

Utilization of Microsoft Teams as an Online Learning Media at Universitas Sebelas Maret, Surakarta

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Abstract: This study aims to see how the Microsoft Teams application was utilized as learning media at Universitas Sebelas Maret (UNS), Surakarta. The problem found during the COVID-19 pandemic is that many educators/lecturers still experience difficulties using online learning media, one of which is using Microsoft Teams, which lecturers have not widely utilized. The research method used was descriptive qualitative. The research subjects were 20 lecturers who taught courses from several study programs within UNS. Data collection methods were through 1) filling out a questionnaire about the difficulty level, accessibility, and layout of Microsoft Teams; 2) interviews were conducted to obtain direct information from respondents to reinforce the questionnaire; 3) literature study and documentation. The results uncovered that 93% of respondents had no difficulty building, managing, organizing, and conducting virtual classroom activities using Microsoft Teams. According to 88% of respondents, accessibility to devices owned by respondents and internet connectivity were good and could run smoothly. The Microsoft Teams layout also received a good rating from 92.5% of respondents (lecturers) as Microsoft Teams users.

Keywords: Microsoft Teams, Office 365, LMS, Learning Media

Abstrak: Penelitian ini bertujuan untuk melihat bagaimana pemanfaatan aplikasi Microsoft Teams sebagai Media pembelajaran di Universitas Sebelas Maret Surakarta. Metode penelitian yang digunakan adalah kualitatif deskriptif. Subyek penelitiannya dua puluh dosen pengampu matakuliah dari beberapa program studi di lingkungan Universitas Sebelas Maret. Metode pengumpulan data melalui 1) pengisian angket tentang tingkat kesulitan, aksesibilitas dan layout Microsoft Teams. 2) wawancara dilakukan untuk mendapatkan informasi langsung dari responden untuk memberikan penguatan terhadap pengisian angket. 3) studi pustaka dan dokumentasi. Hasil penelitian menunjukkan bahwa 93% responden tidak mengalami kesulitan dalam membangun, mengelola, mengatur dan melakukan aktiivitas kelas virtual menggunakan Microsoft Teams. Aksesibilitas terhadap perangkat yang dimiliki responden dan konetivitas internet menurut 88% responden menyatakan baik dan dapat berjalan dengan lancer. Tata letak Microsoft Teams juga mendapat penilaian yang baik dari 92,5% responden (dosen) sebagai pengguna Microsoft Teams.

Kata Kunci: Microsoft Teams, Office 365, LMS, Media Pembelajaran

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INTRODUCTION

The COVID-19 pandemic that has hit Indonesia for the past two years has changed almost all long-standing habits. One of the activities that experienced a considerable change in habits was the teaching and learning process in schools and universities. The COVID-19 pandemic has also affected almost all fields, one of which is education. Face-to-face learning, usually held before the COVID-19 pandemic, can no longer be done. Likewise, learning at Universitas Sebelas Maret (UNS) must be online.

Learning at UNS during the COVID-19 pandemic was conducted online through various application facilities, officially provided by UNS and held by each lecturer according to their technical capabilities. Based on the Rector's Circular Number 13/UN27/SE/2020, the Learning Management Systems (LMS) provided by UNS are the Open Course Ware (OCW) and the UNS Online Learning System (Spada). The online learning system at UNS itself has been stipulated in the Rector's Regulation of the Universitas Sebelas Maret (UNS) Number 1 of 2020, explaining that the function of SPADA is as a supplement, complement, or substitute for conventional learning and as a supporter of the implementation of distance learning programs in universities (Ngadimin, Sakroni, & Wahyuningsih, 2022). During an emergency, online learning through Spada and OCW can serve as a substitute for face-to-face learning. However, due to the substantial number of resources, both subjects and students who access it, access to the LMS cannot run properly. The digital literacy of lecturers is also influential on the course of online learning at UNS. UNS has conducted various efforts to improve the quality of online learning through training, mentoring, and consultation on the use of LMS, both Spada, and OCW. In addition, alternative uses of other applications are also provided, such as Google Classroom, Microsoft Teams, Edmodo, Zoom, and others.

