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ARTIKEL JURNAL INTERNASIONAL

Judul artikel : Challenges in Creating an Innovative and Effective Online Learning Platform in
Indonesia

Jurnal : IOSR Journal of Research & Method in Education (IOSR-JRME), 2021, Volume 11(5),
40-44

Penulis sebagai : Correspondence Author

No	Perihal	Tanggal
1.	Bukti konfirmasi submit artikel dan artikel yang disubmit	16 Oktober 2021
2.	Bukti konfirmasi pemberitahuan artikel masuk dalam proses peer review	17 Oktober 2021
3.	Bukti konfirmasi hasil review (Review Report) dan submit hasil revisi	18 Oktober 2021
4.	Bukti konfirmasi pemberitahuan pembayaran (Payment Credited)	21 Oktober 2021
5.	Bukti konfirmasi artikel published online	23 Oktober 2021
6.	Bukti konfirmasi untuk modification query dan artikel yang dimodifikasi	26 Oktober 2021

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Challenges in Creating an Innovative and Effective Online Learning Platform in Indonesia

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Abstract

The study aimed at investigating challenges faced by teachers and students in online learning in order to create an innovative and effective online learning platform. Thematic analysis of qualitative research design was applied to analyze answers from 50 teachers and 50 students taken by using random sampling technique from 10 different secondary schools in Semarang, Central Java, Indonesia. In-depth interview was used to collect data. The findings showed many obstacles and shortcomings which can be classified into some categories; the availability of gadget, connection issues, LMS content issues, performance issues, and the last is interaction issues. Some suggestions such as; requiring supporting devices, such as computers, laptops, and smartphones to be able to use the LMS, accessing the LMS which required a stable and good internet connection, how to use a feature more clearly, so that users can easily understand how to use the feature. The ability to search for wider material or information through the platform/LMS well. Interaction between pairs and among group work also need to be huge consideration. In terms of metacognition, there is lack of materials to work on problems which can lead students to have good competency at the 21st century skills. Therefore, by investigating these challenges and solutions, the teachers or educators will be able to design an innovative and effective SLS which is suitable in order to gain maximum outcome for teaching learning to face the global challenges of the 21st century skills. in order to create online learning platform.

Key Word: *challenges; Online learning; platform; innovative; effective*

I. Introduction

Covid-19 pandemic has raised a fundamental issue in education sector. Students are forced to do their learning activities at homes through online learning with the so-called Learning Management System (LMS) so as not to create crowd among students that can spread the disease. The breakthrough of using LMS is urgently required to boost the outcome of teaching learning¹. By using LMS, the issue is not yet to end. The actual situation is opposite to the law of national education system which stated that "Education is a conscious and planned effort to realize the learning atmosphere and learning process so that learners actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals, as well as the skills necessary for themselves, society, nation and state."² The researchers had observed that the weakness in one-way teaching method is still widely applied by educators in Indonesia. Some students reported teachers who only send materials and assignments into LMS without guidance which makes them feel frustrated and confused. On the other hand, what is faced by secondary teachers in Semarang, Central Java, Indonesia, they still have difficulty in utilizing the LMS both synchronous and asynchronous.

Face to face teaching learning or what is so called synchronous in the classroom is no more or rarely carried out due to the prediction that this teaching learning process would create crowd among students that may cause the rapid transfer of the virus from the infected students to non-infected ones. That is why to avoid creating a crowd, instead of synchronous, asynchronous teaching learning is quite essential. Using LMS, the process of teaching and learning activities can be combined between face-to-face learning (synchronous) and online learning (asynchronous) without seeing each other physically.

LMS is actually part of what is so called Smart Learning System (SLS). SLS is an e-learning engine system that can assist teachers in organizing teaching activities in schools with the help of Multimedia computers that are connected to the network (online), and are supported by a connection to the internet network. So that the process of teaching and learning activities can be combined between face-to-face learning (synchronous) and online learning

(asynchronous). The things covered in the SLS are as follows: 1. LMS (Learning Management System) engine is a software application for documentation, administration, tracking, reporting of training programs, online classes and activities, e-learning programs, and training content. 2. CMS (Content Management System) is software used to add and/or manipulate (change) the content of a website. Generally, a CMS (Content Management System) consists of two elements: Content management application (Content Management Application, [CMA]), Content delivery application (CDA). 3. SMS (School Management System) is an application that functions to manage the activities/activities of the learning process of a school, it consists of several applications that support such as User Administration, Hierarchical Groups Admin, Personal Calendar, School Calendar, Survey, Email, Private Messaging, Discussion Forum, and Suggestion Box.³

