A Study on the Assessment of E-Commerce Application: Home Buddies using SWOT Analysis

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Abstract

The world is currently experiencing a global level of pandemic with a disease called "Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)." Because of this, numerous businesses were forced to close and terminate its employees' contract. The global pandemic severely affected the livelihood of individuals. The pandemic also calls for extreme measures of quarantine wherein individuals are not allowed to go out of their house for unnecessary reasons. Since individuals are not allowed to go out for non-necessity shopping, E-commerce came to the rescue. The researchers were able to gather necessary data from related literature and studies, and proposed a mobile application called "Home Buddies" to cater the needs of users when it comes to buying their furniture. Through the help of survey questionnaires, the researchers were able to gather data from its target audience with regards to how their application can improve and what they should consider in putting features that it could offer.

Keywords
E-commerce, Online Shopping, , Mobile Application, Augmented Reality

1. Introduction
The world is currently experiencing a Global Pandemic, and as a result, people are finding it difficult to go out and acquire what they require. In the year 2021, there will be 2.14 billion digital buyers worldwide. 27.6% of the world's population, or 7.74 billion individuals, use online platforms for shopping and transactions with vendors (Kristenensen 2021).
One of the reasons for the growth of E-commerce is the pandemic. In the Philippines there are 71.4 million internet users by the year of 2019. 70% of these internet users are online shoppers ranging from 18-30 years old. Majority of the online shoppers are women and most of them have middle-ranged income (B. 2019).
Since most of the consumer-to-seller transactions occur online, miscommunication and dissatisfaction are inevitable. It is too much of a hassle for sellers, as well as buyers, to refund or return their purchases that does not meet the right dimension or design. To prevent this, the group proposes a furniture shop application named "Home Buddies" that allows its users to choose their desired product with visual representation for clarity and specificity. The application allows its user to shop for furniture easily using the online platform and the most used gadget: Mobile Phones. The

aim with which the application revolves is to provide a better communication between sellers and buyers online. This is mainly to avoid miscommunication, incorrect order, or any other buyer-consumer conflicts that may arise.

1.1 Objectives
The need for a better marketing strategy and customer service experience for the industry of furniture has been observed by the proponents. With the information gathered and the ongoing pandemic, the proponents deem to meet the following objectives:
1. To determine the strengths, weaknesses, opportunities, and threats of Home Buddies.
2. To establish the strategies necessary for Home Buddies using TOWS analysis
3. To determine which features must be improved on Home Buddies.

2. Literature Review
"SWOT Analysis: A Theoretical Review" is a study by Emet Gürel that got published in August 2017 in the Journal of International Social Research. It investigates the historical, theoretical, and time frame perspective of SWOT. It explains the strategic management process, as well as examines the different components of SWOT analysis (Emmet 2017). The most popular and generally recognized tool for performing a strategic marketing audit is the examination of strengths and weaknesses, as well as opportunities and threats. SWOT analysis has suffered from familiarity breeding disdain, and that the technique is typically utilized ineffectively (Giles 1989).

The introduction begins with defining what is strategic planning, strategic management, and vision. Strategic planning is strategic management tool that helps organizations become more productive by creating a guide in how to allocate resources to accomplish a goal. Strategic management is the continuous process of making, implementing, and checking decisions to help an organization achieve its goals. Vision is the desired future a company hopes to achieve (Emmet 2017).

The Introduction is followed by a deep dive into SWOT analysis and is split into the following parts: What is SWOT analysis, the Components of SWOT analysis, historical development of SWOT analysis, Advantages of SWOT analysis, and Disadvantages and limitations of SWOT analysis (Emmet 2017).

The machine tool industry's strategic relevance in terms of global competitiveness in Japan is continuously expanding, and as a result, machine tool makers require an effective corporate strategy to attain long-term competitive advantages. SWOT Analysis is one of the most effective methods for analyzing an organization's strategic management policy. Traditional SWOT analysis, on the other hand, is based on qualitative analysis and has no way of establishing the value of any SWOT aspect. Using paired comparison matrices, a novel structured SWOT analysis has been presented for ranking and rating specific SWOT criteria. As a result, the proposed method can be used to carry out successful industrial strategy planning for the machine tool sector (H. Shinno 2007).

