Abstract

Nowadays, it’s difficult for us to grow plants in urban cities like Jakarta, Surabaya & Medan. Green area narrowing very rapidly as the need for space for residential and business area. Although we can find empty fields we can not plant plants there because the empty field is government property. Actually there are many types of plants that can be grown indoors & also have their respective benefits for people. Unfortunately, only few people know that there are many easy ways to grow plant inside their house. The purpose of this study is to come up with an illustration guide book as media to educate people about how to grow indoor plant and also invite people to try growing plant inside their house with a brief explanation, and attractive illustration. The method that is used in this research study are mixed between design thinking method & quantitative method.

The findings may be useful in enhancing Indonesian knowledge about indoor plant.

Keywords: Guide Book, Illustration, Indoor Plant, Indonesia.

1. Introduction

Nowadays, it’s very difficult for residents to plant and maintain plants in urban cities like Jakarta, Surabaya & Medan. An urban area might be defined as an area with a large amount of people residing in it, an area that has been significantly developed, or an area where the distance between buildings is very small. Urban is used in contrast to rural, which generally indicates a low-population, often agricultural-based area. Usually, any vacant land is used to be a parking lot. Although we can find empty fields we can not plant plants there because the empty field is government property. For all forms of life, plants form the basic food staples, and this is just one reason why plants are important. They are the major source of oxygen and food on earth since no animal is able to supply the components necessary without plants. The fish we eat consume algae and the cattle we eat as beef feed on grass, so even if you’re not a fan of salads, your food source relies on plants (Jenniferc, 2014).

Kompas (2016) reported that green area in Jakarta continues deficit from year to year. In 1965 the green area in the capital of Indonesia still stands at 37.2 percent. However, in 1985, green area in Jakarta was reduced to 25.85 per cent, up in 2000 and then continued to shrink to 9 percent. Green area has many benefits for people life. They filter pollutants and dust from the air, they provide shade and lower temperatures in urban areas, and they even reduce erosion of soil into our waterways. These are just a few of the environmental benefits that green spaces provide (Rudi, 2016).

Actual use vacant land as a medium for the plant is not the only way to maintain plants. By using pots we can plant plants indoors. Recent research tells us that indoor plants are good for buildings and people in a variety of subtle ways. In many cases, it’s recommend to have one potted plant per 100 square feet to feel the benefits.
People have always intuitively sensed that contact with plants and nature is a calming restorative tonic for body and soul. Over the past 25 plus years, academics and scientists have researched indoor plants to establish exactly why and how they are good for us, our home, our schools, our hospitals, our businesses and our environment as a whole and in doing so, they have established that plants improve air quality and humidity levels, reduce stress, make people calmer and happier, reduce workplace negativity, reduce symptoms of discomfort and minor ailments, reduce absenteeism, speed up recovery from illness, improve concentration, productivity and creativity.

Actually there are many ways to grow plants inside a room. Due to lack of knowledge about plants, there are many people who don't want to try to grow their own plants. In this study the student is interested to make a media to spread these very useful information about indoor plant.

2. Concept and Theories

In order to get the best outcome possible from the research study, the student uses design thinking method as concept. According to Hasso-Plattner Institute Design Thinking is a design methodology that provides a solution-based approach to solving problems. It’s extremely useful in tackling complex problems that are ill-defined or unknown, by understanding the human needs involved, by re-framing the problem in human-centric ways, by creating many ideas in brainstorming sessions, and by adopting a hands-on approach in prototyping and testing. Understanding these five stages of Design Thinking will empower anyone to apply the Design Thinking methods in order to solve complex problems that occur around us.

![Design Thinking Process](image)

There are five-stage model proposed by the Hasso-Plattner Institute of Design at Stanford (d.school). d.school is the leading university when it comes to teaching Design Thinking. The five stages of Design Thinking, according to d.school, are as follows: Empathise, Define (the problem), Ideate, Prototype, and Test.

2.1 Empathise

The first stage of the Design Thinking process is to gain an empathic understanding of the problem student are trying to solve. This involves consulting experts to find out more about the area of concern through observing, engaging and empathizing with people to understand their experiences and motivations, as well as immersing student himself in the physical environment to have a deeper personal understanding of the issues involved. Empathy is crucial to a human-centred design process such as Design Thinking, and empathy allows design thinkers to set aside his or her own assumptions about the world in order to gain insight into users and their needs. Student also use qualintative method in order to obtain more precise information.