Nowadays, the advance of creating an innovative and effective online learning platform is way more urgently required to boost the outcome of teaching learning. However, the provided platforms are felt to be difficult and complicated that students are discouraged to operate them. Therefore, it is a necessity for teachers to create a simple but effective application for online learning. With this urgency, this current research was aimed at investigating challenges faced by teachers and students in online learning in order to create an innovative and effective online learning platform. The benefit of this research is that with the availability of this issue, the teachers or educators will be able to design SLS which is suitable in order to gain maximum outcome for teaching learning to face the global challenges of the 21st century skills, such as complex problem-solving.

II. Review of Literature

Challenges

According to Kobasa, challenge is a tendency to view a change in his life as something natural and can anticipate these changes as a very useful stimulus for development and view life as an exciting challenge. Individuals who have challenges are dynamic people and have the ability and desire to move forward. Individuals who have a strong challenge personality will easily find easier ways to eliminate or reduce stressful situations and perceive stress not as a threat but as a challenge.⁴ Cognitively, individuals with high challenge aspects have flexibility in their behavior so that they can integrate and assess threats from new situations effectively. This cognitive flexibility makes him trained to respond to unexpected events as a problem or challenge that needs to be overcome. Thus, they view life as a fun challenge.

Learning Management System (LMS) vs. Smart Learning Management System (SLMS)

The difference between LMS and SLMS is that LMS do not contain smart features as well as they do not have facilities to follow the learner's behavior to enable instructor to come up with new smart learning contents which suit the need of the learners.⁵ LMS is an e-learning engine system that can assist teachers in organizing teaching activities in schools with the help of Multimedia computers that are connected to the network (online), and are supported by a connection to the internet network. So that the process of teaching and learning activities can be combined between face-to-face learning (synchronous) and online learning (asynchronous).

What is meant by Synchronous learning is online conversation and video conferencing. Learning tools are used in real-time, such as instant messaging that supports students and teachers to ask and answer questions immediately and synchronously (at the same time). Synchronous mode instills a sense of community through collaborative learning.⁶ While Asynchronous learning on the other hand can be done even when students or teachers are offline. Courses and communications delivered via email and messages posted on community forums are perfect examples of asynchronous learning. Asynchronous environments provide students with readily available material in the form of audio/video lectures, handouts, articles and power point presentations. This material is accessible anytime anywhere via Learning Management System (LMS) or other channels of the sort.⁶

III. Material And Methods

This research used qualitative research design since qualitative research is descriptive in what the researcher is interested in process, meaning, and understanding gained through word or picture.⁷ Hence, the researchers wanted to investigate challenges in creating an innovative and effective online learning platform. The population of this research is 198 secondary schools in Semarang, Central Java, Indonesia. The sample of 50 teachers and 50 students

were taken using random sampling technique coming from 10 different secondary schools. In collecting data, researchers conducted in-depth interview to obtain information about the challenges dealing with their experience using LMS for the past two years. The data that were generated in this research is in the form of descriptive qualitative data. Qualitative data were obtained through data reduction and presentation from interview. The data then were used in compiling a report on the results in accordance with the research objectives in the form of descriptive analysis using thematic analysis.

IV. Findings and Discussion

The objective of the current research is to investigate teachers' and students' challenges dealing with their experience using LMS in order to create an innovative and effective online learning platform. Some applications or platforms were mentioned by the participants during the interview, they were: Google Classroom, Google meet, Google Form, Google Suite for Education, Moodle, Whats'App Group, Zoom, Microsoft 365 (Microsoft Teams), Quizizz, Quipper, SPESIX LMS, Instagram, Youtube, Live Worksheet, Private E-Learning from school, Edmodo, Therefore, the results involved challenges and solutions delivered by teachers and students' point of view based on their experience past two years.

The Availability of Gadget

For student users, it turns out that cellphone or laptop with sufficient specifications of support for various online learning platform applications is only about 60-70% of which the specifications are supported. This situation results slow feedback from students, so the teacher's difficulties are also more complete. It is even more problematic if each teacher uses a different platform that requires students to be able to access or install it, with sub-standard cellphone specifications (1-2GB RAM, below 6GB internal) obviously making the cellphone slow. On the other hand, to demand cellphone or laptop upgrade is clearly impossible because the effects of the pandemic are also spreading to the family's economic impact.