Education implications of six thinking hats is a study by Bosanac and Grandić from January 2020. The paper talks about setting up the six thinking hats as a learning model to encourage the process of critical thinking and the entrepreneurial mindset. The authors understand that the six thinking hats is typically used in creative training and workshops, they hope to the six thinking hats can be used in a more traditional school model (Grandić 2020).

The introduction begins with introducing the idea of adding the six thinking hats to education without needed to change how education is done. This is followed by the different sections of the paper: Model: Six Hats for thinking, Applications of models in different educational context (which is then split into Application within the framework school education, application within higher school education, Application in the medical profession, Application for future teachers, and Application in framework resolution problem), and critical approach and guidelines, before concluding the paper.

In the Environmental Studies (ES) topic, action research was conducted to establish a condition for a class of Year 6 pupils in their early middle childhood stage to increase their learning individually and collectively by developing higher-order critical thinking skills (Ling 2013).

An active teaching and learning process was observed in the enquiry classroom when the Six Thinking Hats technique was used in conjunction with the Revised Bloom's Taxonomy. This study used a mix of quantitative and qualitative methodologies to investigate and identify the effectiveness of the Six Hats in boosting higher order thinking skills and enhancing learners' interests, resulting in improved learning outcomes. While the notion proved to be a good thinking skill method, learners' interests differed depending on a variety of aspects such as values and attitude. Positive responses, on the other hand, were found in the academic advancement of the students (Ling 2013).

Another study provides the "Six Thinking Hats," a perceptual model of thinking, as well as argumentativeness as a predictor of response to the model. Within a comprehensive framework, the "Six Thinking Hats" approach generates

six artificial environments for thinking, corresponding to the basic thought modes of objective, subjective, critical, and creative thinking (Carl 1996).

Argumentativeness is defined as a relatively stable personality feature that predisposes an individual in communication situations to argue for and reject other people's perspectives on controversial matters. Thirty-one students in a graduate level management class at Rochester Institute of Technology were educated to apply the "Six Thinking Hats" concept and completed survey instruments. Results show that although argumentativeness was not proven to be a good predictor of reaction to the "Six Thinking Hats" model for individual thought modes, it does raise interesting problems for future research in the disciplines of thinking and communication (Carl 1996).

3. Methods

The application's target users are individuals ranging from 21-40 years old because they are commonly known as people who are starting out to have their own place or already have their own place. To gather data needed for the project to be feasible, the group created a series of questions to be deployed to its respondents. The total number of respondents will be ranging from 100-150 individuals.

Table 1: Respondents Demographics

Facts	Emotion	Benefit	Ideas	Process	Judgement
Age	On a scale of 1-5, how do you like the design of our app?	Does our mobile application have the feature you want?	Are there any features that you think you need but are missing in our application? Please Describe.	Is the application efficient to use?	What suggestions can you give for this app?
Gender	How do you like the intuitiveness of the icons?	Do you consider buying a product using our mobile app?	Is there any app you know that is comparable to our application? If yes, please indicate.	On a scale of 1-5, How would you rate the Pro Design feature on this app.	On a scale of 1-5, How does our app compare with competitors?
Occupation	On a scale of 1-5, how do you like the idea of having an application that will allow you to know the exact measurement of a certain item and if that certain item will fit your space?	On a scale of 1-5, How would you rate our AR view feature on this app.	How often do you use a mobile application to shop for furniture and home accessories online?	How do you feel about this application? Why?	On a scale of 1-5, Is our mobile application would be worth using considering its purpose.
Monthly Household Income	What is your favorite part in this app?	What do you like most about the mobile app?	Overall, the application requires minimal to no effort to use	Describe a situation in which our mobile application is useful to you.	Is there any concern you have with the app?
How much would you be willing to pay for a subscription service?	How important are the following aspects of our mobile application to you?	With the existing features, does our mobile application help you to achieve your goal when it	How likely is it that you will recommend our app to a friend or colleague?	On a scale of 1-5, How likely would you use this app on a regular basis?	What do you dislike about our app?

