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The Process of Designing an Interactive Website to Understand the Importance of Neutering and Spaying Cat (CatCare)

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Abstract— **Neuter, medically known as orchiectomy, is a technique to removes the testicles from the male cat. Spay, on the other hand, is known as an ovariohysterectomy that removes the reproductive organs of a female cat. The veterinarian can perform neutering and spaying, or it can be done by a spay and neuter clinic that performs these basic services. Most people knew what neutering and spaying is based on research, but they don't understand what the importance of neutering and spaying is. The goal of this project is to develop an interactive website capable of providing more information on neutering and spaying cats. Interactive website and PSA videos were developed throughout the project using Sublime 3 Text with PHP, JavaScript and HTML languages and Adobe Premier for video. PhpMyAdmin can integrate with Sublime Text 3 to integrate the website thus handling database storage. In collecting data, the usability testing method is used in which 30 sets of questionnaires are distributed to the respondents. The purpose and aim of the development of this project is accomplished after the data was collected. From the questionnaire, 69.1 % strongly agreed that the existence of this website was able to help society gain more awareness and get a better understanding of neutering and spaying cats. While 69.7% of respondents strongly agreed that this website has easy-to - understand information, and 51.3% agreed that the PSA video provided on the website is more useful in understanding information relating to spaying and neutering cats.**

Keywords— **Interactive Website; PSA video; Sublime Text 3; Adobe Premiere; PHP; JavaScript; and HTML**

I. Introduction

Content and design-oriented website provide not only information about a certain, but it is also providing user with informative experience. Combining with a good User Interfaces (UI) and providing a good User Experience (UX), these websites will definitely benefit the user in finding information. The CatCare Interactive Website development project uses the same method as the other information website to allow users to learn from the website. This website can be useful for the user, as the system not only provides information, but also provides a comment section for the user to ask a question or give some suggestions. Meanwhile, the general public has underestimated the understanding of cat neutering and spaying cats. Lack of awareness on the importance of cats being neutered and spayed. Some owners are afraid that spaying and neutering will make the pet overweight and lazy, and some people think it is better for a female cat to have one litter before spaying, and sometimes they simply cannot afford it. [1]. Furthermore, there is not much platform of information on the importance of neutering and spaying cats. Many pet websites on the internet concentrate on a campaign such as a fundraiser for abandoned animals and the rescue of the animals depending on the research. Also, people are not interested in doing studies about the importance of neutering and spaying cats. On the basis of SimilarWeb, the top 5 pet and animal websites visited by Malaysians are petfinder.my, thedododo.com and perromart.com.my. These sites do not provide any information on spaying and neutering.

The objectives of this project are as follows:
I. Identifying the question of why people were not aware of the problem of neutering and spaying cats.
II. To develop an interactive website that can give more information on neutering and spaying cats.
III. To develop a PSA video that can give more information on neutering and spaying cats.
IV. To evaluate the effectiveness of an interactive website and PSA video about neutering and spaying cats project.

It is important to develop this interactive website and PSA video on the importance of neutering and spaying cats to help communities who pet cats and the public be more alert and aware of this issue. By then, people do not have to rely on TV or newspapers to get information, users can use this website to find information. It is possible that this website can provide an easy process for people to achieve good information.

II. Literature review

Cat overpopulation is a big problem nowadays, based on research. On the streets, thousands of stray cats and abandoned

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litters died or suffer from euthanasia [2]. The biggest advantage of neutering is preventing unwanted reproduction. Although the number of abandoned cats and dogs euthanized in U.S. animal shelters has reduced from an estimated 23.4 million in 1970 to around 4.5 million by 2000, animal welfare remains a major problem [3]. In minimizing the abandonment and euthanasia of these animals, reducing the overall number of unwanted puppies and kittens remains necessary, and failure to neuter is an important component of the dilemma of the pet population. [4], [5]. The toll has been staggering: over 250 million cats and dogs have been killed over the last 40 years in animal shelters in the United States [6]. For action planning, an understanding of the complexities of these populations and an overview of these populations are required. The issue is that not everyone is aware of the importance of their cats being neutered and spayed. Most pet owners think that it's not a good idea to neuter and spay their cat. Apparently, there are several reasons that these cat owners do not want their cats to be neutered and spayed. Some owners worry that spaying and neutering will make pet obese and lazy, some people think it's better before spaying for a female cat to have a litter and sometimes they simply couldn't afford it [1].