Some students are late in collecting assignments because their cellphones are brought by their parents. Students who change cellphone numbers will not get free quota from the Ministry of Education and Culture, so they often run out of quota.

In terms of using Google Classroom application, some students are unable to access it because of the limitations of the Android phones they have.

Some students stated that they need to share the cellphone and laptop with their siblings. It happens all the time when they must leave the online room before it finishes because at the same time they need.

Connection Issues

In terms of signal, there is unstable network which sometimes makes the students not able to join the class and get nothing at the end of the lesson. For example, using Google form for the test, if there is a network problem and the student exits the test, then the answers that have been inputted will be lost, and they will have to start again from the beginning. When the teachers use Zoom meetings or other video conference, the problem that arises is that the signal must be strong, otherwise the account will be automatically out of the room.

LMS Content Issues

Since most of the applications are not able to cover all of the materials, they do not fully understand the materials when the teacher does not give any explanation synchronously. They also do not understand the functions of the available features. On the other hand, some said that the feature is still simple, there are not many modifications that can be done on the LMS. The impact is that students become bored with how it looks.

Assignments that are too late can still be sent by students, so there are still students who send assignments out of the specified time.

As the LMS application is increasingly difficult for students to access because they have to enter a special code that must be guided one by one and some students have not been able to have the code.

A bit complicated in operation, because the application display is not as simple as other applications, and temporarily can only backup asynchronous activities, not until it can be used for synchronous activities.

Performance Issues

When the students were asked about how is the performance of the applications/ platforms, the answer is mostly unattractive display, large amount of storage, cannot view material when offline, incomplete features and a lot of instability when sharing screen and sound, not yet available data-saving features and often make the cellphone wasteful of battery. Moreover, they cannot be used to explore the sources of material needed by students independently, so students only refer to the sources of material provided by the teacher, and make students tend to be bored.

The load of cellular data quotas that must be accessed was too large, cannot provide values and recaps directly, lack of facilitating effective 2-way communication, networks and systems, in terms of the template, it is not attractive, errors often occur on the platform used, do not understand the steps, the facilities are a bit boring, google form sometimes error, there is no report menu to parents, there is no late information when students work late, no can be used for private chat for discussion/ others, students are only partially active.

There is no notification if the teacher gives assignments. For group assignments, both large and small, it has not been facilitated, lack of its skills, in the assessment of descriptions it is rather difficult to use, zoom is a bit lacking satisfactory in the number of participants, some students have not been able to use it.

Frequent errors to access the LMS require a stable and good signal and internet connection. Less able to implement real-time interaction between teachers and students. Requires supporting devices, such as computers, laptops, and smartphones to be able to use LMS. Google forms are not able to accommodate the form of dialogue questions, so screenshots must be taken and this process is less effective. Maybe because there are some students who still find it difficult to access the platform due to personal constraints. Google Meet cannot be accessed by some students whose cellphones do not support the application.

For zooming separately because we use the free one, the shortage is a matter of time, sometimes in the middle of explaining the material the time is over. On the quizz platform, in my opinion, it is less effective for some students because the presence of a timer per question makes students seem to be in a hurry to determine the answer. On the google form platform, sometimes there are questions with long answer options in the form of pictures, making it difficult for students to read the sentences/answers in each option. It would be nice if long answers, typed manually.

A teacher once delivered her thought, "In my opinion, students are not very enthusiastic about taking teaching and learning process, maybe because I am not able to use LMS optimally."

The v-con feature of G Meet is incomplete, and the host is less flexible in managing participants. So, our school has to use the paid V-con Zoom Meeting Premium for daily learning activities.

Online learning to students by using Whats'App for student study assignments that the teachers share stacked with student comments, if comments are turned off then students will be confused to ask if have difficulty doing the task.

Once tried to use the Google Form application for the implementation of student assessments, the problem that arises is that the form of the question can only be obtained with multiple choice questions, if the question is filled in or described then the answer is less than 1 letter or the wrong letter only the value does not appear and finally it is a hassle.

Interaction Issues

In terms of interaction, the applications only provide one-way communication. They are lack of teacher and student's interaction as well as student and student's interaction also group interaction. Interaction only can be achieved by doing video conference (synchronous) using Zoom, Google Meet, and so on which required big quota. It is impossible to use them every day.