Facts	Emotion	Benefit	Ideas	Process	Judgement
		comes to shopping online? How?			

The group used the concept of the Six (6) Thinking Hats in categorizing the questions that they will be putting on their survey forms. The concept helps the group to cover all viewpoints of their product from facts to judgement. In this way, the user will be able to answer the questions objectively.

The questions under "Facts" prompts the user to give a small information about themselves. The questions being age, gender, occupation, monthly household income, and for how much they would be willing to pay for a subscription fee. This is relevant because it helps the group determine whether the application is effective for its target individuals. It is also essential to know the income, occupation, and how much they are willing to pay, so that the group can adjust its subscription fees.

The questions under "Emotion, on the other hand shows what the user feels about the proposed application. From its interface to its offered features. It is important to know this because it can help the group to know which feature, they should improve, remove, or add to make it easier to use. The group also thinks that this is one of the most important factors when it comes to editing and enhancing their application interface.

The questions under "Benefit" helps the group in justifying the importance of their proposed application. The group aims to provide an advance e-commerce application that could help not just buyers, but also the online sellers. The question encourages the user to point out the specific application feature that deem to be beneficial to them.

The questions under "Ideas" give the respondents a chance to point out certain ideas that comes up as they go through the application description. It is mostly about the competitors they think the application have and what companies to they think would be interested in the features of the application.

The questions under "Process" pertains to how the user find the application easy to use. This includes the application's interface. Whether it is easy for them to navigate the stores and the pro features of the application, or not. It also includes the application's ability to provide clarity and specificity for the products that will be displayed and its categories.

Lastly, the questions under "Judgement" are final opinions of the respondents. This contains questions as to whether they recommend the application to be used by their colleagues or is the application not worthwhile. Through this, the group will know if the application should be further improved using other concepts rather than just Augmented Reality. Generally, the survey questionnaires aim to know the respondents' response to the idea of the proposed application. Through the data gathering process, the group will be able to know the strength, weaknesses, opportunities, and threats that they might have for the proposed application. The use of the Six (6) thinking hats as concept for survey questionnaires is effective for knowing the respondents' thoughts about the application.

4. Data Collection

The data collection instrument used by the proponents are survey questionnaires. The survey questionnaires contain questions regarding the proposed applications usability based on the video prepared by the proponents for the respondents to see. The video contains basic information about the proposed application and a short tutorial on how the application works.

The proponents deem that it is important to let the possible users know how the proposed application works so that they can get an initial opinion from them. This could help them improve and add certain features that will make the application more appalling and easier to use.

5. Results and Discussion

The group gathered promising results from the survey questionnaires that were deployed to its respondents. Upon data gathering procedure, the group was able to create a SWOT analysis that enabled them to see the improvements that must be done for the application to be more effective and efficient for its users.

Table 2. SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Application Interface is user-friendly.	Application interface design.	Partnering up with different furniture brands.	Competitors increasing marketing budgets.

Strengths	Weaknesses	Opportunities	Threats
Application provides a variation of categories for furniture.	Material of furniture is not presented.	New advertising channels such as social media.	Other furniture brands with their own e-commerce application.
Application's Augmented Reality Feature	Application's usability.	Potential buyers for the Augmented Reality feature of the application.	

The SWOT analysis shows the strength, weaknesses, opportunities, and threats that can be encountered by the proposed application. The SWOT analysis table given above contains qualitative analysis of the results from the survey questionnaires. Responses show that the main strength of the application is its Augmented Reality feature. The application also provides a user-friendly interface, which means that the group was able to meet one of its objectives which is to provide an application that can be useful and efficient for its users.