Moreover, the public better knows online learning with electronic learning (e-learning). E-learning is a distance learning process that combines principles in the learning process with technology (Chandrawati, 2010). According to Moore, Dickson-Deane, and Galye (2011), quoted by Ali Sadikin et al., online learning uses the internet network with accessibility, connectivity, flexibility, and the ability to bring up various types of learning interactions (Sadikin & Hamidah, 2020). Research conducted by Zhang et al. (2004) also showed that using the internet and multimedia technology could change how knowledge is delivered and could be an alternative to learning conducted in traditional classrooms. Online learning also can bring together students and lecturers to carry out learning interactions with the help of the internet (Kuntarto, 2017).

Online learning can also maximize technology as a medium to achieve learning goals. Through technology devices already widely owned by lecturers and students, including increasingly cheap smartphones, tablets, laptops, and internet networks, learning activities can be designed synchronously or asynchronously. Specifically, synchronous learning is a learning-oriented interaction facilitated by direct, real-time, and usually scheduled instructions (Suranto, 2009). Online synchronous learning is also different from ordinary learning. The learning activities are carried out by utilizing electronic devices, especially computers, smartphones, or tablets, supported by an internet connection and carried out in real time in different places between teachers and students, and students do not need to gather in the same place. Examples of online synchronous learning are teleconference and chat. A teleconference is an interaction between students and teachers using video/audio conference facilities and is conducted in real time. Meanwhile, chat is a short message using computer network technology that allows the user to send text messages to other users who are connected to the internet. Thus, chatting is a two-way communication carried out simultaneously in different places with internet facilities. Students can also use chatting in learning to consult with teachers about the learning material being implemented.

On the other hand, according to Ryan K. Ellis, LMS is software for administrative purposes, documentation, finding materials, reporting on an activity, and providing training materials and online teaching and learning activities connected to the internet (Ryan, 2009). LMS is used to create web-based online learning materials and manage learning activities and outcomes. This LMS is often referred to as an e-learning platform or learning content management system (LCMS). In essence, LMS is an application that automates and virtualizes the teaching and learning process electronically.

Since the COVID-19 pandemic, online learning system platforms have been sought after and used by both lecturers and teachers to carry out learning, such as Moodle, Google Classroom, Edmodo, Microsoft Teams, Zenius, Zoom Meeting, and others (Nuriansyah & Fazar, 2020). The readiness of educators and students to utilize learning technology, especially at the higher education level, is also relatively good, and its quality continues to improve. However, online learning content still needs to be improved to make it more interactive, thus enabling students to be more involved in the learning process (Situmorang, Microsoft For Education sebagai Media Pembelajaran Interaktif Meningkatkan Minat Belajar, 2021). Firman and Sari also stated that online learning is an activity that requires an internet network with connectivity, accessibility, flexibility, and the ability to bring up diverse types of learning interactions (Firman & Sari, 2020). In addition, learning to use media and multimedia in the globalization era is vital; by utilizing learning media, the learning process will be better (Wirza & Ofianto, 2021). By utilizing advances in communication technology, the use of online learning media in the learning process can also maximize the learning implementation, affecting the material delivery, assigning assignments, and administering exams (Mushfi, 2019). Online learning also has the advantage of being able to foster self-regulated learning. Further, online applications can increase learning independence (Okinish, Wahyuningsih, & Suyoto, 2019).

Several studies have been conducted on the use of Microsoft Teams as an online learning platform, stating that Microsoft Teams was good and had a positive effect when used as an online learning medium. The research results by Nur Atiyatun Nafisah et al. entitled "*The Effectiveness of the Implementation of Microsoft Teams Applications on Economic Learning Outcomes of High School Students*" showed that the effectiveness of using Microsoft Teams in learning was in a good category, and the Microsoft Teams platform affected learning outcomes significantly (Nafisah & Fitrayati, 2021). Moreover, in a study by Bagus Cahyanto et al. (2020) on the online learning implementation during the COVID-19 pandemic, the results revealed that online learning carried out by utilizing Microsoft Teams could run well (Cahyono & Maghfirah, 2021). Adi Suarman Situmorang also researched at the Mathematics Education Study Program, FKIP, UHN Medan, with the research title "*Microsoft Teams for Education as an Interactive Learning Media Increases Interest in Learning*." Microsoft Teams for Education was in the "very good" category since 94 out of 110 students or around 85.46% of students, achieved high scores (≥ 75). The percentage increase in student interest in learning before and after each indicator was 49.22%, 49.48%, 49.48%, and 52.34% (all categories were very good). It indicates that learning using Microsoft Teams for Education was very good for increasing students' interest in learning (Situmorang, 2021). From the research results conducted in schools with elementary, secondary, and higher levels, the use of Microsoft Teams as a learning medium gave positive results, despite several technical and non-technical obstacles encountered during implementation.