Suggestions

After all the challenges described above, some suggestions delivered by the participants also displayed in the following sub topic. In order to achieve the learning outcome, there are some criteria that must be applied by the applications, they are: easy to use, can be accessed anywhere, more effective, simple, can be easily used by more than one account, improve signals, must be wide open source and unlimited time user, send assignments/materials easily, added new features to make it more attractive and keep away boredom as well as equipped with facilities/ menus that make students not bored in the teaching and learning process but do not require too much storage on the cellphone or laptop. Increase the security of each platform so that no one can hack, increase speed in operation.

Encouraging students to do independent learning, making it easier for teachers to collect and analyze student learning outcomes data in less time. Keep running discussions and virtual teaching and learning. Teachers or instructors can still provide material explanations and provide teaching materials even though virtually, train students to think more critically and creatively. One of the way is by developing new features, where with these features can lead students to think more critically and can communicate in terms of learning better. Develop new learning methods with capable video tools and meet compliance and accessibility standards.

Performing platform/LMS updates by more maintaining the progress of the existing platform, involving teachers who teach in making the platform. It is also possible to develop a new model that is interesting and does not make students bored and bored. More features on the platform/LMS will be developed so that students who access it can be interested and enthusiastic to participate in learning effectively. Students and teachers can be active in learning using applications that can develop students to master IT. So, learning content for students can be well documented, including several types of files such as audio; visual; and others, easy to use, easy to give to students. More lighten the use of data, can be used anywhere.

The last suggestion is very crucial, the application or platform must provide space for two or more ways of interaction. Instead of only have interaction between one teacher and one student, it also needs to provide space for interaction to work in pairs or in group.

V. Conclusion

LMS is an e-learning machine system that can assist teachers in conducting teaching activities in schools with the help of multimedia computers that are connected to the network (online), and supported by a connection to the internet network. The research findings showed that they are still many obstacles and shortcomings which can be classified into some categories; the availability of gadget, connection issues, LMS content issues, performance issues, and the last is interaction issues.

There are also some suggestions delivered by the participant such as; requiring supporting devices, such as computers, laptops, and smartphones to be able to use the LMS, accessing the LMS which required a stable and good internet connection, how to use a feature more clearly, so that users can easily understand how to use the feature. The ability to search for wider material or information through the platform/LMS well. Interaction between pairs and among group work also need to be huge consideration. In terms of metacognition, there is lack of materials to work on problems which can lead students to have good competency at the 21st century skills, one of them is complex problem solving.

Therefore, by investigating these challenges and solutions, the teachers or educators will be able to design an innovative and effective SLS which is suitable in order to gain maximum outcome for teaching learning to face the global challenges of the 21st century skills. in order to create online learning platform.

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Challenges in **Creating an** Innovative and Effective Online Learning Platform in Indonesia

Suwandi¹, Senowarsito², Sukma Nur Ardini³

^{1,2,3}(English Education Study Program, Universitas PGRI Semarang, Indonesia)

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Date of Submission: 09-10-2021

Date of Acceptance: 23-10-2021

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This research used qualitative research design since qualitative research is descriptive in what the researcher is interested in process, meaning, and understanding gained through word or picture.⁷ Hence, the researchers wanted to investigate challenges in creating an innovative and effective online learning platform. The population of this research is 198 secondary schools in Semarang, Central Java, Indonesia. The sample of 50 teachers and 50 students were taken using random sampling technique coming from 10 different secondary schools. In collecting data, researchers conducted in-depth interview to obtain information about the challenges dealing with their experience using LMS for the past two years. The data that were generated in this research is in the form of descriptive qualitative data. Qualitative data were obtained through data reduction and presentation from interview. The data then were used in compiling a report on the results in accordance with the research objectives in the form of descriptive analysis using thematic analysis.

IV. Findings and Discussion

The objective of the current research is to investigate teachers' and students' challenges dealing with their experience using LMS in order to create an innovative and effective online learning platform. Some applications or platforms were mentioned by the participants during the interview, they were: Google Classroom, Google meet, Google Form, Google Suite for Education, Moodle, WhatsApp Group, Zoom, Microsoft 365 (Microsoft Teams), Quizizz, Quipper, SPESIX LMS, Instagram, Youtube, Live Worksheet, Private E-Learning from school, Edmodo, Therefore, the results involved challenges and solutions delivered by teachers and students' point of view based on their experience past two years.