2.2 Define (the Problem)

During the Define stage, student put together the information that have created and gathered during the Empathise stage. Student analyse the data and synthesise them in order to define the core problems that have identified up to this point. Student should seek to define the problem as a problem statement in a human-centred manner.
2.3 Ideate

During the third stage of the Design Thinking process, student ready to start generating ideas. The student have grown to understand his needs in the Empathise stage, and he have analysed and synthesised his observations in the Define stage, and ended up with a human-centered problem statement. With this solid background the student can start to ‘think outside the box’ to identify new solutions to the problem statement he’ve created, and he can start to look for alternative ways of viewing the problem. There are hundreds of Ideation techniques such as Brainstorm, Brainwrite, Worst Possible Idea, and SCAMPER. Brainstorm and Worst Possible Idea sessions are typically used to stimulate free thinking and to expand the problem space. It is important to get as many ideas or problem solutions as possible at the beginning of the ideation phase. The student should pick some other ideation techniques by the end of the ideation phase to help himself investigate and test his ideas to find the best way to either solve a problem, or provide the elements required to circumvent the problem.

2.4 Prototype

The student produces a number of inexpensive, scaled down versions of the product or specific features found within the product, so the student can investigate the problem solutions generated in the previous stage. Prototypes may be shared and tested to a small group of people. This is an experimental phase, and the aim is to identify the best possible solution for each of the problems identified during the first three stages. The solutions are implemented within the prototypes and, one-by-one, they are investigated and either accepted, improved and re-examined or rejected on the basis of the users’ experiences. By the end of this stage, the student will have a better idea of the constraints inherent in the product, the problems that are present, and have a better/more informed perspective of how real users would behave, think, and feel when interacting with the end product.

2.5 Test

Designers or evaluators rigorously test the complete product using the best solutions identified during the prototyping phase. This is the final stage of the 5 stage-model, but in an iterative process, the results generated during the testing phase are often used to redefine one or more problems and inform the understanding of the users, the conditions of use, how people think, behave, and feel, and to empathise. Even during this phase, alterations and refinements are made in order to rule out problem solutions and derive as deep an understanding of the product and its users as possible.

3. Graphic Design

According to Cezzar 2015, graphic design also known as communication design, is the art and practice of planning and projecting ideas and experiences with visual and textual content. The form of the communication can be physical or virtual, and may include images, words, or graphic forms. The experience can take place in an instant or over a long period of time. The work can happen at any scale, from the design of a single postage stamp to a national postal signage system, or from a company’s digital avatar to the sprawling and interlinked digital and physical content of an international newspaper. It can also be for any purpose, whether commercial, educational, cultural, or political. Graphic design is about communication. (Busby, 2015) Good communication skills are an essential part of the designer’s toolkit. Making pretty pictures is nice, but the most important part of the design process happens before you even put pen to paper. Designers must interpret client needs. At Shillington, we teach how to listen, research, develop concepts and find the balance between aesthetics and function. Graphic design is all about the basics. All design is founded in the five design principles: balance for stability and structure, hierarchy to create organisation and direction, contrast to generate impact and highlight important areas, repetition to unify and strengthen and alignment to create a sharper, clearer outcome. Learn more about the design fundamentals and how we teach them in our course and approach. The design of books and magazines also has a long history. Whether physical or digital, these are objects that are meant to be enjoyed over time, during which the reader has control over the pace and sequence of the experience. In books, the content usually comes before the design, while in magazines, the design is a structure that anticipates written and visual content that hasn’t yet been created. Some commercial websites or exhibition catalogues also fit in this category, as do digital or physical museum displays that show information that doesn’t change. All have fixed content, but the user or reader determines their own path through the material.
3.1 Typeface
The vast majority of well-designed websites use two typefaces: one for body copy, and one for headlines. When choosing a pair of fonts, the most important thing to consider is how they work together. The best way to choose a pair of fonts that works is to just put a lot of them side by side and decide on the best. There’s no way to know which is the best until you’ve tried all of them (Luzuriaqa, 2011).

![Figure 3.1 Analogous colors (Luzuriaqa, 2011)](image)

3.2 Color
Analogous colors are any three colors which are side by side on a 12-part color wheel, such as yellow-green, yellow, and yellow-orange. Usually one of the three colors predominates. Green is an emotionally positive color, giving us the ability to love and nurture ourselves and others unconditionally. A natural peacemaker, it must avoid the tendency to become a martyr.

