E-exhibition of Packaging Products as An Appreciation and Promotion Media for Packaging Engineering Students

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Abstract. Students produce packaging product as the final task in the Packaging Engineering Study Program, State Polytechnic of Creative Media. This product has good quality and innovation value. However, this product not managed properly so that it cannot be reached by the industry. E-exhibition is a virtual exhibition that aims to appreciate and promote products. By holding an exhibition, the packaging products will get an assessment from the wider community. A representative, accessible and inexpensive display is needed, namely a virtual exhibition. The object of this e-exhibition is packaging products made by students of the Packaging Engineering. This research method consists of several stages, namely the packaging product selection process, packaging product photography, and the creation of an e-exhibition website. The result is the digitization of the packaging products in the form of a website platform in desktop and mobile display formats. The product feasibility test was carried out by IT experts to obtain the average validation results from experts is 86% and it belongs to the very good category.

Keywords: E-exhibition, Packaging, Product

1 Introduction

The advancement of Industry 4.0, which is known as the era of the internet of things, encourages the development of information and communication technology. Internet technology gives rise to a fundamental shift or change in the way humans communicate. This change will continue to be sustainable and become a trend that occurs in the future. This change is marked by people's preference for consuming digital articles instead of reading newspapers. This preference is due to online text being shorter, so that affordability is higher for more information.[1] Various goods and services digitalize products including books, media, public service applications and exhibitions. Now, the exhibition is also held online through various digital platforms. This massive technological change encourages various sectors to digitize products, both goods and services, so that they are easier to access and stored for a long time. Therefore, State Polytechnic of Creative Media will digitize massively, including in education management, research, teaching, finance and exhibition implementation works.[2]

In the Packaging Engineering Study Program, State Polytechnic of Creative Media, students produce packaging products in the form of mockups with the final product prototype packaging every year. This packaging product is the output of a mockup making course or a

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final project either. This packaging is made from plastic, paper and so on. The packaging products of students have quality and innovative values, such as packaging that has been circulating in the market. Unfortunately, it didn't manage properly, so it cannot be reached by industry packaging. Currently, the packaging prototype in the form of a mockup has several limitations, namely requiring a special and large space to accommodate products, limited and impractical access, and most importantly to maintain integrity. Mockups so as not to be damaged or lost is the main problem [3].

State Polytechnic of Creative Media is a campus based on entrepreneurship, so students are required to have competence in marketing their products. Engineering packaging students are taught the packaging production process and how to promote a product so that it can be sold, then mass-produced and used in industry. By utilizing digital technology, packaging products produced by students can be widely viewed and accessed on a regional, national and international scale. The packaging products produced by these students require a showroom as a place of appreciation for the product. Currently, the engineering packaging program has difficulty in organizing these packaged products due to limited storage space. Added to the problem of work that is damaged or even lost, because the storage area is inadequate. The solution that is trying to be offered is product digitization prototype of student product packaging by creating a platform as a gallery work showroom in the form of a website. This website will not only work as a place for appreciation of works, but also as a product promotion platform for packaging techniques so that they can be reached by the packaging industry in need. This website is named e-exhibition. E-exhibitions provide practical experience and cost-effective solutions and overcome the limitations of physical exhibitions and also provide excellent interactivity for users. Virtual exhibitions featuring digital collections of replicas of real events or objects are developed with the help of multimedia and virtual tools. Reality generates a simulated environment on a computer, and is delivered via the web so that users will get the same satisfaction when they view or use physical objects in real life [4]. Ciurea mentions that virtual exhibitions have several advantages, including the possibility of reuse, security with minimal risk for real goods and reduced costs when exhibitions are held in certain locations [5]. According to Foo, artworks in a virtual exhibition that are being displayed are the results of digitalization scanning through a 2D or 3D rendering process, then combined into a virtual platform that can be accessed by visitors simultaneously [6].

2 Research Methods

The research has been carried out at State Polytechnic of Creative Media, especially the Packaging Engineering campus. There are many packaging products made by students that are stored as shown in Figure 1. This product packaging is not maintained. In fact, this packaged product has a selling value and deserves to be appreciated.