The Availability of Gadget

For student users, it turns out that cellphone or laptop with sufficient specifications of support for various online learning platform applications is only about 60-70% of which the specifications are supported. This situation results slow feedback from students, so the teacher's difficulties are also more complete. It is even more problematic if each teacher uses a different platform that requires students to be able to access or install it, with sub-standard cellphone specifications (1-2GB RAM, below 6GB internal) obviously making the cellphone slow. On the other hand, to demand cellphone or laptop upgrade is clearly impossible because the effects of the pandemic are also spreading to the family's economic impact.

Some students are late in collecting assignments because their cellphones are brought by their parents. Students who change cellphone numbers will not get free quota from the Ministry of Education and Culture, so they often run out of quota.

In terms of using Google Classroom application, some students are unable to access it because of the limitations of the Android phones they have.

Some students stated that they need to share the cellphone and laptop with their siblings. It happens all the time when they must leave the online room before it finishes because at the same time they need.

Connection Issues

In terms of signal, there is unstable network which sometimes makes the students not able to join the class and get nothing at the end of the lesson. For example, using Google form for the test, if there is a network problem and the student exits the test, then the answers that have been inputted will be lost, and they will have to start again from the beginning. When the teachers use Zoom meetings or other video conference, the problem that arises is that the signal must be strong, otherwise the account will be automatically out of the room.

LMS Content Issues

Since most of the applications are not able to cover all of the materials, they do not fully understand the materials when the teacher does not give any explanation synchronously. They also do not understand the functions of the available features. On the other hand, some said that the feature is still simple, there are not many modifications that can be done on the LMS. The impact is that students become bored with how it looks.

Assignments that are too late can still be sent by students, so there are still students who send assignments out of the specified time.

As the LMS application is increasingly difficult for students to access because they have to enter a special code that must be guided one by one and some students have not been able to have the code.

A bit complicated in operation, because the application display is not as simple as other applications, and temporarily can only backup asynchronous activities, not until it can be used for synchronous activities.

Performance Issues

When the students were asked about how is the performance of the applications/ platforms, the answer is mostly unattractive display, large amount of storage, cannot view material when offline, incomplete features and a lot of instability when sharing screen and sound, not yet available data-saving features and often make the cellphone wasteful of battery. Moreover, they cannot be used to explore the sources of material needed by students independently, so students only refer to the sources of material provided by the teacher, and make students tend to be bored.

The load of cellular data quotas that must be accessed was too large, cannot provide values and recaps directly, lack of facilitating effective 2-way communication, networks and systems, in terms of the template, it is not attractive, errors often occur on the platform used, do not understand the steps, the facilities are a bit boring, google form sometimes error, there is no report menu to parents, there is no late information when students work late, no can be used for private chat for discussion/ others, students are only partially active.

There is no notification if the teacher gives assignments. For group assignments, both large and small, it has not been facilitated, lack of its skills, in the assessment of descriptions it is rather difficult to use, zoom is a bit lacking satisfactory in the number of participants, some students have not been able to use it.

Frequent errors to access the LMS require a stable and good signal and internet connection. Less able to implement real-time interaction between teachers and students. Requires supporting devices, such as computers, laptops, and smartphones to be able to use LMS. Google forms are not able to accommodate the form of dialogue questions, so screenshots must be taken and this process is less effective. Maybe because there are some students who still find it difficult to access the platform due to personal constraints. Google Meet cannot be accessed by some students whose cellphones do not support the application.

For zooming separately because we use the free one, the shortage is a matter of time, sometimes in the middle of explaining the material the time is over. On the quizz platform, in my opinion, it is less effective for some students because the presence of a timer per question makes students seem to be in a hurry to determine the answer. On the google form platform, sometimes there are questions with long answer options in the form of pictures, making it difficult for students to read the sentences/answers in each option. It would be nice if long answers, typed manually.

A teacher once delivered her thought, "In my opinion, students are not very enthusiastic about taking teaching and learning process, maybe because I am not able to use LMS optimally."

The v-con feature of G Meet is incomplete, and the host is less flexible in managing participants. So, our school has to use the paid V-con Zoom Meeting Premium for daily learning activities.

Online learning to students by using Whats'App for student study assignments that the teachers share stacked with student comments, if comments are turned off then students will be confused to ask if have difficulty doing the task.

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Interaction Issues

In terms of interaction, the applications only provide one-way communication. They are lack of teacher and student's interaction as well as student and student's interaction also group interaction. Interaction only can be achieved by doing video conference (synchronous) using Zoom, Google Meet, and so on which required big quota. It is impossible to use them every day.

