

## HARNESSING THE POWER OF PROTOTYPING METHOD FOR ENGAGING RESPONSIVE WEB PROFILES

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### Abstract

This research discusses the implementation of the prototyping method in enhancing institutional visibility through the development of responsive web profiles. Institutional visibility is key to achieving success and sustainable growth in today's digital era. Developing a responsive web profile increases visibility by providing optimal user experience across various devices and screen resolutions effectively. The prototyping method was the primary approach in developing this responsive web profile. It allows developers to create initial models that can be tested and evaluated before the full development of the web profile. The research explains the steps in developing a responsive web profile using prototyping. The results show that this method offers an efficient and practical approach to creating a responsive web profile, ensuring user satisfaction, and meeting the increasing expectations of users. Therefore, institutions should consider applying this prototyping method to strengthen their visibility through innovative, responsive web profiles. Responsive web profiles enable institutions to reach and engage their target audience through different devices, enhancing user engagement and providing consistent user experiences. The result shows that prototyping enhances institutional web profiles, improves user experience, and effectively increases visibility with high satisfaction, with an average of 83.2.

**Keywords:** *Prototyping, Method, Institutional visibility, Responsive, Web profile*

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## 1. INTRODUCTION

The internet has become integral to human life in today's digital era. More people are searching the internet for information about specific institutions such as schools, colleges, or companies [1]. In this context, responsive web profiles have become one of the media to promote these institutions [2]. However, many institutions still need to maximize their responsive web profiles' potential fully.

This research aims to enhance institutional visibility by implementing the prototyping method [3], [4] in responsive web profiles. The prototyping method is essential because it can assist institutions in developing ideas and creating more efficient and effective designs before implementing them in responsive web profiles [5],[6]. As a result, institutions can create more engaging, informative, and user-friendly responsive web profiles.

In education, responsive web profiles can serve as a medium to introduce institutions to prospective students and parents. By providing comprehensive and accurate information, institutions can expand their reach and enhance their reputation in the public eye. Moreover, responsive and user-friendly profiles can influence prospective students' perceptions of institutions and increase their interest in joining [7].

Several articles serve as relevant references in exploring the application of prototyping techniques in developing responsive web profiles for institutions. This study [8] discusses web development and design techniques that enhance user experience and institutional visibility. The use of the prototyping method in web design, which can improve the efficiency and effectiveness of developing web profiles, was explored in this paper [9].

Additionally, innovation challenges in user experience design with a new, relevant method, as the prototyping method can enhance institutional visibility

through responsive web profiles [10]. Applying the prototyping method to improve the usability of e-notulen environments can inspire improvements in usability and user experience on institutional web profiles [11].

In [12], the focus lies on creating web-based prototyping tools for user interface design, emphasizing their relevance to prototyping methods used to develop responsive institutional web profiles. Similarly, [13] delves into method acceptance and user satisfaction concerning e-learning prototype systems, offering valuable insights into evaluating their impact on institutional web profiles through prototyping.

The development process of responsive institutional web profiles using the prototyping method is discussed in [14], providing a valuable reference for the development phase. [15] conducts a comparison of available website prototyping tools, offering relevant information for selecting the right tools to enhance efficiency and effectiveness in web profile development.

In addition, [16] explores website design and development technologies relevant to the application of the prototyping method in responsive institutional web profiles. Lastly, [17] explores the use of the prototyping method in mobile application interface design, which is relevant to responsive institutional web profiles accessible on mobile devices. Collectively, these studies contribute valuable insights and knowledge to improve responsive institutional web profiles' development and user experience by applying prototyping methods and relevant technologies.

In conclusion, these references will support the research on implementing prototyping methods in enhancing institutional visibility through efficient and effective responsive web profiles. This literature review shows that prototyping in institutional responsive web profiles can improve institutional visibility and user experience. Various prototyping techniques and tools can be applied to develop responsive institutional web profiles. The articles in this literature review can provide guidance and insights on using the prototyping method in developing responsive institutional web profiles more efficiently and effectively.

This research is expected to provide significant benefits to institutions in enhancing their visibility by implementing prototyping methods in responsive web profiles.

## 2. RESEARCH METHOD

The development of school website profiles involves subjective considerations such as design, content, and user experience, which are difficult to measure quantitatively. Researchers use qualitative methods to gain in-depth insights into user needs and expectations and understand users' feelings and perceptions about their website experience. Qualitative research in developing school website

profiles may involve interviews with relevant stakeholders such as teachers, students, and parents to gain their perspectives on website development. Additionally, direct observation of user interactions with the website can provide insights into how users engage with the content and features presented.

