

E-Portfolio Web-based for Students' Internship Program Activities

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Abstract. Internship program is an important part in vocational education process to improve the quality of competent graduates. The complete work documentation process in electronic portfolio (e-Portfolio) platform will facilitate students in reporting the results of their work to both university and industry supervisor. The purpose of this research is to create a more easily accessed e-Portfolio which is appropriate for students and supervisors' need in documenting their work and monitoring process. The method used in this research is fundamental research. This research is focused on the implementation of internship e-Portfolio features by demonstrating them to students who have conducted internship program. The result of this research is to create a proper web-based e-Portfolio which can be used to facilitate students in documenting the results of their work and aid supervisors in monitoring process during internship.

1. Introduction

Internship program is a kind of experimental learning in which students are required to apply the knowledge they have learned in the industry. Internship program is important for students as they will be able to integrate intellectual skills with live actions in real life, enhance critical thinking ability, communication, and better business capability [1][2].

Undoubtedly, internship program should be observed and assessed. Advisors are expected to the extent of students' development in the internship. Conversely, in Universitas Pendidikan Indonesia (UPI), the monitoring process is not entirely carried out. In fact, not all of the advisors visits internship program location and directly recognizes students' routine work achievement in the internship [3]. The restraints of distance, time and cost turn out to be the most common reasons. In the end, internship program is assessed based on students' final report only. However, the assessment during internship program is the most fundamental thing [4].

One of attempts considered effective to monitor students' tasks in internship program is to observe their portfolio during the internship. This portfolio consists of a collections of students' invention and work report throughout the internship program [5]. Every student is obliged to produce portfolio as a means of advising and monitoring to improve students' work in the internship [6].

For the reasons mentioned above, the authors create a platform of website-based electronic portfolio (e-portfolio) which is expected to offer solutions to these problems. This platform has been frequently used in advising process to directly measure students' work outcome during internship program [7]. E-Portfolio designed in this research acts not only as a platform to store and observe the result of daily



work reports, but also as a means for students so they can directly communicate with internship advisor and internship supervisor. The outcome of e-Portfolio planning will be tested and demonstrated towards students who have accomplished the internship program in UPI. This research aims to acquire information related to students' responses towards the system of documentation, as well as its operation, and accessibility of website-based e-Portfolio to be implemented in internship program activities.

2. System Design

This section will explain the system requirements and design as a whole that becomes the target of the research. The features provided in e-Portfolio are classified according to the needs of students, lecturers, and internship. Several standard criteria mandatory for e-Portfolio features intend to aid the three sides. E-Portfolio features should meet some criteria including it being website-based, effective to help students in documenting e-portfolio, easily accessed, and most importantly, user-friendly, and especially for students [8].