Suggestions

After all the challenges described above, some suggestions delivered by the participants also displayed in the following sub topic. In order to achieve the learning outcome, there are some criteria that must be applied by the applications, they are: easy to use, can be accessed anywhere, more effective, simple, can be easily used by more than one account, improve signals, must be wide open source and unlimited time user, send assignments/material easily, added new features to make it more attractive and keep away boredom as well as equipped with facilities/ menu that make students not bored in the teaching and learning process but do not require too much storage on the cellphone or laptop. Increase the security of each platform so that no one can hack, increase speed in operation.

Encouraging students to do independent learning, making it easier for teachers to collect and analyze student learning outcomes data in less time. Keep running discussions and virtual teaching and learning. Teachers or instructors can still provide material explanations and provide teaching material even though virtually, train students to think more critically and creatively. One of the ways is by developing new features, where with these features can lead students to think more critically and can communicate in terms of learning better. Develop new learning methods with capable video tools and meet compliance and accessibility standards.

Performing platform/LMS updates by more maintaining the progress of the existing platform, involving teachers who teach in making the platform. It is also possible to develop a new model that is interesting and does not make students bored and bored. More features on the platform/LMS will be developed so that students who access it can be interested and enthusiastic to participate in learning effectively. Students and teachers can be active in learning using applications that can develop students to master IT. So, learning content for students can be well documented, including several types of files such as audio; visual; and others, easy to use, easy to give to students. More lighten the use of data, can be used anywhere.

The last suggestion is very crucial, the application or platform must provide space for two or more ways of interaction. Instead of only have interaction between one teacher and one student, it also needs to provide space for interaction to work in pairs or in group.

V. Conclusion

LMS is an e-learning machine system that can assist teachers in conducting teaching activities in schools with the help of multimedia computers that are connected to the network (online), and supported by a connection to the internet network. The research findings showed that they are still many obstacles and shortcomings which can be classified into some categories; the availability of gadget, connection issues, LMS content issues, performance issues, and the last is interaction issues.

There are also some suggestions delivered by the participant such as; requiring supporting devices, such as computers, laptops, and smartphones to be able to use the LMS, accessing the LMS which required a stable and good internet connection, how to use a feature more clearly, so that users can easily understand how to use the feature. The ability to search for wider material or information through the platform/LMS well. Interaction between pairs and among group work also need to be huge consideration. In terms of metacognition, there is lack of material to work on problems which can lead students to have good competency at the 21st century skills, one of them is complex problem solving.

Therefore, by investigating these challenges and solutions, the teachers or educators will be able to design an innovative and effective SLS which is suitable in order to gain maximum outcome for teaching learning to face the global challenges of the 21st century skills. in order to create online learning platform.

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Suwandi, et. al. "Challenges in Creating an Innovative and Effective Online Learning Platform in Indonesia." *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 11(05), (2021): pp. 40-44.

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Challenges in Creating an Innovative and Effective Online Learning Platform in Indonesia

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Abstract

The study aimed at investigating challenges faced by teachers and students in online learning in order to create an innovative and effective online learning platform. Thematic analysis of qualitative research design was applied to analyze answers from 50 teachers and 50 students taken by using random sampling technique from 10 different secondary schools in Semarang, Central Java, Indonesia. In-depth interview was used to collect data. The findings showed many obstacles and shortcomings which can be classified into some categories; the availability of gadget, connection issues, LMS content issues, performance issues, and the last is interaction issues. Some suggestions such as; requiring supporting devices, such as computers, laptops, and smart phones to be able to use the LMS, accessing the LMS which required a stable and good internet connection, how to use a feature more clearly, so that users can easily understand how to use the feature. The ability to search for wider material or information through the platform/LMS well. Interaction between pairs and among group work also need to be huge consideration. In terms of metacognition, there is lack of materials to work on problems which can lead students to have good competency at the 21st century skills. Therefore, by investigating these challenges and solutions, the teachers or educators will be able to design an innovative and effective SLS which is suitable in order to gain maximum outcome for teaching learning to face the global challenges of the 21st century skills. in order to create online learning platform.