Microsoft Teams is one part of the Microsoft Office 365 application which can be used as an online learning media and LMS. In addition, it can also be integrated with the UNS Online Learning System (SPADA), which some UNS lecturers currently utilize for online learning. The existence of Microsoft Teams is expected to increase the accessibility of SPADA UNS since it can reduce the server load. Now, UNS has collaborated with Microsoft Indonesia by deploying Microsoft Office 365 so that Office 365 accounts can be obtained and used for free for learning purposes. UNS Office 365 account is xxx@365.uns.ac.id. Microsoft has also made it easy for educational institutions with particular

domains for educational institutions, such as <https://xxx.sch.id> or <https://xxx.ac.id>, to activate Microsoft accounts without having to deploy first.

Furthermore, currently available resources support the implementation of using Microsoft Teams as an online learning medium at UNS because all UNS academics, including lecturers, educational staff, and students, have emails with the domains xxx@staff.uns.ac.id and xxx@student.uns.ac.id. With this email, all academics can activate their Microsoft account independently, whether lecturers, educational staff, or students. Even though the resources are already available, the utilization of Microsoft Teams as an online learning medium has not yet been maximized. One of the obstacles causing the lack of utilization of Microsoft Teams is the lack of socialization of Microsoft accounts and not knowing how to use them. For this reason, this study aims to determine the feasibility of Microsoft Teams as an online learning medium in universities, with indicators of difficulty level, layout, and accessibility of Microsoft Teams when used as an online learning medium in universities.

METHOD

This research was conducted at the Center for Information Technology Development for Learning (PPTluP), Institute for Development and Quality Assurance of Education, UNS. The research subjects were lecturers from several study programs within UNS. The research began with training on using the Microsoft Teams application as an online learning medium for the lecturers who taught courses for three days.

The research method used was descriptive qualitative. This method was employed in accordance with the research objectives, exploring and describing a natural condition that emphasizes the process, meaning, and understanding in the form of words (Bogdan & Biklen, 2007). To obtain data related to this study, the researchers used data collection instruments. Data collection instruments are defined as tools selected and used by researchers to collect data so that these activities become systematic and facilitated by them (Arikunto S. , 2010). The data collection instruments utilized were questionnaires, interviews, literature studies, and documentation. In this case, interviews with respondents aimed to gain reinforcement from the questionnaire results and obtain direct information from respondents regarding the use of Microsoft Teams as an online learning medium.

Furthermore, the rating scale utilized a Likert scale, including four assessment indicators, i.e., SS: Strongly Agree, S: Agree, TS: Disagree, and STS: Strongly Disagree (Amelia Damayanti, 2020). According to Sugiyono, the Likert scale measures attitudes, opinions, and perceptions of a person or group of people about social phenomena (Sugiyono, 2013).

Then, the data analysis technique used in this research was technique triangulation. To obtain valid research data, data analysis was carried out through the stages of data reduction, presentation, verification, and drawing conclusions (Miles, Huberman, & Saldana, 2014). Data reduction was made by simplifying and accumulating data obtained through questionnaires about the difficulty level, accessibility, and layout of Microsoft Teams. It was followed by data presentation and information compilation. The results of these observations were then compared with the results of interviews and literature studies to determine whether Microsoft Teams was feasible for use as an online learning medium at Universitas Sebelas Maret, Surakarta.