2.1. Entity Relationship Diagram (ERD)

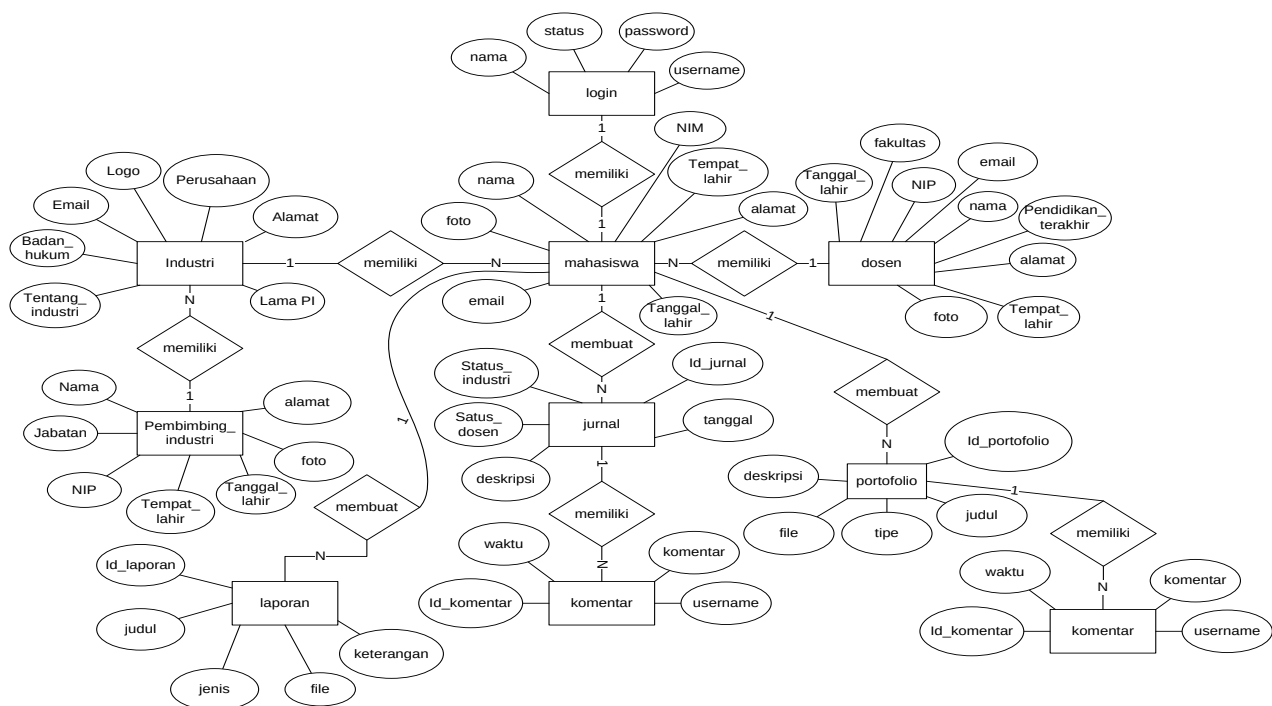


Figure 1. Entity Relationship Diagram (ERD)

Figure 1 describes the relation among the system users. An administrator manages the information system of internship program, every user and the entity of internship program system owns details of incoming portfolio. Table 1 defines the users, entity and attributes of the diagram.

Table 1. Attributes of Entity Relationship Diagram (ERD)

No	User/entity	Attribute
1	Lecturer	Nip, nama, tempat_lahir, tanggal_lahir, fakultas, pendidikan_terakhir, email, foto, alamat
2	Student	Nim, nama, tempat_lahir, tgl_lahir, alamat, foto, nip_dosen_pembimbing, email, id_perusahaan
3	Company supervisor	Nip, id_perusahaan, nama, tempat_lahir, tanggal_lahir, foto, posisi, email, alamat
4	Login	Username, password, status, nama
5	Journal	Id_jurnal, nim, tanggal, sts_dosen, sts_perusahaan, deskripsi
3	Portfolio	Id_portofolio, nama, nim, type, file, deskripsi
6	Comment	Id_komentar, id_jurnal, username, komentar, waktu
7	Report	Id_laporan, judul, nim, jenis, file, keterangan
8	Company	Id_perusahaan, nip_pembimbing, perusahaan, badan_hukum, email, alamat, pembimbing, logo, lama_prakerin, tentang

2.2. Interface

When the users access e-Portfolio, they will be welcomed with several pages showing how to-steps and facilities to operate the system and communicate among the users (student, lecturer, and internship supervisor). Each page of e-Portfolio is explained below:

a) Main Page

This page provides much information related to internship program guide, news/announcement related to the program, advisor, schedule, department contacts, and help. Every user can register and login to access his/her account in this main page.

**Figure 2.** Interface of Main Page Internship Program Portal**Figure 3.** Interface of Login Page of Internship Program Portal

Figure 2 is the most front page of internship program website, while figure 3 shows the starting page when users are about to login.

b) e-Portfolio Field

The students' page has an e-Portfolio field, in which students can upload files and outcome of students' work in the internship. The files uploaded to e-portfolio can come in various types; the extension types acceptable to upload are: .jpg, .jpeg, .doc, .xls, .ppt, .pdf, .mp4, etc. There are parts in e-Portfolio that should be comprehended by the users, students in particular, include types of buttons to upload files, e-Portfolio page to display the uploaded files, and comment field as a means of communication among students, lecturers, and internship supervisors.