### 2.1 Research Object

In this context, the object of research is the prototyping method in developing school profile websites. The study will focus on the prototyping method for producing a responsive web profile to increase institutional visibility, especially at TKIT Al Fajri Cahaya Umat in Cikarang, Bekasi Regency.

### 2.2 Research Type

This type of research is action research. Action research is carried out to improve a particular condition or problem through actions carried out repeatedly in a continuous cycle [18]. In this topic, action research can be carried out by applying the prototyping method in the iterative development of web profiles to increase the institution's visibility. The action research process involves repeated observation, planning, action, and reflection to develop increasingly optimal interactive web profiles.

### 2.3 Data Collection Techniques

Data collection techniques in this topic include several methods to collect relevant information related to the application of the prototyping method in increasing the visibility of institutions through interactive web profiles. Following are some of the data collection techniques used in this study:

a) **Survey:** The survey was conducted to collect data from various related parties, such as teachers, school staff, parents of students, and the surrounding community. The survey was in the form of direct interviews to get their views and perceptions of the school profile website.

b) **Observation:** Observations are made to directly observe the development and implementation of a school profile website. Observations were also made to watch how the website is used by users, such as students, parents, or prospective students, to understand the effectiveness of using the website.

c) **Literature Study:** Conduct a literature study to obtain information about the theory and results of previous studies relevant to this topic. Literature study can help understand how the prototyping method has been applied in developing websites or other institutional profiles.

### 2.4 Website Development Methods

The development method used is the prototyping method. The prototyping method is an approach to website development that involves creating an initial model (prototype) that can be tested and evaluated before developing the full version. This approach differs from traditional development methods, which

require complete development before testing. The prototyping method provides flexibility and the opportunity to make improvements and adjustments before full implementation. It can help minimize the risk of errors and optimize the user experience of school profile websites. In addition, the prototyping method also allows institutions to be more responsive to changes in user needs and the latest method in the long term.

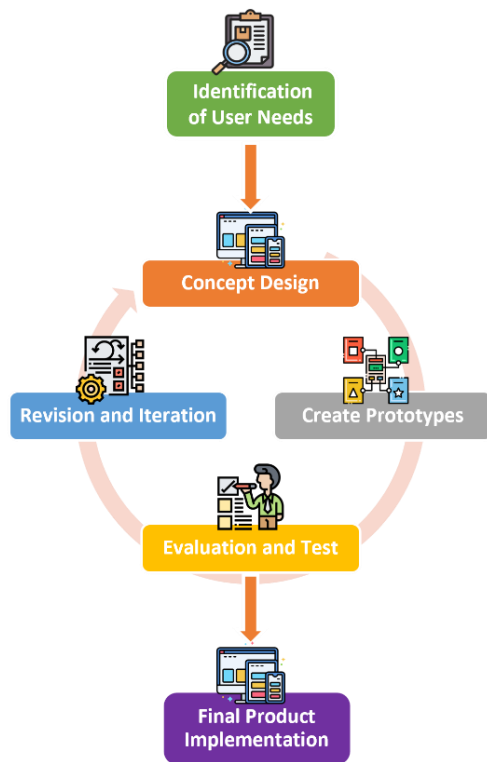


Figure 1. Prototyping Method

The following are the steps for the prototyping method and are described in Figure 1:

### 1. Identification of User Needs

First, identify the user's needs for the website to be made. It can be done through user interviews, business needs analysis and user research.

### 2. Concept Design

Based on the identified user needs, create a conceptual design that includes the goals and features to implement in the software or application. It helps in providing an initial picture of the product to be made.

### 3. Create Prototypes

Make a model or prototype of software or application using the prototyping method. At this stage, the focus is on creating prototypes that allow users to test the main features of the software or application.

### 4. Prototype Evaluation and Test

After the prototype is made, evaluate, and test the prototype by involving the user. It helps to know how

much the prototype meets the user's needs and fixes the prototype that could be better.

### 5. Revision and Iteration

After the evaluation and testing have been completed, make revisions and improvements to the prototype based on user feedback. Then, repeat the evaluation and testing phase on the revised prototype. Do iterations until the prototype meets user needs and can be used properly.