![Figure 3.2 Analogous colors](image)

3.3 Vector
According to Stovin 2015, vector graphics are created in graphics packages like DrawPlus, PhotoShop and Illustrator. They consist of shapes called objects, and each object can be editing separately, by changing the shape, size, position and adding colour. They are created with lines, all joined together with a collection of points. The most common way to draw vector graphics within these design programs is using Bezier curves, as they tend to be the easiest and quickest way to get the perfect design. Not only do they take up less room on the computer, but they can also be resized without any image disruptions, and can also be customised exactly how you want. They’re more flexible, more diverse and have more options than a bitmap image.

![Figure 3.3 Raster image & vector Image (Stovin, 2015)](image)
3.4 Layout

According to Nikola 2013, Layout is the sizing, spacing, and placement of contents in design. Contents including Logo, Caption, Image, text, details etc. Effective layout is crucial in helping users find what they are looking for quickly, as well as making the appearance visually appealing. Effective layout can make the difference between designs that users immediately understand and those that leave users feeling puzzled and overwhelmed.

3.4.1 One Column

Used very rarely. Text laid out in this one very wide column can look dull and heavy since lots of it can be poured into the column. Readers will get lost in columns that have more than 80 characters in one row. Generally the ideal number of characters for best legibility would be around 60 characters per row. You can make it more elegant and interesting if you make outer margin much wider, thus making column much narrower. By making this column narrower you can make the text size smaller along with its leading, but don’t go over 60-65 characters in a row. Type size for such columns should be around 9-12 points, depending on the fonts you use.

Since a lot of white space will be left on the outer part of the page you can fill it with images or you can leave it white for a more dignified look. These types of layouts are commonly used in editor’s letters at the beginning of the magazines.

3.4.2 Two Column

As stated earlier, mostly used in top stories in magazines. Again do not use maximum space on the page. Make some room around columns, give them some space. You can also make bigger outer margin and make two narrower columns which will bring some drama to the page.

3.4.3 Three Column

This number of columns also provides for an elegant layout and big stories can be laid out in this way. You can break this column with some pull out quote spread across two columns. This is a great tool to break a page a bit and add some splash to the page. In three column layout your number of characters should drop way below 60, ideal number would be around 40-50 characters, or you can reduce type size.

![Figure 3.4 Layout](image)

4. Method

The student uses the quantitative method in this research study. Quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques (Babbie, 1975). Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon. Students use online surveys as data collection methods.
5. Analysis of Data and Interpretation of Result

This chapter discusses and determine the preparation and results analysis for this research study. Data analysis is used to adjust the design of the illustrated guide book. From the survey, the result obtained were 3 respondents are in the age of 15-19, 23 respondents are in the age of 20-14, 17 respondents are in the age of 25-29, 18 respondents are in age of 30-34, 7 respondents are in the age of 35-39 & 1 respondent in the age over 40. Here are the results student obtain from 69 questionnaire respondents:

- **Type of dwelling.**

  ![Circle chart showing types of dwelling](chart1)

  Most of the respondents live in their own house.

- **Planting experience.**

  ![Circle chart showing planting experience](chart2)

  Most of the respondents never tried to grow their own plants at home.

- **Knowledge about how to grow plant indoor.**

  ![Circle chart showing knowledge about growing plants](chart3)

  Most of the respondents don’t know how to care indoor plant.
Most of the respondents get the information about how to grow plants from internet.

- Curiosity about indoor plant.

Most of the respondents want to know how to care indoor plant and they thought that knowledge about indoor plant is very important.

- Experience about indoor plant book.

Most of the respondents never read any book about how to grow plant.
Based on the data that has been collected above, the students come to some conclusions:

- 38 of 69 respondents are live in their own house. Most of the target audience live in their own house. Indoor plants in the book should be selected by the size, there must be a limit for the size.
- 40 of 69 respondents are never try to grow their own plant indoor and 39 of 69 respondents do not know how to grow plant indoor. Most of the target audience are beginners who have never grow indoor plants. Indoor plants should be selected, only the plants that do not die easily included in this book.
- 29 of 39 respondents know how to grow plant from internet. Target audience prefers to use internet as source of their information. There should be an E-book version for this illustrated guide book in internet.
- 55 of 69 respondents are interested to learn about grow plants indoor. Beside explaining how plant grow indoor, the book also give information about 20 indoor plants in order to give option and invite target audience to try growing their own plant.
- Explanation of the benefits of indoor plant also needed in order to gain target audience interest to indoor plant.