A. Website Platform

Website is one of the best platforms to provide information to people. Website's abilities are to disseminate low-cost results, ease of discovery, ability to interact, and also the ability to target multiple audiences around the world. By using website platforms, organizations can achieve competitive benefits, for example, promoting systemic reform, share information, building a community and attracting prospective candidates [7]. This project reflects on why the importance of neutering and spaying cats is not exposed to people. On the analysis of SimilarWeb in Malaysia itself, it is stated that Petfinder.my, Thedodo.com and Perromart.com.my are the top 5 listed websites for pets and animals visited by Malaysians, which do not concentrate on providing data on the importance of neutering and spaying. Petfinder.my is a website that highlights the adoption of pets and the overall visit is 72.30K. The website of Perromart.com.my is an online pet store selling a pet product with a total visit of 3.1 M. For a total of 2,76 million visits, the Thedodo.com website is a website that posts the latest information on animal care. To clarify, not all pages visited by Malaysians focus on the importance and benefits of neutering and spaying cats. PHP, MySQL and the HTML language will be used to develop this project. For ease of understanding and convenience for all users, the website is designed to be user-friendly. The website is for computer, mobile, and tab users. In addition, the device need to be connected to the internet.

B. Public Service Announcement (PSA)

A PSA (Public Service Announcement) is a video clip to explain the understanding of an important topic to society or the public. Dramatizations, interviews, infographics, videos, and many others can provide video and audio content from PSAs. There is a lot of research that addresses mental changes and corresponding behavioral changes, and PSAs are generally performed without taking advantage of this information [8]. A PSA video was created in this project to engage users in disseminating knowledge on the importance and benefits of neutering and spaying cats. The video will show an explanation

of the importance of neutering and spaying cats in more detail. The effect of neutered and unneutered cats will also be explained. The video is approximately 1 minute and 30 seconds long.

Looking at the literature findings, website and PSA video are the best way to provide people with knowledge and understanding to the project topic. It can guide the understanding of the user's specifications by defining what is required in the literature review, so that the proposed system will function properly. Using the website and the PSA video to spread information can be very effective based on previous studies by other researchers. In order to see and relate the advantages and disadvantages of this project, this chapter has presented similar projects and compared each project. In end, there will also be an understanding of how to spread more social awareness in this literature review. Moreover, it will allow them to better understand the significance of spaying and neutering in detail.

III. METHODOLOGY

To guide project managers, a methodology is used so that the project can be carried out in a timely, structured way and the project aims can be accomplished.

A. ADDIE Methodology

The CatCare interactive website are designed and developed according to the ADDIE model to achieve the objective. Most frameworks used by the instructional designer are the ADDIE model [11]. In order to create a website, the ADDIE method is very helpful and reliable. It has a flexible guideline that will enable instructional developers to develop an effective five-phase support method called Analysis, Design, Development, implementation and evaluation. One of the systematic models of learning design, regularly selected on the basis of this model and based on the theoretical basis of learning design, is the ADDIE model [12].

B. Demography

A quantitative method is a chosen research method to gather data for this project. The researcher wanted to gather data from the public, and using a survey is the best way. The quantitative analysis method deals with the quantification and evaluation of information-gathering variables. In order to identify information and apply it to statistical treatment to explain or refute alternative statements of experience, quantitative analysis includes data collection [9].

The demographic profile of the respondents is important. Demography is a field of study in which researchers analyze the quantifiable data of a particular population [10]. Clients from the Putra Nilai Veterinary Clinic (PNVC), which is located in Nilai, Malaysia, will be involved in this research. Putra Nilai Veterinary Clinic (PNVC) is a starting point and website promotion forum since the clinic is close to the residence of the researcher as it is convenient for the researcher to gather data such as a survey.

