Interactive and Digital-based Learning Media in Blended Classrooms: The Teachers' Needs, Beliefs and Reflection

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Abstract

This article aims at describing the results of needs analysis and training conducted for teachers in SMAN 1 V Koto Kp Dalam Pd Pariaman. The training given was an offered solution to teachers' need for assistance and guidance in developing interactive and digital-based learning media for blended classrooms. A certain digital app, namely Canva was given as training materials based on the results of teachers' needs and school accommodations. After 8 meetings of training, the teachers successfully created their interactive and multimedia teaching media which were taken into practice in blended classrooms. It was revealed that students showed positive responses which boost their motivation to learn. The teacher concluded that the help of advanced technology surely increased the learning results and students' interest. This belief is somehow counter-attacked by some after-teaching reflection that depicts the drawbacks of the internet and gadgets during blended classrooms. Therefore, it is suggested for that teachers do more supervision and repair the product for better improvement in future teaching practices.

INTRODUCTION

One of the current ultimate goals of Indonesian national education is the use of innovation in the learning process that accentuates the advancement of science and technology. These goals will uphold religious values and national unity for the sake of civilization and the welfare of mankind (1945 Constitution Article 31, paragraph 5). To achieve this, many efforts must be made to advance the use of technology and information in national education to synergize and complement each educational component for the sake of achieving educational goals (Haryono, et al, 2018). The need to update and enhance the technology and information in Indonesian education is emphasized because the current state of education is in the middle of the

Technological Disruption Era which is experiencing rapid changes (Fitri and Pahlevi, 2021).

At present, the efforts made to advance the use of technology and information in Indonesian education are clearly seen. One of which is the update of the curriculum from Curriculum 2013 to the Revised Curriculum 2017 (Fitri and Pahlevi, 2021). In those curriculum changes, there is an emphasis on the application of technology and information in teaching practices including the development of digital learning media which can be applied in hybrid or blended classrooms. In other words, the teacher as a facilitator must be able to prepare and develop digital-based learning tools such as lesson plans, teaching materials, teaching media, evaluation and assessment tools, Student Activity Sheets (LKPD) and others. During the development of those learning devices, it is necessary for the teachers to follow the guidelines of the curriculum and the use of advanced technology and information that refers to the students' characters (Susilawati, Suyanto, & Samhati, 2018).

The utilization of technology and information in current teaching situations is more into digital-based media which allows students to be more active and interactive (Haryono, et al, 2018). Equipped with digital and interactive teaching materials, it is easier for students to understand the learning materials through the use of the internet, animation, audio, visual, audiovisual, infographics, etc. On the other hand, the use of the internet in developing digital-based materials encourages students' motivation and positive perception (Cantika & Fudhla, 2023). It offers a broad range of attractive activities and enables students to access and explore more information and knowledge independently which aligned with the principles of blended learning (Mairi, Rosita & Fudhla, 2021). Thus, it is highly recommended that teachers develop internet-assisted and digital-based interactive learning media.

However, the application of technology and information in learning preparation is not easy, especially in blended classrooms. There are many challenges and obstacles experienced by teachers in preparing these teaching facilities (Lin, Chen & Liu, 2017; Haryono, et al, 2018). This happens because the teachers are not used to the utilize the latest technology with limited knowledge of teachers in applying technology (Haryono, et al, 2018). Thus, it is necessary to find a solution which is practical and effective to deal with these challenges.

Based on the results of a preliminary study at SMAN 1 V Koto Kp Dalam Pariaman, it was found that the school has laboratory facilities, computers, and Wi-Fi to support the use of technology in both stages of developing learning materials or using the teaching devices. Based on the interview with some teachers, there were several problems found related to the implementation of digitalized learning. From the results of informal interviews with the principal and several teachers at school, it was known that currently both teachers and students do not have digital provisions and skills (digital literacy skills) that are sufficient with the demands of learning in RI 4.0 and Society 5.0 era. The teachers mentioned that they are aware of the era of digital learning which is currently being touted by the government, and they are pointed as the facilitator to provide digital based learning. These teachers also believe that as educators, teachers should not be resistant to the use of technology in learning. Especially when the application of blended learning is currently being used in the provision of digital learning services.

According to the narrative of the teacher, they currently still rely on paper-based teaching resources in the form of LKS and photocopies. The only utilization of digital technology used were google classroom, google form and Power Point (PPT). However, this has not yielded significant results because teachers have not really understood what learning applications are most appropriate to apply. In addition, most of teachers has lack preparation or limited knowledge of digital-based learning media. These are regarded as the reasons why the implementatio of blended learning is still very limited in schools. Besides, the teachers admitted that students are not very motivated by teaching resources they provide.

To tackle this issue, a need analysis was conducted to know the teachers' expectation and needs in developing digital-based learning media. This was done to know what teachers actually needs in order to possibly applying blended learning with the help of internet things and advanced technology. Once the needs analysis has done, some workshops and training were given for several times in supervising and guiding the teachers based on the needs analysis results. At the end, a discussion and survey was administered to know the teachers' perception, beliefs and reflection on the treatment given. Therefore, this articles aims at portraying the results of teachers' needs analysis and survey after being treated.