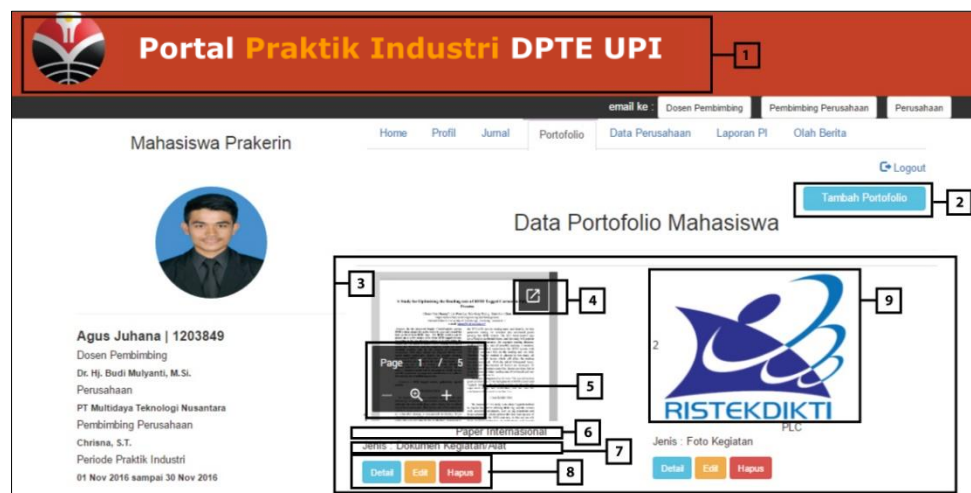


Figure 4. Interface of e- Portfolio Page

Figure 4 can be described as follows:

- 1) Main Header of Internship Program Portal.
- 2) Upload File button, this button opens folders in computer to choose the file which will be inserted into e-Portfolio. When the button is clicked, a new page will pop up as shown in figure 5.

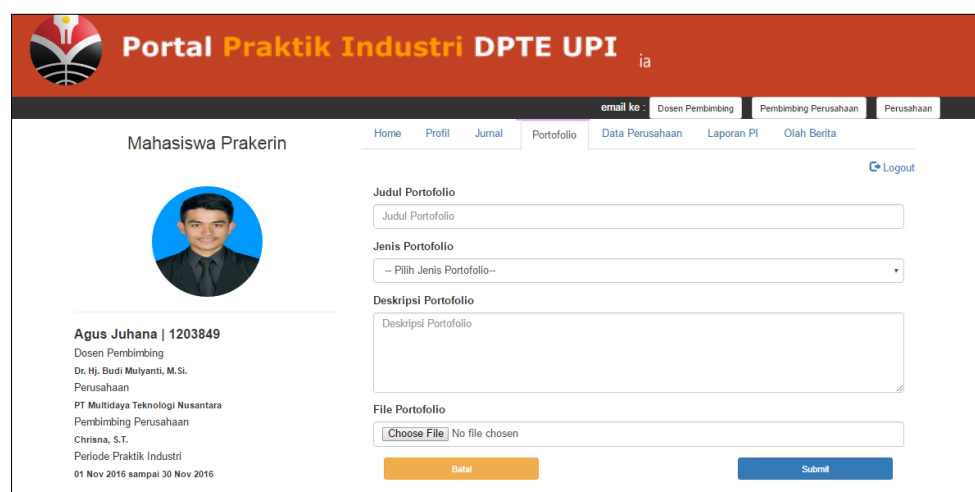


Figure 5. Interface of e-Portfolio File Upload Page

The display of figure 5 is the page in which the users can upload a file which will be included in e-Portfolio, firstly, the users should write the title of the file that will be uploaded, pick the file type, add a description, upload the file from computer, and then click finish.

- 3) Main Body of e-Portfolio, in this part, the successfully uploaded file will be displayed in the form of e-Portfolio.
- 4) Preview Pop-out button, when users click the preview button on one of the uploaded files, a new page displaying the file will show up.
- 5) Regular Preview button, this button can be used by the users to directly see the content of a file from the page without opening a new one.
- 6) The Title of the File, the file title which is shown in the same way as it is uploaded by the user in the e-Portfolio.
- 7) The Type of the File, this part describes the type of the file uploaded by the users. The file types provided by this system include tools/activities document, activities pictures, and activities videos.
- 8) Detail, Edit, and Erase button. The button detail functions to open the complete information about the file uploaded by students, and on this page, a comment field is also provided for them to have a discussion with internship advisor and internship supervisor. The detail page view is displayed on figure 6.