C. System Design

This process includes the wireframe and the website mock-up. Figure 1 shows the overall flows of the website which content multiple level of information designated to different

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topics. From the flowchart, developer will design the layout or the wireframes and the mockups as shown in Figure 2. These wireframes and mockups help developer to program the pages later using web languages. Figure 3 shows the Entity Relationship Diagram. The Entity Relationship Diagram is a diagram showing the database interaction that is needed to store data and operate the system. To guarantee that the diagram is finished in a presentation of all the system's operating functions, all flow must be in detail. The sequence diagram, meanwhile, shows the interaction of an object in the system.
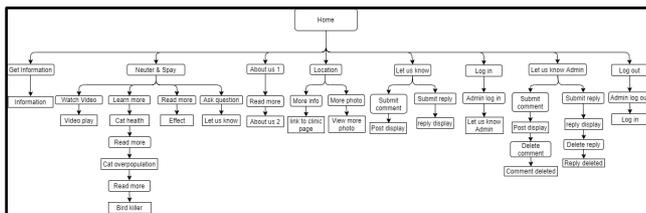
Fig. 1: Website Flowchart

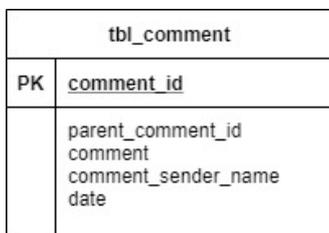Fig. 2: Home page Neuter & Spay page Cat Health page

Fig. 3: Entity Relationship Diagram

I.   The flowchart and wireframe shows the system's flow movement in each involved actor. To guarantee that the diagram is completed, all flow must be in detail in order to show all the functional tasks of the system.

II.   The sequence diagram shows the system 's relationship with objects.

III.   The use-case diagram shows who the system user is, the role of the user and the purpose of the system.

D. System requirement

The specifications for hardware and software are the requirements needed to develop the system listed below.

I.   Hardware: Laptop and smartphone
II.   Software: Sublime Text 3, XAMPP, phpMyAdmin, Adobe Premiere

IV. RESULTS AND DISCUSSION

User approval testing method has been used to enable users of the system to test the functionality of the website to be acceptable. Usability assessment is carried out by using a series of questionnaires to be answered by the target users. The result would finally demonstrate how efficient the system is.

A. Analysis of Usability Testing

On 10 October 2020, there were 30 sets of questionnaires distributed to respondents. The respondent's target group focuses on people who pet cats. The questionnaire was produced using the 'Survey Planet' online survey tool. The results were automatically shown after all respondents responded to the questionnaires.
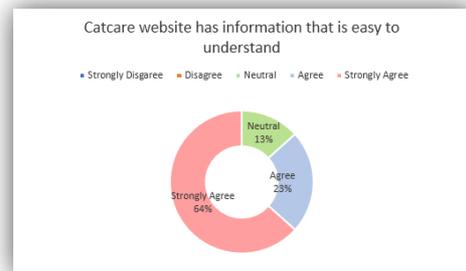

Fig. 4: Question 6

Figure 4 is the result of question 6, which shows the usefulness of the information provided on the website. The "Strongly Agree" vote was dominant, which shown that most of them find that using this platform was easy to understand, while the other 23% respondents were "Agree" and 13% were "Neutral" .
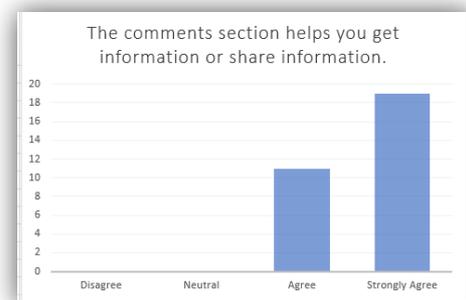

Fig. 5: Question 9

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Figure 5 above shows that 19 from 30 respondents strongly agree that the comment section allows them to receive or share information.
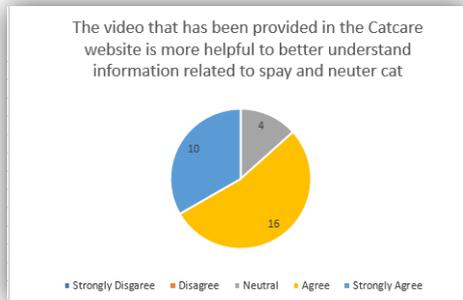