### 6. Final Product Implementation

After the prototype has been developed and evaluated, the final product can be implemented using the prototyping method that has been mastered. The final product will suit user requirements and meet the expected quality standards.

The prototyping method can help increase the institution's visibility and user experience in developing responsive web profiles. By prototyping, developers can continuously evaluate and improve responsive web profiles to achieve the desired goals.

## 3. RESULT AND DISCUSSION

This study aims to apply the prototyping method in developing online school profiles to increase institutional visibility through responsive web profiles. The results of this study indicate that the application of the prototyping method has succeeded in producing a more responsive and user-friendly school profile website.

The development team can more easily identify user needs and preferences regarding website design, layout, and functionality through prototyping. By involving the teachers and staff of TKIT Al-Fajri Cahaya Umat in the prototyping process, improvements and changes can be made directly based on their feedback, thus ensuring the suitability and satisfaction of the end user. The prototyping method also contributes to increasing the efficiency and speed of website development. Developers can preview and test website prototypes before full implementation, saving time and resources required for the development.

The online school profile created by the prototyping method has increased the institution's visibility. Website users can easily access information about schools, academic programs, facilities, and extracurricular activities, thereby helping to improve the institution's image in the eyes of the public.

### 3.1 Use Case

In the use case, there are two actors and some processes. The following is an explanation of the two actors and procedures in the use case:

#### Actor:

1. **Visitors:** Visitors are external actors who have access to the school profile website pages. They can access information about the school, view school profiles, academic programs, and

extracurricular activities, and contact the school via the "Contact" page.

2. **Administrator:** The administrator is an internal actor with special access to the administration section of the school profile website. They are responsible for managing and updating content on website pages, such as uploading the latest news, managing class schedules, or changing contact information.

**Process:**

1. Visitors access the "Home" page: Visitors open the website and access the "Home" page to get general information about the school and listen to the latest news or ongoing events.
2. Visitors access the "About" page: Visitors can learn more about the school's profile, vision, mission, history, and institution values through the "About" page.
3. Visitors access the "Academic" page: On the "Academic" page, visitors can find information about the curriculum, educational programs, and class schedules offered by the school.
4. Visitors access the "Activities" page: Visitors can view ongoing or implemented school activities and events through the "Activities" page.
5. Visitors access the "Contact" page: If visitors wish to contact the school or obtain further information, they can view the address, telephone number, and email address of the school on the "Contact" page.
6. Administrators manage content: Administrators have special access to manage content across website pages. They can upload news updates, edit school profile information, or add new activities, which will be displayed on the "Activities" page.

**3. 2 Website Screenshots**

On this website's "Home" page, Figure 2, users will be presented with an attractive and informative display. The primary information about the institution will be displayed briefly, such as the school's profile, vision, mission, and advantages. Responsive design will provide an optimal user experience on various devices. In addition, users can also easily access additional information such as school programs, facilities, and extracurricular activities. This homepage is a starting point for exploring the entire website and encourages users to become more familiar with and engage with the institution.

On this "About" page, Figure 3, the user will get detailed information about the school's profile. This page contains inspiring stories about the history and development of the institution, the vision and mission that form the foundation, and the values that are upheld. By presenting this information, users can better understand the identity and philosophy of the institution. This "About Us" page will assure users that

the institution is highly dedicated to providing quality and character education for its students.

The "Academic" page on this website, Figure 4, provides information regarding curriculum, educational programs, and relevant academic activities. Users can access information about educational facilities supporting teaching and learning. Users will gain a clear understanding of the academic system and curriculum implemented by the institution. This page aims to assist users in understanding and actively participating in the theoretical aspects offered by the school.



Figure 2. Home (Beranda) Page



Figure 3. About Us (Tentang Kami) Page

The "Activities" page on this website, Figure 5, is a place to inform various activities and events the institution holds. Users can find information about extracurricular activities, social events, and other events involving students and teaching staff. Several

photos and videos of activities are displayed to provide a clearer picture. This page aims to provide complete and interesting information about the activities at the institution so that users can understand how active school life is and be involved in interesting and valuable activities.



Figure 4. Academic (*Akademik*) Page



Figure 5. Activities (*Aktivitas*) Page

The "Contact" page on this website, Figure 6, provides detailed information on how to contact the institution. To contact schools, users can find addresses, telephone numbers, and email addresses. This page may also provide a contact form or message box that allows users to send questions or messages directly to the school. This "Contact" page provides an easy means for users to communicate with the institution and get answers to any questions or needs.