RESULTS AND DISCUSSION

Use of LMS during the COVID-19 pandemic

One of the media used for online learning during the COVID-19 pandemic at Universitas Sebelas Maret, Surakarta, was Microsoft Teams. Microsoft Teams is a unified communication and collaboration platform that combines learning features, and a discussion space that allows educators to create vibrant learning environments, build collaborative classrooms and connect within a community of learners and colleagues in one place and free for educators and students (Microsoft, 2022). Microsoft Teams is integrated with the Microsoft Office 365 product suite, such as Microsoft Word, Microsoft Excel, Microsoft PowerPoint, and others, and can be operated anywhere, anytime, and with any media as long as it is connected to the internet. Document collaboration can also be used for consulting assignments, undergraduate theses, theses, and dissertations online and in real-time. In the world of education, Microsoft Teams can also be used as a medium for designing digital classes or better known as virtual classes. In addition, Microsoft Teams is designed to make it easier for teachers and students or lecturers and college students to communicate and collaborate, resulting in better learning outcomes.

Moreover, the features provided by Microsoft Teams to build a virtual classroom are complete. Utilizing the Microsoft Teams application allows all class members, lecturers, and students, to communicate, collaborate, and conduct all learning activities in one application and integrated with various other applications (Sakroni & Ngadimin, 2022). Some advantages of Microsoft Teams as a distance learning medium include 1) free education with standard applications; 2) there is a free Meet (video conference) feature that can accommodate up to 250 participants; 3) using Microsoft servers, so schools do not need to provide their servers; 4) can be integrated with other LMS applications already owned by the school; 4) easy to share files and collaborate; 5) easy to control students through attendance facilities; 6) easy in giving assessment both assignments and quizzes; 7) can be accessed with various media; 7) integrated with other Microsoft applications, such as Microsoft Word, Microsoft PowerPoint, Microsoft Excel, and others.

The Microsoft Teams application is also based on a cloud system, one of the applications integrated with Microsoft Office 365. Every user, who has activated a Microsoft account with an educational institution email, will receive one terabyte of cloud storage (cloud computing). With this feature, educational institutions implementing Microsoft Teams do not have to provide their servers. Cloud system-based computer technology is also a technology that makes the internet a central server for managing user data and applications (Sudarmoyo, 2018).

To implement Microsoft Teams in these educational institutions, schools, or colleges, they must have a website with the domain xxx.sch.id or xxx.ac.id. Lecturers and students must also have the same institutional account according to the domain. Although this application has many advantages and can be used for free by lecturers, in fact, many lecturers have not used this application. From the research results, Microsoft Teams users at UNS were still deficient.

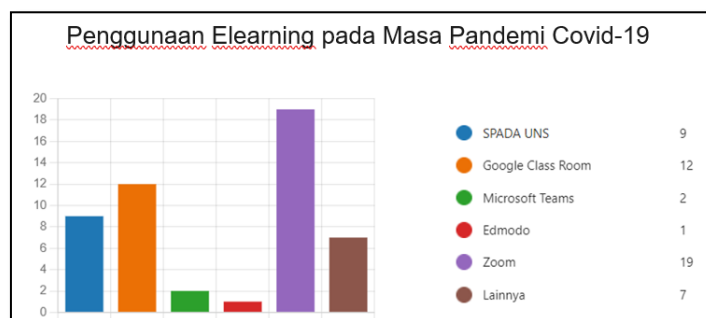


Figure 1. Graph of e-learning users

The graph above reveals the use of online learning applications when the teaching and learning process should be done online. Most lecturers did learning through Zoom Meet. Zoom Meet is a teleconference service application with the main features of communication via remote video and chat or text during a teleconference. Zoom Meet cannot be categorized as an LMS. Zoom Meet is still being facilitated by UNS to be used by all lecturers in learning as a substitute for face-to-face learning. Meanwhile, Google Classroom was the second choice widely used by lecturers to conduct online learning. Then, the UNS LMS Online Learning System (Spada), managed by UNS itself, became the third choice. Next, Microsoft Teams at UNS had only around 6.45% of users compared to other LMS users outside of Zoom Meet, which was still a long way off.

Further, the utilization of the Microsoft Teams application had not been maximized due to several things: 1) there was no socialization of the use of Microsoft Teams to lecturers and students; 2) it had not been integrated with the UNS LMS Spada; 3) there were no regulations requiring the use of any of the LMS, including Microsoft Teams; 4) the academic community felt they did not have an account to access Microsoft Teams.