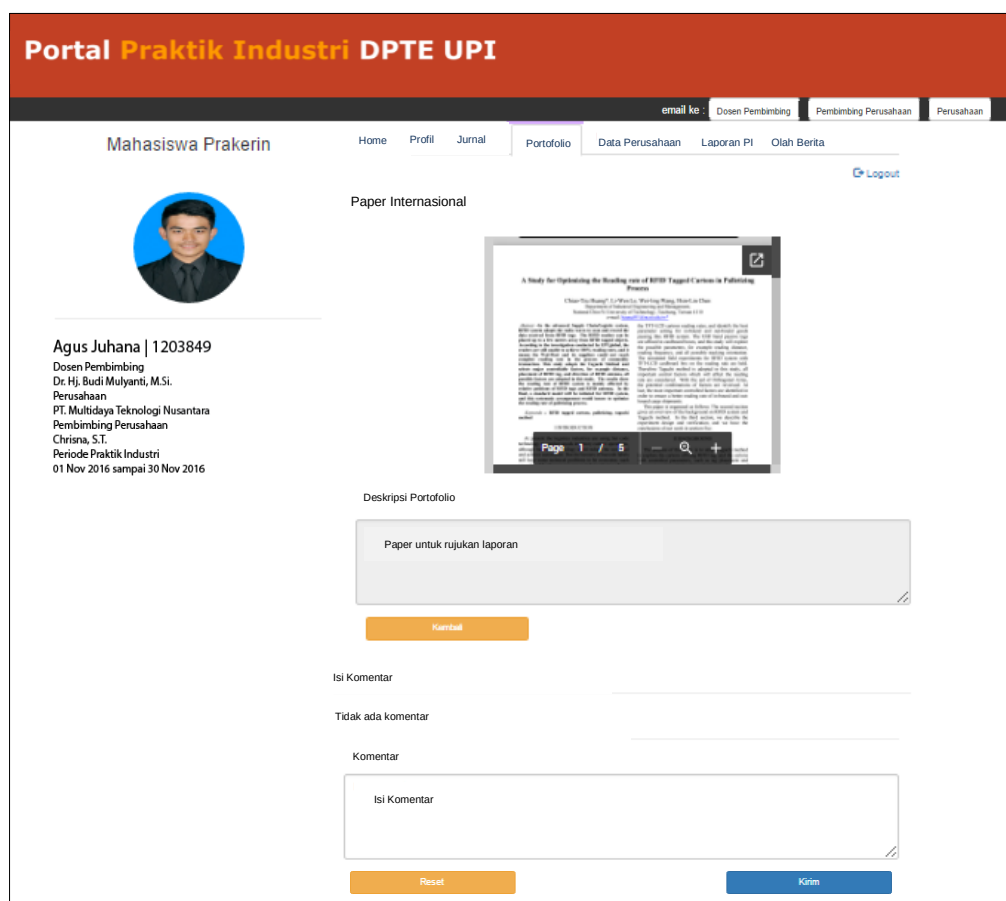


Figure 6. Interface of File Details Page on e-Portfolio

Isi Komentar

Agus Juhana

Assalamualaikum, Bapak-bapak yang saya hormati, mohon maaf sekali apabila saya mengganggu aktivitas bapak. Saya ingin bertanya frekuensi berapa saja yang digunakan RFID yang ada di pasaran yang mudah saya temukan?

2016-11-24 14:18:29

Dr. Hj. Budi Mulyanti, M.Si.

Band LF (Low Frequency), Frekuensi kerja RFID pada band LF ini terletak pada range frekuensi 125 KHz – 134 KHz. RFID dengan frekuensi kerja pada band LF dengan range frekuensi tersebut sering digunakan untuk keperluan penelitian tracking binatang dan tracking pengiriman suatu aset. Band HF (High Frequency), Frekuensi kerja RFID pada band HF terletak pada frekuensi 13,56 MHz. RFID dengan frekuensi kerja 13,56 ini digunakan di mana media data rate (TAG RFID) dan pembaca RFID (RFID Reader) berjarak sekitar 1,5 meter. RFID dengan frekuensi ini juga memiliki keuntungan karena tidak mengalami gangguan dari keberadaan air atau logam. Band UHF (Ultra High-Frequency), Range frekuensi RFID pada band UHF terletak pada range frekuensi 850 MHz – 950 MHz dan 2,4 GHz. RFID dengan frekuensi kerja pada band ISM UHF ini memiliki kecepatan pembacaan yang tinggi.

2016-11-24 14:22:31

Chrisna, S.T.

