indicated that although the safety attributes of the product were predominantly acceptable, there were still areas that needed improvement, particularly in addressing the risk of the product being used as a weapon to enhance its safety and efficacy further.

Serviceability

The table 7 provided a summary of how the respondents rated the serviceability of COMECH in various situations. The average weighted mean for all serviceability criteria was 4.5 out of 5, indicating a high level of acceptability, and found that the product was highly satisfactory and efficient in terms of serviceability.

Table 7. Summary of Acceptability as to Serviceability

(n=50)

2.5 Serviceability	HA	M	FA	LA	NA	\bar{X}	VD
	5	A	3	2	1		
		4					
2.5.1. Overall ease of manual repair.	27	17	6	0	0	4.42	HA
2.5.2. Parts can be replaced easily.	22	20	8	0	0	4.28	HA

2.5.3. Does not require much maintenance.	34	11	5	0	0	4.58	HA
2.5.4. Accessibility of parts.	27	16	6	1	0	4.38	HA
2.5.5. Ease of assembly.	29	17	3	1	0	4.48	HA
2.5.6. Ease of replacing lead.	32	13	5	0	0	4.54	HA
2.5.7. Joints can be easily loosened.	32	15	3	0	0	4.58	HA
2.5.8. The product's longevity.	31	17	2	0	0	4.58	HA
2.5.9. Ease of obtaining.	29	18	2	1	0	4.5	HA
2.5.10. Resilience of the product.	34	15	1	0	0	4.66	HA
Average Percentage	59	32	8	1	0		
Average Weighted Mean						4.5	HA

Legend: HA - Highly Acceptable, MA - Moderately Acceptable, FA - Fairly Acceptable, LA - Least Acceptable, NA - Not Acceptable, \bar{X} - Weighted Mean, VD- Verbal

Description

The findings from Table 7 suggested that the subject's serviceability was highly acceptable among the respondents, with 59% of them evaluating it as such and none rating it as unacceptable. Although the ease of changing parts received the lowest rating ($\bar{X} = 4.28$), it was still considered highly acceptable, suggesting room for improvement. On the other hand, the product's resilience was rated the highest, with an average of 4.66. Despite this, the average weighted mean for all serviceability criteria was 4.5 out of 5, indicating that the product's serviceability was highly acceptable in the overall rating.

Summary of the Acceptability in the Development of COMECH: Compass and Mechanical Pencil 2-in-1 Combo

Table 8 provided an overall summary of the acceptability of the COMECH: Compass and Mechanical Pencil 2-in-1 Combo. The table below indicated that the product performed well in all aspects, including its aesthetics, performance, features, safety, and serviceability. The weighted averages for these criteria ranged from 4.50 to 4.69, indicating a high level of acceptability. Overall, the acceptability of the COMECH product is considered "Highly Acceptable".

Table 10. Overall Summary of Acceptability

Criteria	HA %	MA %	FA %	LA %	NA %	\bar{X}	VD
2.1 Aesthetic	62.2	29.8	7.0	0.8	0.2	4.53	HA
2.2 Performance	73.2	23.2	3.0	0.6	0	4.69	HA
2.3 Features	67.0	26.6	5.6	0.8	0	4.598	HA
2.4 Safety	65.6	26.4	6.0	1.4	0.6	4.55	HA

2.5 Serviceability	59.4	31.8	8.2	0.6	0	4.5	HA
Overall Percentage	65	28	6	1	0		
Overall Average						4.5712	HA

Legend: HA - Highly Acceptable, MA - Moderately Acceptable, FA - Fairly Acceptable, LA - Least Acceptable, NA - Not Acceptable, X - Weighted Mean, VD- Verbal

Description

The results of the survey indicated that the COMECH: Compass and Mechanical Pencil 2-in-1 Combo was generally well-received by the respondents. Most of them (65%) rated the product as highly acceptable, with only a small portion rating it as unacceptable. Furthermore, the product was evaluated based on various criteria such as aesthetics, performance, features, safety, and serviceability. According to the results, the product fared well across all of these criteria, with weighted averages ranging from 4.50 to 4.69 out of 5.0. It is important to note that while the results indicated that the COMECH was highly acceptable, further improvements could still be made to certain aspects, such as the product's comfort to touch and the tolerability of its weight in terms of aesthetics, the consistency of performance and maintaining user safety in terms of performance, the product's capacity to hold different softness of lead and the sturdiness of the built-in extendable pencil in terms of its features, the risk of the product being used as a weapon in its safety aspect, and the product's ease of changing its parts in the aspect of its serviceability. Nonetheless, the overall positive response to COMECH suggested that it had potential in the market and could be a viable option for consumers looking for a 2-in-1 compass and mechanical pencil.

Conclusion

The COMECH: Compass and Mechanical Pencil 2-in-1 Combo was concluded to have had an adequate design that made it functional and able to perform well. As the product was concluded to be acceptable in performance and features, this tool proved to be a high-quality, reliable multi-use tool that ensures optimal user experience. This is the possibility of creating a version of a more enhanced and polished product that could benefit individuals working on precise measurements and drawings.

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