Fig. 1. Student packaging products on the shelf of the Graphic Engineering department

Appreciation and promotion space is needed to showcase the work of packaging engineering students. E-exhibition website creation is done by concept planning. Next, the process of shooting packaged products has been carried out at the Photography Studio. The creation of an e-exhibition website has been carried out at the Computer Graphics Laboratory. And test e-exhibition application and data analysis have been carried out at the Publishing Laboratory. Research activities have been carried out for 6 months. The tools used in this research are camera, triport, lighting, lenses, and laptops. The packaging products used in this study came from student work stored on the shelves of the Graphic Engineering department. This research method is divided into five stages as shown in Figure 2:

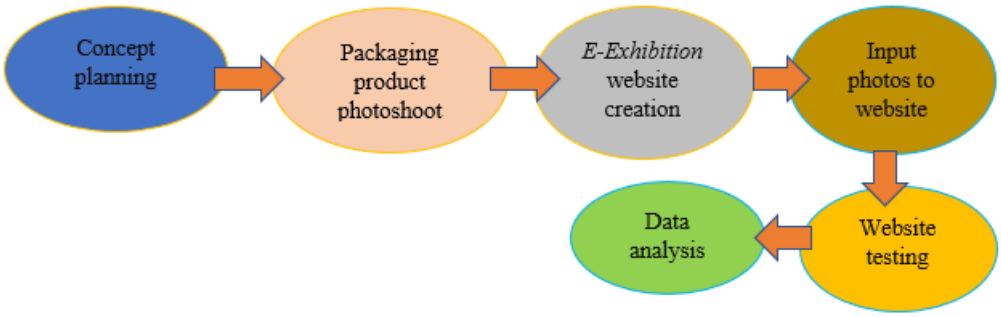


Fig. 2. Stages of Research Implementation

1. Concept Planning: Concept Planning: The first step is the preparation of the e-exhibition concept of packaged products. This planning starts with a team and meetings related to planning the presentation of content on the website.

2. Packaging product photoshoot: Student packaging products stored on the shelves of the Graphic Engineering Department are displayed in this way and look to be photographed. Photographs were taken from various angles to get the best photos as shown in Figure 3.

Fig. 3. Photographing packaging products

3. Creation of an e-exhibition website: The creation and development of this website has been made by a vendor.
4. Input product photos into the website: After the e-exhibition website is created, then the photos of packaged products are inputted to the website. Product input packaging is categorized based on the packaging material. For example, packaging made of paper, packaging made of glass, plastic packaging and others.
5. Testing the e-exhibition website: website testing is done to check whether the menus on the website are running well. Tests were carried out on several devices, including laptops, smartphones with various brands, and computers.
6. Data analysis: the test results in the previous process are displayed in the form of a pie chart to facilitate the process of drawing conclusions.

3 Result and Discussion

In this study, a selection of packaging products was carried out from all packaging products on the shelves of the Graphic Engineering department. This packaging product is the work of students of the Packaging Engineering Study Program under the Department of Graphic Engineering, State Polytechnic of Creative Media. After being selected, 23 of the best packaging products were obtained that were used in this research. The following are the 23 packaged products that have been selected.

Table 1. Selected and Photographed Packaged Products

Packaging Name	Product Photo	Packaging Name	Product Photo
AnZ		NF	
AT		OA	
AS		RS	
AiZ		RA	
AR		SK	
AOK		SW	
DS		SS	
IM		SZAP	
IP		TDM	
JCBG		TK	
LA		TN	
NT			

Table 1 shows that there are 23 products that have been selected. There are two packages made of glass, one product made of plastic and the other made of cardboard. Each package has a different size and shape. For glass packaging, the shape is cylindrical and plastic packaging is in the form of a standing pouch. Packaging is made of cardboard in the form of cubes, blocks, cylinders, and others. The design and color of each package also varies depending on the product being packaged. In the packaging of AnZ and RA, glass is used. In AnZ packaging, the product packaged is sauce. The sauce has a striking red color, so glass packaging was chosen. The glass has a transparent color so that the products packaged in it can be seen clearly. RA packaging is used to package coffee, so glass packaging is used. SZAP packaging is packaging made of plastic material. This packaging is in the form of a standing pouch. This packaging is used to pack chips. Chips require airtight packaging to keep them crispy. By using standing pouch plastic packaging, the chips are still crispy. In addition to the packaging already mentioned, the material used is cardboard. Some products packaged using cardboard include pizza (AR), biscuits (RS), coffee beans (OA), merchandise (NF), breads (TN), popcorn (SK), burgers (SS), and cookies (JCBG).