Alokasi frekuensi kerja RFID tersebut digunakan sebagai media komunikasi antara Tag RFID dan pembaca RFID (RFID reader). Pemilihan dari frekuensi kerja sistem RFID akan mempengaruhi jarak komunikasi, interferensi dengan frekuensi sistem radio lain, kecepatan komunikasi data, dan ukuran antena. Untuk frekuensi yang rendah umumnya digunakan tag pasif, dan untuk frekuensi tinggi digunakan tag aktif.

2016-11-24 14:25:34

Agus Juhana

Assalamualaikum, Bapak-bapak yang saya hormati, mohon maaf sekali apabila saya mengganggu aktivitas bapak. Saya ingin bertanya frekuensi berapa saja yang digunakan RFID yang ada di pasaran yang mudah saya temukan?

2016-11-24 14:25:49

Komentar

Isi Komentar

Reset

Kirim

Figure 7. Discussion among Student, Lecturer, and Internship Supervisor

The comment field on this page is beneficial for students as they can ask questions to, coordinate, and evaluate the results of their work with lecturer and internship supervisor. Figure 7 shows an example of discussion among student, lecturer, and internship supervisor. The edit button functions to alter data, description, and file details, while the erase button can be used to erase the unwanted data from being shown or stored.

- 9) The view of file first page. This part presents the first page or picture of the uploaded file, to allow the users to easily view the content of the file.

3. Methods

This research is conducted using fundamental research method started with literature study [9]. In this research, students are invited to discuss the information system of internship practice and to demonstrate/operate e-Portfolio. Based on the results of discussion and trial, various responses are collected regarding respondents' experience in using website-based e-Portfolio.

The data are collected from 25 students as respondents of Departemen Pendidikan Teknik Elektro Fakultas Pendidikan Teknik Elektro (DPTE FPTK) UPI from batches of 2012-2015 who have conducted internship program. The research instrument employed in this research is questionnaire. The questionnaire used is a closed-questionnaire, utilizing Likert scale. Instrument in this research is adapted from previous scientific journal references dealing with information system of internship program [10][11]. Next, the presentation of product quality predicate is designed based on Rating Scale measurement. Rating scale is the alteration of the collected data outcome from a quantitative one to a

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qualitative one [12]. Finally, the last process is to interpret the data in the form of discussion, findings and conclusion.

4. Results and Discussion

4.1. Result of System Analysis

Below is the results of planning and testing of internship program e-Portfolio at DPTE FPTK UPI. According to the system testing that has been conducted, the system is functionally ready to use and produce produces outcome which corresponds with what is expected. If the outcome of the system is compatible with the plan, then the system can be considered good [13].

4.2 Result of Data Analysis

4.2.1 Documenting e-Portfolio. Based on the data collected from 25 respondents, the results of questionnaire points regarding documenting internship program e-Portfolio at DPTE FPTK UPI are illustrated in table 2.

Table 2. Data of Students' Responses towards Documentation Process in Internship Program e-Portfolio at DPTE FPTK UPI

No	Question	Score					Grade (%)	Mean	SD
		1	2	3	4	5			
1	E-Portfolio helps me collect the outcome of the works during internship program.	0	0	4	19	2	78,4	3,92	0,493
2	E-Portfolio can reflect what I have learned in internship program.	0	1	9	11	4	74,4	3,72	0,792
3	Using e-Portfolio, I can integrate things I have learned (in internship program as well as university classes)	0	0	12	7	6	75,2	3,76	0,831
4	Using e-Portfolio, I can remember and revisit what I have learned during internship program.	0	0	2	18	5	82,4	4,12	0,526
5	Using e-Portfolio, I can summarize my learning contents gradually.	0	1	7	13	4	76	3,8	0,764
6	Using e-Portfolio, I can evaluate what I have done during internship program.	0	0	5	14	6	80,8	4,04	4,04
7	I can see mu development during internship practice and my personal development through e-Portfolio system.	0	0	6	13	6	80	4	0,676

Table 2 presents the average percentage of students' responses towards e-Portfolio documentation 78.17%. Regarding the percentage scored, it can be implied that e-Portfolio documentation process can be said as considerably good [12].

4.2.2 Operating e-Portfolio. The data collected on questionnaire points related to operating internship program e-Portfolio are displayed in table 3.