5.1. Design Approach

Based on the data that has been collected and analyzed, the students come to some conclusion of the problems. Most common problems that are occurred by lack of media that convey information about how to grow indoor plants with clear and attractive explanation. Option also needed in order to invite people to grow their own plant.

5.2. Design Process

In this section, the student explains the visualization process of the project. The very first thing that the student do is to create the name for the book, and then the student creates the visualization of the logo. There are some steps to create the outcome. The first step is preparation, which includes brainstorming, creating mood board, searching some design references and gather the information about plant. Then, the process continued to the execution. The software that the student uses to visualize the outcome of the research study is Adobe Illustrator CS6. Here are the steps that the student did to interpret the results of the research study:

- Book’s Name & Logo
  The student comes up with a name for the book, which is “20 Tanaman Dalam Ruangan”. With “20 Tanaman Dalam Ruangan”, student can give a great overview on the target audience about the contents of the book. The book not only describes the indoor plants but also provide 20 kinds of plants as the easiest option which can be chosen by the target audience.

- Mind Mapping
  To create the basic idea of the program design the student created a mind map to explore and to strengthen the program concept.

![Figure 5.1. Mind map](image-url)
- Moodboard

Mood board is required to aim a specific character of visual interpretation in a particular project or concept that is going to be used by a designer. That project has to have some certain keywords that suit with the characteristic of the project.

Figure 5.2. Moodboard
• **Design Reference**  
  Design References are needed not to generate a plagiarism but to trigger the mindset of the designer to achieve a result’s standard for the project. Here are some visual references that inspired the student:

![Design Reference Images](image1.jpg)

**Figure 5.3. Design Reference**

• **Information gathering**  
  In order to get accurate information student read many articles, books, & trusted website as the source of information. After receiving the data, students rewrite all the information based on the data into a clear and concise explanation.

There are several sources that are used as a guide to write the content for this book:

1. Indoor Gardening Book : 40 Of The Easiest Indoor Plants You Can Grow (House Plants and Indoor Gardening Guide) by Mike C. Adams
2. 500 Popular Tropical Plants Book

![Book Images](image2.jpg)

**Figure 5.4. Books About Plants**
• Sketch

After doing a mind mapping, creating mood board, and constructing some design references is to visualize the idea in some sketches then followed with digital visualization. Sketch is used to develop the ideas that is visualized in the digital designing.

Figure 5.5. Leaf Sketch

Figure 5.6. Tree Sketch

Figure 5.7. Logo Sketch
Digital Visualization

The next step is to visualize the ideas and sketches in digital visualization. The student uses some images as guide. Experiments are done to generate the best illustration. Here are some experiments that have been done by the student:

Figure 5.8. Reference

Figure 5.9. Illustration process

Figure 5.10. Final Illustration
Digital Visualization

Layout is the sizing, spacing, and placement of contents in design. Contents including Logo, Caption, Image, text, details etc. Effective layout is crucial in helping users find what they are looking for quickly, as well as making the appearance visually appealing. Effective layout can make the difference between designs that users immediately understand and those that leave users feeling puzzled and overwhelmed.

![Figure 5.11. Layout Design](image)

![Figure 5.12. Final Layout Design](image)
The interpretation of the product goes through some processes. The outcome of the study is illustrated indoor plant guide book as the main product. The student also produces supporting products like A3 poster, x banner with qr code that linked to the E-book version of the illustrated indoor plant guide book, mug, and also other merchandising. The final artworks are attached in the appendix.

6. Conclusion

This research raises important question about why people are not interested in learning how to grow indoor plant. The findings that the student has presented suggest, that a book with a good design for everyone to increase their knowledge and awareness can be a solution to this problem. In order to create a book effective in terms of spreading information, it requires a good design that can show every information in a brief explanation. Plant illustrations in this book are also needed to attract people attention. Furthermore, as the graphic design visual’s role and impact in this problem have been discussed in this study, it is necessary to explore and exploit all the possible solutions that available in order to enhance public knowledge about indoor plants.

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I hope this project would inspire and also bring positive changes to people’s lifestyle and also can be useful for the community.
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500 Popular Tropical Plants Book

The Complete Houseplant Survival Manual book by Barbara Pleasant
Appendices

Figure 5.13. 20 Tanaman Dalam Ruangan Book

Figure 5.14. Mug