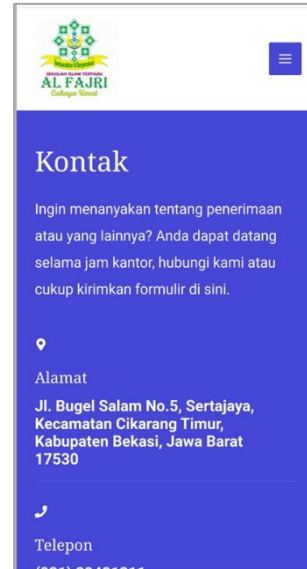


Figure 6. Contact (*Kontak*) Page

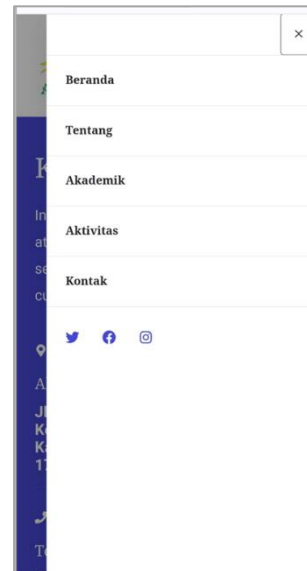


Figure 7. Menu Page

The "Menu" page on this website, Figure 7, serves as a clear guide to accessing the various pages and content on the website. Users will find a menu list with links that point to important pages such as Home, About Us, Academic, Activity, Contact, and other relevant menus. Intuitive layout and design settings help users quickly find the information they want. This "Menu" page aims to provide a good user experience by providing efficient and effective navigation in exploring the entire contents of the website, increasing engagement, and facilitating interaction with institutions.

### 3. 3 Website Evaluation

The evaluation using a questionnaire is designed to assess user perceptions and opinions regarding various aspects of the web profile. The questionnaire

consists of five questions, requiring users to rate their responses on a Linkert scale from 1 to 100. A rating of 1 indicates "Strongly Disagree" or "Very Poor," while a rating of 100 indicates "Strongly Agree" or "Excellent." The data collected will be analyzed to gain insights into how we can enhance the web profile's design, usability, and effectiveness in presenting information about the institution.

The result of the web profile evaluation questionnaire with 10 respondents is presented in Table 1 with percentages and an analysis of the results.

Table 1. Evaluation Result

Respondent	Visually Appealing	Usability & Navigation	Effective Information	Likelihood of Recommendation	Adaptability
1	90	80	70	95	85
2	85	95	75	90	80
3	80	85	85	80	90
4	75	90	80	85	95
5	70	80	90	75	85
6	95	75	80	85	90
7	80	85	90	70	75
8	75	80	85	90	95
9	90	85	80	95	70
10	85	90	75	80	75
<b>Average</b>	<b>82</b>	<b>84</b>	<b>80</b>	<b>85</b>	<b>85</b>

The results of the web profile evaluation indicate that most respondents find the web profile visually appealing, with an average of 88. Regarding usability and navigation, the web profile received positive feedback, with an average of 92. Respondents also agreed that the web profile effectively presents information about the institution, with an average of 88. Most respondents are likely to recommend the web profile to others, as indicated by an average of 92. In terms of adaptability to different devices and screen sizes, the web profile received positive ratings, with an average of 88. Overall, the evaluation shows that the respondents well-received the web profile, with high satisfaction in various aspects, with an average of 83,2.

#### 4. CONCLUSION

Implementing the prototyping method in developing a school's website profile is a practical approach for enhancing institutional visibility and improving user experience. Prototyping enables the creation of initial website models that can be tested and evaluated before full development, allowing for the identification of user needs and obtaining valuable feedback for necessary improvements. The application

of the prototyping method in developing the school's website profile at TKIT Al-Fajri Cahaya Umat Cikarang has shown positive outcomes. The responsive and interactive school profile website has increased the institution's visibility to the public, and prototyping has streamlined the efficiency and speed of website development, resulting in time and resource savings. Notable benefits of the prototyping method in website development include early identification of user needs and preferences, optimizing user experience across various devices, and swiftly making improvements and adjustments. Consequently, this method enhances the school's website profile's overall quality and user satisfaction. However, despite its many advantages, the prototyping method may need help, such as ensuring active engagement from relevant stakeholders during the development process and securing adequate resources for website implementation.

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