Managing Classes with Microsoft Teams

Building a virtual class using Microsoft Teams is actually not that difficult. Within Microsoft Teams, four categories of teams can be created: classes, PLCs, staff members, and anyone. These categories of teams can be used according to the team's needs to be made. For learning purposes, a lecturer must choose a class category. This category will provide classrooms for lecturers to provide learning to students. Here are several things lecturers need to do in managing virtual classrooms with Microsoft Teams: creating classes, managing class settings, adding other students and lecturers to the class, uploading lecture materials, conducting interactive discussions, and distributing, reviewing, and grading assignments. In addition, classes in Microsoft Teams are commonly referred to as Teams.

To determine the difficulty level of the Microsoft Teams application as an online learning medium, the authors first conducted a study by providing training to 20 respondents. The respondents were UNS lecturers who had never used Microsoft Teams as an online learning medium. The study results were obtained as follows:

Table 1. Difficulty Level of Using Microsoft Teams

Statement	Results			
	SS	S	TS	STS
I have no trouble creating classes in Microsoft Teams.	30%	60%	10%	
Posting course material in text, video, audio, images, and links to Microsoft Teams is easy.	35%	65%		
I do not have any difficulties when creating tasks in the assignment feature.	30%	65%	5%	
I do not have any difficulty grading student assignments.	35%	60%	5%	
I do not have trouble doing a video conference with the Meet feature.	25%	70%		5%

Based on the table, with an indicator of the difficulty level of 93.75%, respondents stated that they did not experience significant difficulties when managing virtual classes with Microsoft Teams, starting from creating classes, organizing classes, and giving student assignment assessments. Meanwhile, 6.25% of respondents stated that they had difficulties when they had to build a virtual class. In interviews with respondents who had trouble using Microsoft Teams, among other things, it was said

that Microsoft Teams has many unfamiliar terms and features different from other LMS, so they must adapt to existing features and take time to understand the learning system with Microsoft Teams. Meanwhile, other respondents gave positive responses, stating that Microsoft Teams allowed lecturers and students to stay in touch virtually directly with the Meet feature and could continue discussions in one room after the virtual meeting. Lecturers could also monitor and track student activities in class on assignment collection, discussion, assessment with quizzes, and at the same time, providing feedback. Interestingly, Microsoft Teams is integrated with applications from Microsoft often used, such as Microsoft Word, Microsoft Excel, Microsoft PowerPoint, and others.

Microsoft Teams, as an online learning medium, can provide convenience and flexibility in communicating and collaborating between class members. This application can be used on devices that most lecturers and students currently have. The existing devices have provided space for lecturers and students to interact without experiencing significant obstacles. Microsoft Teams can also be accessed through the website or desktop version with PC/laptop devices based on Windows or Mac or smartphones/tablets based on Android or IOS. The Microsoft Teams website version can be accessed through various browsers on the user's device without having to download and install it on the device. This website version of Microsoft Teams can be accessed via <https://teams.microsoft.com> or <https://office.com>. To facilitate access to Microsoft Teams as an online learning medium, it is recommended to use the desktop version. The desktop version for PC devices based on Windows and Mac Operating Systems can be downloaded at <https://teams.microsoft.com/downloads>. Meanwhile, the mobile version can be downloaded on the Play store for Android-based smartphones and the App Store for IOS-based smartphones. These distinct options make it easy for users, lecturers, and students, to choose their equipment to conduct the learning process well. The following is a table of research results with Microsoft Teams accessibility indicators.

Table 2. Accessibility of Microsoft Teams

Indicator	Results			
	SS	S	TS	STS
Access via Laptop and PC is good and convenient.	50%	45%	5%	
Access via smartphone/gadget is smooth and comfortable.	40%	60%		
The loading process when using Microsoft Teams is smooth.	30%	40%	25%	5%

The Microsoft Teams accessibility indicator aimed to determine the respondents' experiences using Microsoft Teams. Table 2 displays that, in general, Microsoft Teams could be used well on all devices, including laptops, personal computers, and smartphones (gadgets). However, 5% of respondents had difficulty accessing it using a laptop, while 95% ran smoothly when accessing Microsoft Teams with a laptop or smartphone device.