Key Word: challenges; online learning; platform; innovative; effective

Date of Submission: 09-10-2021

Date of Acceptance: 23-10-2021

I. Introduction

Covid-19 pandemic has raised a fundamental issue in education sector. Students are forced to do their learning activities at homes through online learning with the so-called Learning Management System (LMS) so as not to create crowd among students that can spread the disease. The breakthrough of using LMS is urgently required to boost the outcome of teaching learning¹. By using LMS, the issue is not yet to end. The actual situation is opposite to the law of national education system which stated that “Education is a conscious and planned effort to realize the learning atmosphere and learning process so that learners actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals, as well as the skills necessary for themselves, society, nation and state.”² The researchers had observed that the weakness in one-way teaching method is still widely applied by educators in Indonesia. Some students reported teachers who only send materials and assignments into LMS without guidance which makes them feel frustrated and confused. On the other hand, what is faced by secondary teachers in Semarang, Central Java, Indonesia, they still have difficulty in utilizing the LMS both synchronous and asynchronous.

Face to face teaching learning or what is so called synchronous in the classroom is no more or rarely carried out due to the prediction that this teaching learning process would create crowd among students that may cause the rapid transfer of the virus from the infected students to non-infected ones. That is why to avoid creating a crowd, instead of synchronous, asynchronous teaching learning is quite essential. Using LMS, the process of teaching and learning activities can be combined between face-to-face learning (synchronous) and online learning (asynchronous) without seeing each other physically.

LMS is actually part of what is so called Smart Learning System (SLS). SLS is an e-learning engine system that can assist teachers in organizing teaching activities in schools with the help of Multimedia computers that are connected to the network (online), and are supported by a connection to the internet network. So that the process of teaching and learning activities can be combined between face-to-face learning (synchronous) and online learning (asynchronous). The things covered in the SLS are as follows: 1. LMS (Learning Management System) engine is a software application for documentation, administration, tracking, reporting of training programs, online classes and activities, e-learning programs, and training content. 2. CMS (Content Management System) is software used to add and/or manipulate (change) the content of a website.

Generally, a CMS (Content Management System) consists of two elements: Content management application (Content Management Application, [CMA]), Content delivery application (CDA). 3. SMS (School Management System) is an application that functions to manage the activities/ activities of the learning process of a school, it consists of several applications that support such as User Administration, Hierarchical Groups Admin, Personal Calendar, School Calendar, Survey, Email, Private Messaging, Discussion Forum, and Suggestion Box.³

Nowadays, the advance of creating an innovative and effective online learning platform is way more urgently required to boost the outcome of teaching learning. However, the provided platforms are felt to be difficult and complicated that students are discouraged to operate them. Therefore, it is a necessity for teachers to create a simple but effective application for online learning. With this urgency, this current research was aimed at investigating challenges faced by teachers and students in online learning in order to create an innovative and effective online learning platform. The benefit of this research is that with the availability of this issue, the teachers or educators will be able to design SLS which is suitable in order to gain maximum outcome for teaching learning to face the global challenges of the 21st century skills, such as complex problem-solving.

II. Review of Literature

Challenges

According to Kobasa, challenge is a tendency to view a change in his life as something natural and can anticipate these changes as a very useful stimulus for development and view life as an exciting challenge. Individuals who have challenges are dynamic people and have the ability and desire to move forward. Individuals who have a strong challenge personality will easily find easier ways to eliminate or reduce stressful situations and perceive stress not as a threat but as a challenge.⁴ Cognitively, individuals with high challenge aspects have flexibility in their behavior so that they can integrate and assess threats from new situations effectively. This cognitive flexibility makes him trained to respond to unexpected events as a problem or challenge that needs to be overcome. Thus, they view life as a fun challenge.

Learning Management System (LMS) vs. Smart Learning Management System (SLMS)

The difference between LMS and SLMS is that LMS do not contain smart features as well as they do not have facilities to follow the learner's behavior to enable instructor to come up with new smart learning contents which suit the need of the learners.⁵ LMS is an e-learning engine system that can assist teachers in organizing teaching activities in schools with the help of Multimedia computers that are connected to the network (online), and are supported by a connection to the internet network. So that the process of teaching and learning activities can be combined between face-to-face learning (synchronous) and online learning (asynchronous).

