Application of Electrical Technology Using Website as a Digital Communication Science Media Based on Information and Communication Technology at Amari Teaching and Learning Centre

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Abstract

Amari Teaching and Learning Centre (TLC), the community partnership empowerment program partner is located in South Meruya, West of Jakarta, which is active in the field of education in the form of A-package (elementary school education level) to C-package (high school education level). The number of teachers and educators is 8 persons and the current students have reached 101 male students and 43 female students. The problem experienced by the partners was that they did not have a website as a promotional medium. Thus, by integrating expertise and experience in organizational management and information and communication technology, targets were set, namely for: a) website development, b) training of teaching staff and administration staff, c) integration of technology in learning activities, d) strengthening website management capacity, e) strengthening partnerships and networks, and f) continuous monitoring and evaluation. The output is an increase in the understanding and skills of Amari TLC managers.

Keywords: community services, learning center, promotional website, teaching

Introduction

The rapid development of Information and Communication Technology (ICT) in the intelligent-digital era (Awan et al., 2021; Li et al., 2016; Wan et al., 2020; Wan, Zhang, et al., 2014; Wan, Zou, et al., 2014) has resulted in new challenges and developed manufacturing technology that has gradually become part of the field of science for industrialized countries. There are technical problems and characteristics of different information fields that must be solved to accelerate the construction of smart factories. Since this project is funded by the Ministry of Education, Culture, Research, and Technology through a community service grant program, it emphasizes the application of modern technologies to improve educational infrastructure. In particular, Amari Teaching and Learning Centre (TLC), which offers programs from A-Package (elementary school education level) to C-Package (high school education level), can benefit from the same principles applied in industrial research, namely creating a more adaptable, data-driven, and technologically advanced educational environment:

1. The acquisition of real-time information can be used to promote the Amari TLC regarding new student admission information, institution profile, program packages, and activity history within the Amari TLC (Budiyanto & Silalahi, 2023; Łabędzka, 2021).

2. Development of a hotspot network to support the improvement of network infrastructure in the Amari TLC environment (Lasi et al., 2014; Ma et al., 2022; Tiwari, 2021; Zhou, 2015).

3. Data analysis and mining can help in personalizing education, optimizing curriculum design, and ensuring active interventions for student support (Ma et al., 2022; Shaharuddin et al., 2021).

Figure 1 shows the existing learning atmosphere, where the learning is fully face-to-face, but to support the completeness of facilities or infrastructure programs, this Community Partnership Empowerment (CPE) program proposes (Simanjuntak et al., 2024; Silalahi et al., 2023a; Silalahi et al., 2023b):

1. Website development as a school promotion medium.

2. Development of a hotspot network to help the learning process to find learning reference books.

3. Improvement of human resources to train communication.

Fig. 1. Learning atmosphere at Amari TLC

Based on the results of the interviews conducted, the Amari TLC has the following resources:

1. Amari TLC has been accredited and Human Resources (HR) includes 3 male teachers, 4 female teachers, 1 staff (principal), with 101 male students and 43 female students.

2. The student's on-time graduation is 2 semesters. Each semester consists of 14 meetings, 1 mid-semester assessment meeting, and 1 final semester assessment meeting.

Based on the results of an interview with the partner, efforts were made for development and the urgent matter was to design a promotional website as a communication media at the Amari TLC. The Merdeka Belajar Kampus Merdeka (MBKM) program has become a milestone in the paradigm change of higher education in Indonesia, which is in accordance with Key Performance Indicators (KPIs) related to the focus of Community Services (CS). CPE activities with the Amari TLC show the relationship between MBKM and KPIs:

1. KPI-2: Students gain experience outside the campus

    a. Students are involved in website development in CS grants that integrate mobile system security and ICT strategy management courses.

    b. Students gain practical experience in designing, developing, and implementing information technology solutions that meet the needs of society.

2. KPI-5: The work of lecturers is used by the community or gets recognition

   a. Lecturers act as supervisors in website development.

   b. The output of CS grants can be disseminated to the wider community through national and international media, so that it can have a significant impact on the development of education and community empowerment.

3. Linkage with MBKM

   a. Students are able to develop skills and competencies, such as ICT skills, project management, and social skills.

   b. Students are able to expand their network and build relationships with partners and stakeholders in technology application projects.

4. Community empowerment and Key Performance Indicators (KPIs).

   a. The application of technology is able to improve the quality of service and information accessibility for the community.

   b. The use of websites is able to be more effective in disseminating information, as well as interacting with the public in a more inclusive and responsive manner.

Overall, this CPE program aims to provide direct benefits to partners, as well as produce students and lecturers who are creative, and care about social issues.

Methods

This CPE grant program has 2 (two) aspects of priority problems, namely the social aspect of the community and the management aspect. So, this program provides solutions, namely:

1. Management aspects (organizational structure):

   a. There is a lack of a clear division of duties and defined responsibilities for each member of the Amari TLC management.

   b. Limited knowledge and skills in management to manage Amari TLC effectively.