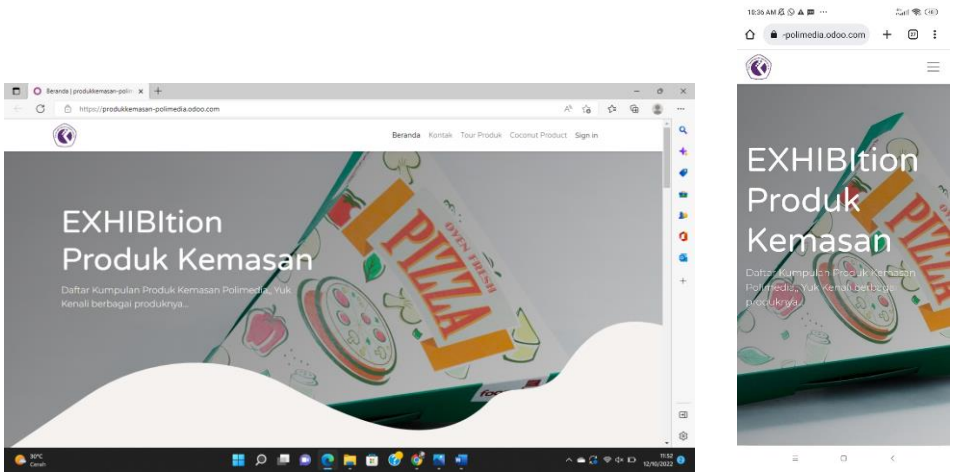
Photo shoots on selected packaged products have been carried out at the Photography Studio. Photographs are taken by professional photographers and they use photographic equipment to get good and interesting product photos. For each product, at least three sides of the photo are taken as shown in figure 4. This is done so that each side of the product is clearly visible. This is so that each side of the product is clearly visible.

Fig. 4. Three sides of the photo product

For this research, an e-exhibition website has also been produced. Making a website interface using odoo 13 as a tool for making order features.[7] In general, the virtual exhibition is the same with other exhibitions in general, only the products on display are virtual, as stated by Ciurea et al. [8] that the virtual exhibition is an effort to reconstruct 3D objects in the form of visualization of the environment in which the object is located. Virtual exhibitions are not limited by physical distance and time, unlike traditional exhibitions.[9]

The website link is https://produkkemasan-polimedia.odoo.com/. This website has exhibited as many as 23 packaging products made by Packaging Engineering students. This number can continue to grow if there are new products that are produced and deserve to be exhibited. The following is a display of the e-exhibition website that has been created. In Figure 5(a), the homepage of the e-exhibition website is shown when viewed using a PC. There are several menus that can be accessed including the homepage, contact, product tour, and sign in.

Meanwhile, in Figure 5(b), the e-exhibition website homepage is displayed when accessed using a smartphone.



(a) (b)

Fig. 5. Website Homepage (a) on PC and (b) Smartphone

The next stage is the testing phase of the e-exhibition website. There are two things to do, namely (1) validation by experts and (2) limited trial. In expert validation, this study involved an IT expert from the Graphic Engineering Department, State Polytechnic of Creative Media, namely Cholid Mawardi. The purpose of validation by this expert is to find out whether the medium that has been developed has met the requirements for testing or not. Expert validation was carried out using a closed questionnaire with a checklist format [10]. The result is as follows.