Fig. 6: Question 10

Of the 30 people who responded to the questionnaire in figure 6, 16 respondents have chosen " Strongly Agree ", 10 respondents have chosen" Agree "and the rest were on" Neutral". This shows that most of the respondents agree that it information provided using PSA video was more helpful to better understand spay and neuter cat information.
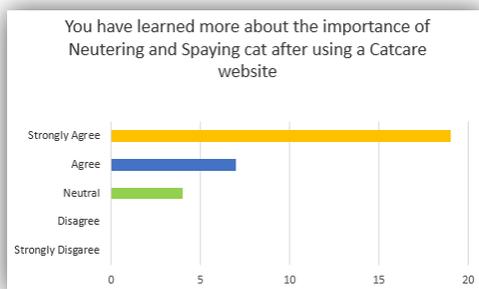

Fig. 7: Question 11

The bar chart shown in Figure 7 above shows that 19 respondents were strongly agree that after using the website they learned more about the importance of Neutering and Spaying cat. 7 respondents has chosen "Agree" while the other 4 respondents were "Neutral".
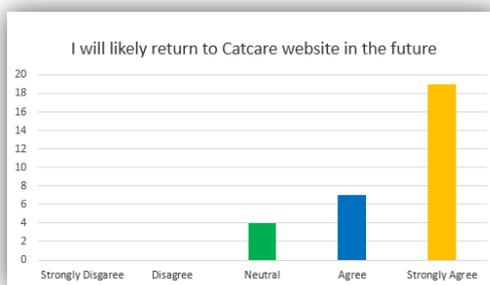

Fig. 8: Question 12

Figure 8 shows that 19 out of the 30 respondents "Strongly Agree" while 7 respondents have chosen "Agree." This indicates that more than half of the total respondents are likely to return to the website in the future.

B. Testing Discussion

This method of testing is used to encourage the user to test the website to see how the system's functionality achieves the user's expected results. To test this system of the website, 30 respondents are chosen and first they will test the entire functionality of the website. Then, to gather their responses, a set of questionnaires will be given to the respondents. In order to know how well the website system works and even in the event of disagreement, all the information gathered is important so that this project can be improvised in the future. Usability testing is also used to determine whether the key goals based on the project are fulfilled by the project.

On the basis of the result given, this website can be considered useful for spreading awareness of the importance of neutering and spaying cats to society, as it achieved the standard requirement from the main objective of this project. Most of the respondents are satisfied to use the website because it helps them realize the importance of neutering and spaying cat and learn more knowledge about it. By developing this project, the aim and purpose set in the earlier phase of the project have been accomplished.

V. CONCLUSION

This interactive website was developed to allow users to easily gain information about the importance of neutering and spaying cats. Important and crucial steps have been taken to ensure that the progress of the project is consistent with the criteria given. Moreover, the goals have been fulfilled by much of the requirements. In order to understand user problems and how to solve the problems, the background of the study was researched. An analysis of relevant literature and studies on the nature of the project is the content. The objective is to understand that there is suitable method, techniques and media for the development of the project to ensure that the project works and can be compared based on literature and material research.

The finding helps the developer to understand how the functionality on the website can be used. Present methodology has been carefully studied as it can help with the project progression flow. It is important to develop and build a working prototype model and to develop an element of the website thus the necessities of designing the webpages flow, the wireframes and the mockups. The prototype is tested to ensure that all functionalities are done as they should, based on the black box testing process and usability testing. The test output, which contains the executable programed input and output, would be the final prototype system.

Overall, based on the testing output and finding, the project has successful executed the objectives and the user agreed that a good interactive website design will help user to experience a better understanding of the topic provided or intended to its

target users. This also implies that the friendly environment has been fulfilled based on user expectations.

However, several improvements need to be implemented to increase the performance of the website system such as real time notification which will appear on the user's email, recommended clinic location GPS system, progressive website that will help with multi devices resolution and more.

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