2. Social aspects of society (improvement of service quality):

   a. The quality of service is not satisfactory and responsive to the needs of learning participants.

   b. Limited knowledge of the use of technology and skills, including the use of websites as a digital communication medium.

The proposed method is based on the background and expertise of the proposer as follows:

1. Development of the Amari TLC website:

   a. Limitations of organizational structure: Lack of clear division of duties and defined responsibilities for each member of the Amari TLC management.

   b. Lack of managerial skills in management to manage effectively.

2. Training of teaching staff and staff:

   a. The field of electrical engineering prepares and holds training for teachers and staff of Amari TLC regarding the use of the website as a promotional medium and a tool to support teaching and learning activities.

   b. The field of communication science provides training related to organizational management, including the division of duties and responsibilities in website management, to ensure operational efficiency and effectiveness.

3. Strengthening partnerships and networks:

   The fields of electrical engineering and communication sciences work together in building partnerships with educational institutions, governments, and related industries to support website development and technology application at the Amari TLC.

Results and Discussions

Activity Result

Community service activities were carried out on Saturday, August 31, 2024 starting from 09.00 – 14.30 WIB as shown in Figure 2.

Fig. 2. Community service activities documentation

Website Improvement

Furthermore, website development activities were carried out on Wednesday, October 2, 2024, starting from 09.00 – 12.00 WIB as shown in Figure 3. The website development that the community service team designed had been installed and had been optimized for use very well. The improvement of the manager's ability to organize and publish the latest information has also been very good.
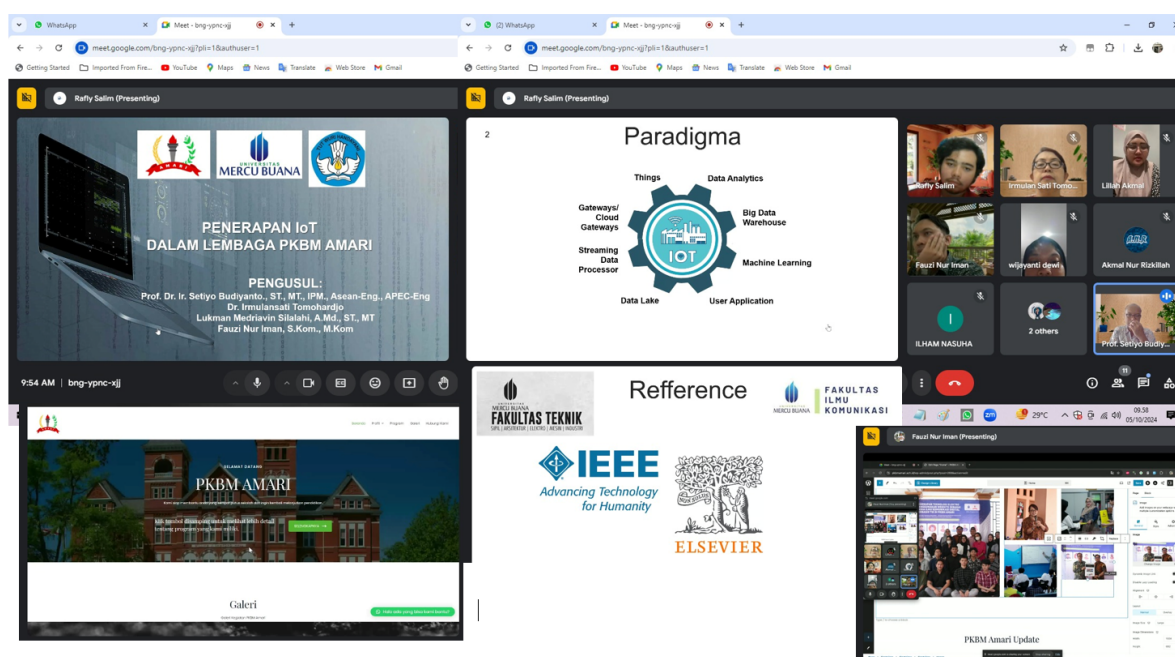
Fig. 3. Activity of website development

Analysis

The activity ran very smoothly and was appreciated very well by the partners, this can be noted in Figure 4. The results of filling out the questionnaire conducted by the Amari TLC participants were based on questions given on a scale of 1 (bad) to a scale of 4 (very good).

The results of this activity were carried out using a survey given in several questions shown in Figure 5. The analysis showed that 79.47% of the participants showed enthusiasm and expressed seriousness in participating in CS program activities, 20.53% of them showed beyond expectations and satisfaction.