Table 3. Students' Responses in Operating Internship Program e-Portfolio at DPTE FPTK UPI

No	Question	Score					Grade (%)	Mean	SD
		1	2	3	4	5			
1	Generally, this e-Portfolio is easy to use/operate	0	0	5	16	4	79,2	3,96	0,73
2	I feel helped by the tools/facilities provided in this e-Portfolio	0	0	5	16	4	79,2	3,96	0,61
3	If there are problems in e-Portfolio then I will easily recognize the problems and how to solve them	0	1	16	6	2	67,2	3,36	0,7
4	The login process into e-Portfolio system is easy.	0	0	6	11	8	81,6	4,08	0,76
5	E-Portfolio system provides considerably required functions to document work during internship program.	0	0	5	17	3	78,4	3,92	0,57
6	The appearance of e-Portfolio is good and organized.	0	0	11	12	2	72,8	3,64	0,64
7	The file uploading process in e-Portfolio in internship program website can be performed effortlessly.	0	0	5	16	4	79,2	3,96	0,61
8	I can easily review my previous e-Portfolio in internship program website.	0	0	4	15	6	81,6	4,08	0,64
9	The logout process can be performed easily.	0	0	6	13	6	80	4	0,71
10	The appearance of e-Portfolio can simply be understood and operated.	0	0	9	13	3	75,2	3,76	0,66
11	The settings of e-Portfolio system can be configured according to my needs.	0	1	7	15	2	74,4	3,72	0,68

Table 3 shows the average percentage of students' responses in operating e-Portfolio is 77.16%. This result implies that the process of operating e-portfolio can be considered applicable [12].

4.2.3 The Accessibility of e-Portfolio. The data processing of questionnaire points to discover the accessibility of internship program e-Portfolio at DPTE FPTK UPI is shown in table 4.

Table 4. Students' Responses towards the Accessibility of Internship Program e-portfolio at DPTE FPTK UPI

No	Question	Score					Grade (%)	Mean	SD
		1	2	3	4	5			
1	It allows me to interact or consult online with lecturers and internship supervisors during the internship program	0	0	7	11	7	80	4	0,76
2	In this website, the reason and the aims of e-Portfolio is explicated	0	0	10	13	2	73,6	3,68	0,63
3	The contents of e-portfolio is orderly arranged and is helpful in the process of submitting work documentation	0	0	6	15	4	78,4	3,92	0,64
4	Using e-Portfolio, I can develop my potential and skills I have learned during the internship program, since my work documents can be reviewed and re-learned anytime	0	0	12	9	4	73,6	3,68	0,75
5	In e-Portfolio, my work documents can be observed anytime by the advisor	0	0	8	14	3	76	3,8	0,65
6	I can ask for feedback from university supervisors as well as internship supervisors regarding the work documents I uploaded in e-Portfolio	0	0	8	16	1	74,4	3,72	0,54
7	This e-Portfolio is an innovation which can help and benefit every side (students, university supervisors, and internship supervisors)	0	0	5	12	8	82,4	4,12	0,73

Based on table 4, it can be seen that the average percentage of students' responses towards the accessibility of e-Portfolio reaches the percentage of 76.91%. According to this result, it can be implied that the accessibility level of this e-Portfolio is feasible [12].

4.3 Discussion

The final result of this research shows that e-Portfolio features can be used according to the users' needs. Since the result of the system is in line with the plan, this system can be considered good [13]. The operation system of e-Portfolio is deemed easily accessed. Starting from the login process, operating the tools found in e-Portfolio, downloading and uploading process, filling comments, until logout process have been assessed in this e-Portfolio operation.

The last assessment from students concerns with the accessibility of e-Portfolio. Students testify that e-Portfolio is easily accessed; in these features, the organized content arrangement helps students in processing the data and the observation from lecturers. Basically, e-Portfolio features should be easily utilized for documentation process, easily accessed, operated, and developed [8].

5. Conclusions

According to the research which has been carried out, it can be concluded that an easily accessed information system poses as an important aspect when space and time hinder and limit the access of observation. According to the results of this research, e-Portfolio is highly recommended to overcome the problems. E-Portfolio system built in this website-based Internship Program Portal has been deemed applicable in documenting students' work outcome during internship program and useful in providing an effective means of consulting. Moreover, students' responses towards the operation of e-Portfolio are good and these features e-portfolio are all set to be applied in internship program activities. The accessibility of website-based e-Portfolio is considered to be user-friendly for students while operating the system as well as during interacting with university or internship supervisors.

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