What is meant by Synchronous learning is online conversation and video conferencing. Learning tools are used in real-time, such as instant messaging that supports students and teachers to ask and answer questions immediately and synchronously (at the same time). Synchronous mode instills a sense of community through collaborative learning.⁶ While Asynchronous learning on the other hand can be done even when students or teachers are offline. Courses and communications delivered via email and messages posted on community forums are perfect examples of asynchronous learning. Asynchronous environments provide students with readily available material in the form of audio/video lectures, handouts, articles and power point presentations. This material is accessible anytime anywhere via Learning Management System (LMS) or other channels of the sort.⁶

III. Material And Methods

This research used qualitative research design since qualitative research is descriptive in what the researcher is interested in process, meaning, and understanding gained through word or picture.⁷ Hence, the researchers wanted to investigate challenges in creating an innovative and effective online learning platform. The population of this research is 198 secondary schools in Semarang, Central Java, Indonesia. The sample of 50 teachers and 50 students were taken using random sampling technique coming from 10 different secondary schools. In collecting data, researchers conducted in-depth interview to obtain information about the challenges dealing with their experience using LMS for the past two years. The data that were generated in this research is in the form of descriptive qualitative data. Qualitative data were obtained through data reduction and presentation from interview. The data then were used in compiling a report on the results in accordance with the research objectives in the form of descriptive analysis using thematic analysis.

IV. Findings and Discussion

The objective of the current research is to investigate teachers' and students' challenges dealing with their experience using LMS in order to create an innovative and effective online learning platform. Some

applications or platforms were mentioned by the participants during the interview, they were: Google Classroom, Google meet, Google Form, Google Suite for Education, Moodle, WhatsApp Group, Zoom, Microsoft 365 (Microsoft Teams), Quizizz, Quipper, SPESIX LMS, Instagram, YouTube, Live Worksheet, Private E-Learning from school, Edmodo, Therefore, the results involved challenges and solutions delivered by teachers and students' point of view based on their experience past two years.

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In terms of signal, there is unstable network which sometimes makes the students not able to join the class and get nothing at the end of the lesson. For example, using Google form for the test, if there is a network problem and the student exits the test, then the answers that have been inputted will be lost, and they will have to start again from the beginning. When the teachers use Zoom meetings or other video conference, the problem that arises is that the signal must be strong, otherwise the account will be automatically out of the room.

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Suggestions

After all the challenges described above, some suggestions delivered by the participants also displayed in the following sub topic. In order to achieve the learning outcome, there are some criteria that must be applied by the applications, they are: easy to use, can be accessed anywhere, more effective, simple, can be easily used by more than one account, improve signals, must be open source and unlimited time user, send assignments/ materials easily, added new features to make it more attractive and keep away boredom as well as equipped with facilities/ menus that make students not bored in the teaching and learning process but do not require too much storage on the cellphone or laptop. Increase the security of each platform so that no one can hack, increase speed in operation.

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Performing platform/ LMS updates by more maintaining the progress of the existing platform, involving teachers who teach in making the platform. It is also possible to develop a new model that is interesting and does not make students bored and bored. More features on the platform/ LMS will be developed so that students who access it can be interested and enthusiastic to participate in learning effectively. Students and teachers can be active in learning using applications that can develop students to master IT. So, learning content for students can be well documented, including several types of files such as audio; visual; and others, easy to use, easy to give to students. More lighten the use of data, can be used anywhere.

The last suggestion is very crucial, the application or platform must provide space for two or more ways of interaction. Instead of only have interaction between one teacher and one student, it also needs to provide space for interaction to work in pairs or in group.

V. Conclusion

LMS is an e-learning machine system that can assist teachers in conducting teaching activities in schools with the help of multimedia computers that are connected to the network (online), and supported by a connection to the internet network. The research findings showed that they are still many obstacles and

shortcomings which can be classified into some categories; the availability of gadget, connection issues, LMS content issues, performance issues, and the last is interaction issues.

There are also some suggestions delivered by the participant such as; requiring supporting devices, such as computers, laptops, and smart phones to be able to use the LMS, accessing the LMS which required a stable and good internet connection, how to use a feature more clearly, so that users can easily understand how to use the feature. The ability to search for wider material or information through the platform/ LMS well. Interaction between pairs and among group work also need to be huge consideration. In terms of metacognition, there is lack of materials to work on problems which can lead students to have good competency at the 21st century skills, one of them is complex problem solving.

Therefore, by investigating these challenges and solutions, the teachers or educators will be able to design an innovative and effective SLS which is suitable in order to gain maximum outcome for teaching learning to face the global challenges of the 21st century skills. in order to create online learning platform.

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Suwandi, et. al. "Challenges in Creating an Innovative and Effective Online Learning Platform in Indonesia." *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 11(05), (2021): pp. 40-44.