The SWOT analysis also shows the weaknesses and opportunities of the application. One of its weaknesses is the application's usability and interface design. The results show that the respondents want a more sophisticated interface since the application offers augmented reality. Results also show that the application cannot be used every day, but rather can only be used when purchasing or canvassing different furniture.

For the opportunities, the application can be useful for different furniture companies such as: IKEA, Wilcon, etc. Having augmented reality raises the probability of interest for the application. Companies may want to purchase the feature or may want to partner up together. New advertising channels also emerged, which could be very useful for the application's promotions.

Lastly, the threats that the application might encounter are also its possible business partners. Competitors in the furniture business is also a huge range from local to international. With this, the proposed application face different companies that also have their own e-commerce application. It is also taken into consideration that the said companies are not small businesses but rather big and known worldwide. Thus, marketing funds and resources are of their advantage.

Table 3. TOWS Matrix

	External Opportunities	External Threats
Internal Strength	The group can use Augmented Reality as their main feature and edge among other e-commerce furniture applications.	Start with postings on social media, from there, the group can use publicity for partnership opportunities and therefore have marketing funds from their company.
Internal Weaknesses	The use of social media can help the group in conceptualizing a more aesthetically pleasing application interface that can encourage its target audience to use the application.	Provide a more specific information with regards to the products being shown.

The TOWS Analysis show the possible action response of the group to the SWOT Analysis that could help them with finalizing the proposed application. The matrix shows how the group can use their strength and opportunities in finding a way to resolve the weaknesses and threats that they have found in their application.

The group's course of action is to use Augmented Reality as the edge of their application among other e-commerce applications. The group also thinks that being a startup business, they should first gather publicity through social media, which is one of the opportunities they have for marketing strategies. From there, the group will use social media to gather partnerships and sponsors from different companies as they will catch their attention. Lastly, the group aims to provide a more specific information with regards to the products shown in the application.

5.1 Numerical Results

The proponents gathered result from different respondents using Survey Questionnaires as their data gathering medium. The proponents yielded significant results that can help with improving the proposed application. It is necessary to get the initial reaction of the respondents with regards to the functionality and efficiency of the proposed application. The survey questionnaires contained 30 questions about the application and 5 questions about basic information from the respondent.

Table 4. Respondents' Demographics

Demographics	Results
Age	Below 20 years old – 27%
	20-30 years old – **57.1%**
	30-40 years old – 10.7%
	40-50 years old – 3.6%
	Above 50 years old – 3.6%
Gender	Male – 25%
	Female – **60.7%**
	Prefer not to say – 14.3%
Occupation	Student – **53.6%**
	Employed – 36.7%
	Unemployed – 10.7%
Monthly household income	Less than P5,000 – 28.6%
	P5,000-P20,000 – 14.3%
	P20,000-P40,000 – **32.1%**
	Above P40,000 – 25%
How much would you be willing to pay for a subscription service?	P149.00 per month – **85.7%**
	P199.00 per month – 10.7%
	P299.00 per month – 3.6%
	P349.00 per month – n/a
Are you a shop owner or a normal app user?	Furniture shop owner – 16.7%
	Normal app user – **83.3%**

The results from the survey questionnaires show that most of the interested users of the proposed application is from the age group of 21-30 years old. The group's data also show that the respondents are willing to pay for a subscription amount of P149.00 a month considering the features of the application. This is also based on their monthly household income, which is around P20,000-P40,000, according to the results from the survey questionnaires. Lastly, the respondents are mostly from buyers rather than sellers. Which is the main target of the group as their marketing audience.

There are still discrepancies with the application's features and interface design. However, the group performed TOWS analysis to help them find possible solutions using the applications own strength and opportunities, based on the survey questionnaires.