The accessibility of Microsoft Teams during the loading process also obtained a different response. As many as 30% of respondents stated that the loading process was not smooth. Through interviews, several respondents stated that accessing Microsoft Teams was too heavy. However, 40% of respondents said that access to Microsoft Teams was good and smooth, and even 30% of respondents admitted that access to Microsoft Teams was very good. In addition, the Microsoft Teams problem did not occur for all users.

In most cases, the problem appears when installing Microsoft Teams or using Microsoft Teams for the first time. It is caused by the application configuration that does not meet the recommendations specified by Microsoft, or the device does not support Microsoft Teams access. Some problems that

often arise when accessing Microsoft Teams can be seen in Table 3 regarding accessibility issues, along with troubleshooting codes and actions quoted from the <https://support.microsoft.com> page.

Table 3. Microsoft Teams Access Problems

Code	Description	Troubleshooting actions
0xCAA20003	You have an authorization problem.	Make sure the date and time configuration is correct. Configuring the date and time will affect your device's ability to access Microsoft Teams securely.
0xCAA82EE2	The request has timed out.	Make sure your device is connected to the internet. Then, ensure the firewall configuration does not prevent access to Microsoft Teams.
0xCAA82EE7	The server name could not be found.	Make sure your device is connected to the internet. Then, ensure the firewall configuration does not prevent access to Microsoft Teams.
0xCAA20004	Your request needs to be approved by the resource owner or authorization server.	Contact your IT admin, so they can confirm that your organization complies with the Azure Active Directory (AAD) configuration.
0xCAA90018	You are not using the proper credentials.	The Windows credentials you are using are different from your Microsoft 365 credentials. Try logging in again with the correct email/password combination. Please get in touch with your IT admin if you continue to receive this status code.
No code	You need to re-enter the PIN using a smart card.	Reinsert your smart card. Also, your smart card certificate may be corrupted; in this case, contact the IT admin.

Furthermore, the display of learning media is one of the attractions for users. An attractive display will determine whether the user uses the media. The current learning media also needs to be adapted to learning development so that learning participants or students do not experience difficulties in learning and are not bored. According to Thorn, quoted by Sumardiono, several criteria for evaluating multimedia learning media include ease of navigation, cognitive content, information presentation, media integration, art and aesthetics, and overall function (Sumardiono, 2012). Table 4 presents the assessment results through a questionnaire by users on the display or layout of Microsoft Teams.

Table 4. Microsoft Teams Display or Layout

Statement	Results			
	SS	S	TS	STS
Visually clear and structured (artistic and aesthetic)	20%	80%		
User-friendly (easy navigation)	25%	70%	5%	
Easy to integrate with other applications (media integration)	30%	50%	20%	
The overall function works well.	35%	60%	5%	

Based on the assessment of artistic and aesthetic aspects, ease of navigation, ease of integration with other media, and overall function, 92.5% of respondents gave a good score, and only 7.5% showed a bad score. Through interviews, several respondents stated that Microsoft Teams had a good and dynamic layout since the display, layout, and language can be changed according to the user's wishes. Microsoft Teams also supports user mobility because Microsoft Teams provides a desktop version that can be installed on various devices, whether laptops, smartphones, or tablets, making it easy to use whenever and wherever the user is. It then made it easier for lecturers to work in all conditions.

CONCLUSION AND SUGGESTIONS

Based on the study results, which began with training on the use of Microsoft Teams to respondents, it can be concluded that Microsoft Teams is feasible for use as an online learning medium. Of the three indicators studied, the results were positive on the possibility of using Microsoft Teams as an online learning medium in universities, especially at Universitas Sebelas Maret, Surakarta.

Based on this study's results, some suggestions can be put forward. 1) The use of online learning media, e-learning, or LMS, needs to continue to be developed even though learning has taken place face-to-face. 2) Training and socialization of the use of learning media to lecturers to improve digital literacy need to be held on an ongoing basis. 3) Microsoft Teams, an integrated part of Office 365, can be widely used at UNS by activating institutional accounts independently, both lecturers and students.

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