Table 2. Expert Validation Results

Rated Aspects	Expert value	Maximum value	Percentage	Description
Display design aspects	7	8	88%	Very good
System feasibility aspect	7	8	88%	Very good
Aspects of software engineering design	5	6	83%	Very good

Based on the validation results in table 2, the average validation results from experts is 86% and it belongs to the very good category [11]. After obtaining good results from the expert validators, the researcher prepares for a limited trial. The limited trial was carried out in the Introduction to Packaging Science class 1A. After the e-exhibition website developed was declared to be very good by experts, then the website was tested to measure the feasibility level of the website for students taking the Introduction to Packaging Science class 1A. The device used by students is a cellphone with an Android system. The researcher gave a questionnaire to

the sample that had been selected by the researcher. Respondents from this questionnaire amounted to 29 students. The result is as follows.

Table 3. Website Test Result

Criteria	Total
0-25	0
26-50	2
51-75	5
76-100	22

Based on this data, of all respondents, more than 3/4 (76%) are satisfied with the website that the researcher has developed both in terms of design, website flow and function. From these results, the researcher stated that the virtual exhibition concept deserves to be a platform that not only provides student works to be exhibited, but can also be developed for selling product works to industry and its reach can be expanded to an international scale.

4 Conclusion

Based on the results of the research on the design of the e-exhibition website, it can be concluded that (1) the development of the e-exhibition website was developed using the odoo 13 interface. (2) The product feasibility test was carried out by IT experts to obtain the average validation results from, expert is 86% and belongs to the very good category and product feasibility tests conducted by students get an average percentage of 76% which is included in the appropriate category for use. The results of this study (website e-exhibition) have the potential to be used as a platform to showcase the work of packaging engineering students and it can develop on the sale of products. This research needs to be continued to test the product on a wider scale with a larger and more diverse number of respondents.

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References

[1] M, Yusnita, Irwansyah: Perilaku dan Referensi Membaca di Kalangan Mahasiswa Universitas Indonesia. Jurnal Kajian Perpustakaan dan Informasi, vol 5, no 2, pp 187-198, (2020)

[2] Dobbs, Richard, et.all.: Digital Globalization: The New Era of Global Flows. McKinsey & Company, UK. (2016)

[3] Galin, D.: Software Quality Assurance From theory to implementation. Pearson Education, UK. (2004)

[4] H, Budiyanto, A.B. Setiawan, E.Winarsih, and M. Iqbal.: Virtual Expo UMKM dengan Atap Panggung Tiup: Sebuah solusi pameran dengan protokol covid-19 di kawasan perkotaan. Conference Universitas Merdeka Malang 2021. pp 256 – 262, (2021)
[3] C. Ciurea and F. G. Filip: Validation of a Business Model for Cultural Heritage Institutions, Economy Informatics, vol 19, no 2, pp 46-56, (2016)
[4] Baudrillard, J. : The Consumer Society: Myths and Structures, Sage Publishing, UK (2016)
[5] C. Ciurea, A. Zamfiroiu and A. Grous. :Implementing Mobile Virtual Exhibition to Increase Cultural Heritage Visibility", Informatica Economica Journal, vol. 18, no. 2, pp 24-31, (2014)
[6] S. Foo,: Online Virtual Exhibitions: Concepts and Design Considerations, Journal of Library and Information Technology, vol. 28, no. 4, pp 22-34, (2008)
[7] C. Mawardi, et. al,: Rancang Bangun Sistem Informasi Web to Print Terintegrasi Berbasis Enterprise Resource Planning (ERP) Menggunakan ODOO 13. Jurnal Ilmiah Komputasi, vol. 21, no. 2, pp 169-176, (2022)
[8] C. Ciurea and F. G. Filip,: Validation of a Business Model for Cultural Heritage Institutions, Economy Informatics, vol 19, no 2, pp 46-56, (2016)
[9] J. C. Lim, and S. Foo,: Creating Virtual Exhibitions from an XML-Based Digital Archives. Journal of Information Science, vol. 29, no. 3, pp 143- 157, (2003)
[10]M.A Damara, et. al.:Pengembangan Rancangan Pameran Virtual Berbasis Media Augmented Reality. Indonesian Journal of Curriculum and Educational Technology Studies IJCETS, vol. 6, no. 1, pp 33-40, (2018)
[11]Hennink, Monique, et. al.: Qualitative research methods. London: Sage Publishing, (2020)