5.2 Graphical Results

Survey questionnaires were deployed to various respondents about their initial thoughts about the proposed application's functionality. The results were promising as the target audience were able to rate the application's functionality based on the video presentation about how the proposed application works.
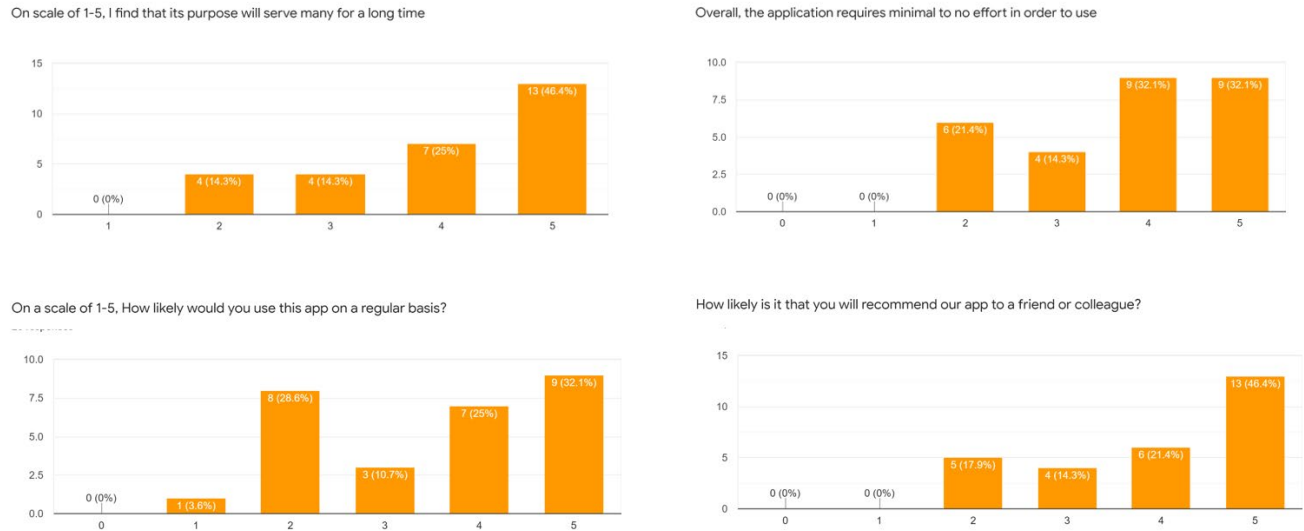
Figure 1. Proposed Application's Ease of use from Respondents

The results from the survey questionnaires show how the respondent's think about the overall concept and features of the proposed application. Figure 1 contains the proposed application's ease of use from the respondents' point of view. The first chart shows how the respondents' think about the proposed application serving them for a long time. According to the results, 46.4 percent of the respondents think that the application could be of use for a long time. On the other hand, 14.3 percent of the respondents think that the proposed application is less likely to be used for a long time.

The second chart from the left at the top indicates how hard it is to use the proposed application for new users. Results show that 32.1 percent of the respondents think that the application requires minimal effort for the new users to be familiar with it. Some of them things that the application requires more effort from the new users for them to be able to use the proposed application properly.

The third chart located at the bottom left of the figure shows how often the respondents' think the proposed application can be used on a regular basis. The proponents were able to gather results that show that 32.1 percent of the respondents think that the application would be used on a regular basis often. However, 26.6 percent of the respondents think that the proposed application would not be used on a regular basis as it is for purchasing and checking home furniture.

Lastly, the chart on the lower rightmost corner of the figure indicates how the application is recommendable to the respondents' friend/colleague. The survey questionnaires deemed a result of 46.4 percent as the proposed application to be recommendable. Whilst 17.9 percent of the respondents think that the proposed application is not that recommendable to other individuals.

5.3 Proposed Improvements
The group recommends more time for studying the proper user-interface design that will be appealing but at the same time professional, for its users' preferences. More study with regards to augmented reality is also recommended, as well as marketing strategies to be used for the application launching.

6. Conclusion
In conclusion, the group was able to meet its objective by proposing an e-commerce application named "Home Buddies". That, from the name itself, will help the users in finding the right furniture for their homes. The group was also able to successfully conceptualize and use Augmented Reality as an application that can be used by different individuals of different age.

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