No.	Name	Questionnaire Questions																										Sum	Score
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26		
1	edwardsjah Rizky Wahyudi	2	3	3	3	2	2	2	3	3	3	3	3	3	3	3	3	3	2	3	4	2	3	4	2	2	2	72	69,23
2	Muhamad Fadly	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	104	100
3	Sarah praditya febriani	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	78	75
4	SITO NUR OKTAVIANA	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	104	100
5	Salwaa Aliyatus salsalbila	3	2	3	2	2	2	2	2	2	2	2	3	2	3	2	3	2	3	3	2	3	2	3	2	3	2	62	59,62
6	Alamsyah Ramadhan	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	78	75
7	Rizki Ade Aprilia	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	3	4	4	4	102	98,08
8	Akmal Nur Rizkillah	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	104	100
9	mohammad arief sofyan	3	3	3	4	4	3	4	4	4	4	4	3	1	1	4	4	1	1	4	3	3	3	4	4	4	4	84	80,77
10	Muhammad Alfarizy	2	1	3	2	3	3	2	2	4	4	3	2	3	3	3	3	3	2	3	3	3	3	3	3	3	3	72	69,23
11	SITO NUR OKTAVIANA	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	104	100
12	Diah ayu Kusuma ningrum	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	104	100
13	Nabila adz zahra	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4			103	99,04
14	Muhammad azril	2	2	3	3	3	3	2	3	2	3	2	3	2	3	2	3	2	3	2	2	3	2	1	2	2	3	63	60,58
15	edwardsjah Rizky Wahyudi	3	4	3	4	4	4	4	4	2	3	3	1	1	3	3	3	4	4	4	3	2	4	1	4	4	4	83	79,81
16	Rizky Ade Saputro	4	4	3	3	4	4	3	4	3	4	2	2	3	4	2	2	2	3	4	3	4	3	3	4	4	3	84	80,77
17	Achmad zairul	3	4	2	4	4	4	4	3	3	4	4	4	2	2	2	2	2	2	2	2	2	3	2	2	3		77	74,04
18	ANA OKTA VIANA	3	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	2	2	3	3	2	2	3	2	2	2	70	67,31
19	Ilah nurkholillah	2	3	3	3	3	2	3	3	3	3	2	2	2	2	3	3	3	3	3	3	2	3	3	3	3	3	68	65,38
20	Dra Hj.Dahlia	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	78	75
21	Sarmilih	3	1	3	3	3	3	4	4	3	4	1	3	3	3	2	3	3	3	1	3	3	3	2	3	3	3	73	70,19
22	Ridwan	2	2	2	2	2	2	2	2	2	2	3	3	1	1	3	3	1	1	1	1	3	3	3	1	1		52	50
23	Gabriel Kristofer Theodore	2	3	3	3	3	3	4	4	3	3	4	4	3	2	4	4	3	3	4	4	3	3	2	2	3	3	82	78,85

	Average	82,65	79,47
	Min	52,00	50,00
	Max	104,00	100,00
	Std	15,98	15,36
	Var	255,24	235,98

Fig. 4. Questionnaire result

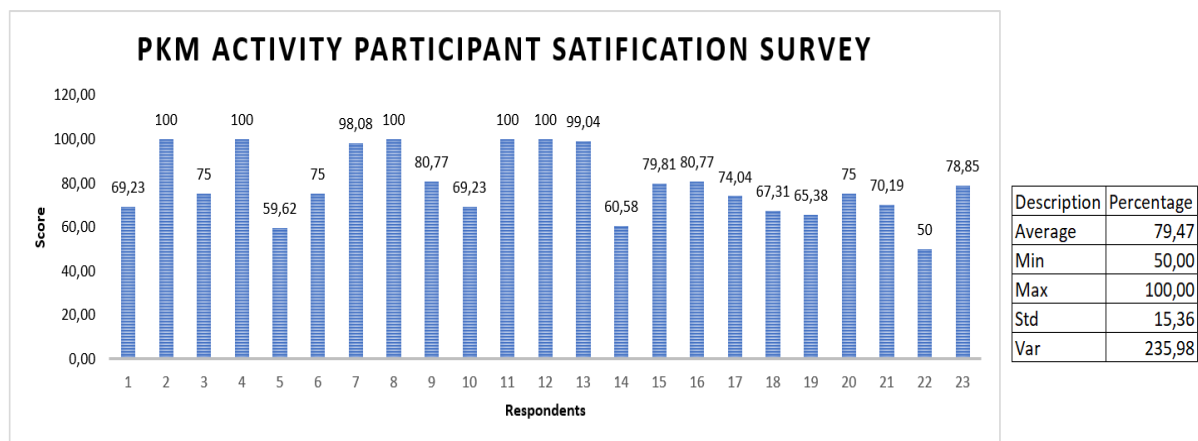| Description	Percentage
Average	79,47
Min	50,00
Max	100,00
Std	15,36
Var	235,98

Fig. 5. Questionnaire results

Conclusion

Based on the results of the evaluation of the activities that have been carried out, it was concluded that 70% of the participants gave satisfactory and expected responses to the implementation of the CS grant program. Furthermore, participants were able to understand

the definition, variety of applications, and simple training on the application of website management.

Acknowledgements

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