METHOD
Need Analysis

Based on the problems found in SMA 1 V Koto Kp Dalam Pariaman, a needs analysis questionnaire was made and distributed to all teachers in schools to know the extent of technology used so far by the teachers during the teaching and learning process. Besides, the questionnaire was used to gather information on teachers' perceptions of the existence of interactive and digital based-learning media in blended classrooms. This needs analysis was carried out to choose the most appropriate solution/technology application according to the needs of the teacher and the learning situation in school.

The questionnaire was compiled with an open-ended concept so that the teacher was given opportunity to express opinions and needs according to the situation faced. The questionnaire also uses a Likert Scale to measure the range of teacher perceptions regarding the need to use interactive and digital based teaching media. There were 15 questions items loaded in the questionnaire and distributed to all teachers schools to get the whole picture of teachers' need. Before being distributed, the questionnaire was validated by experts. The items asked were about teacher's perception and awareness on the existence of interactive and digital based learning media in blended classrooms, the obstacles in using technology in learning process and the name of technology or applications used before the training.

There were 75 teachers filled in the questionnaires and regarded as the participants for need analysis. Those teachers are from different majors and expertises, thus it is believed that the needs analysis would portray more objective results. The results of the questionnaire were then analyzed quantitatively and descriptively.

Focus Group Discussion and Survey

Once the needs analysis was done, the teacher were given treatment of certain technology and internet-based application to create and develop their interactive and digital-based learning media. Based on the needs analysis, Canva was chosen as the application and all teachers agreed to be guided by the researchers team in using this application. Unfortunately, only 40 out of 75 teachers included in the training due to limited time and reseachers' team accomodation. The training and guided meetings were held for 8 times which runs in two months, August-September 2022.

After some trainings and guided-meetings, the teachers successfully constructed their own interactive and digital-based learning media with the help of internet. The developed media were then taken into classroom practices for some weeks to know its effectiveness and students' response. At the end of the research timeline, a focus group discussion was carried out to know the teachers' perception, beliefs and reflection after being trained and practicing the digital learning media in their classrooms. This discussion and survey were necessary to be taken into account to know teachers' objective point of view and beliefs on the use of digital-based learning media. All trained teachers were gathered to discuss their perception, belief and reflection on the digital-based learning media. The data were then analyzed qualitatively and the participants were coded Teacher 1 to Teacher 40 regardless their major and expertise.

RESULTS AND DISCUSSION
Teachers' Needs Analysis of Interactive and Digital Based Learning Media
Results of Needs Analysis

The results of the questionnaire data analysis showed that all respondents agreed that interactive and digital based-learning multimedia for teaching are very important to be used in the learning process (100%) which is believed to be able to increase motivation and student learning interest (90.7%), especially in blended learning. Respondents also believed that the materials taught with interactive multimedia can make the blended learning process more attractive to students (94.4%). However, it was found that not all teachers had used interactive and digital-based learning media in teaching practices (66.6%) and found it difficult to compile interactive teaching media (70.5%). According to the teachers, interactive and digital-based learning media can be developed with the help of digital applications (88.9%) but there are some difficulties experienced by the teachers in using digital applications to develop digital-based teaching media (88.9%) especially self-taught (72.2%).

Table 1. Result of Needs Analysis

No	Item	Response (%)
1.	The needs of Interactive and digitalized media in learning	100
2.	Interactive and digital learning media can increase students' interest and motivation	90.7
3.	Interactive and digital learning media suits best for blended/flipped classrooms	94.4

4.	Interactive and digital based learning media have been applied in teaching practices	66.6
5.	Teachers have difficulties in compiling interactive n multimedia teaching materials	70.5
6.	The development of interactive and digitalized learning media will be effective with the help of advanced technology/applications.	88.9
7.	It is difficult to use advanced technology/application in creating digital based learning media	88.9
8.	Using and applying technology and digital application is easy for teachers (individual learning)	27.8
9.	Teachers had used digital application to create learning media	22.2
10.	Teachers had learned to use digital application to create learning media independently	72.2
11.	Teachers are aware of the needs to use digital application to create interactive and digitalized learning media	90.2
12.	Teachers find difficulties in using digital application to create interactive and digital based teaching media	80.5
13.	Teachers need assistance and quidance in using such application	89.1
14.	Teachers prefer to learn using the digital application individually	35.5
15.	It is needed to change the form of learning media to adapt the demand of the IR 4.0	88.2

The questionnaire results also show that there are still a small number of teachers who have used digital applications in the preparation of interactive and digital-based learning media (22.2%). The teachers are aware of the importance of preparing digital interactive multimedia and have been trying to find out and learn some supporting and appropriate digital applications by themselves (72.2%), but there are several obstacles in studying the application. They need such assistance and guidance to be familiar with the digital applications compared to learn the apps individually (89.1%). Besides, the teaching media that have been used so far are textbooks/LKS/handouts (66.6%), audio-visual (video) from Youtube (66.6%), PPT slides (66.1%) and infographics (22.2%).

Findings of Needs Analysis

The results of the needs analysis show that teachers are aware of the importance of using interactive and digital-based media in the teaching process, especially in blended classrooms. A number of teachers have started to make efforts to develop interactive and digital-based learning media although experiencing some obstacles such as the difficulty of understanding the usage of digital applications that can be used to compile the materials interactively through self-learning. The lack of assistance/training regarding the preparation of interactive and digital-based teaching

media given by authorities to help the teachers is also one of the reasons why digital multimedia materials are scarce to be used in this school. Meanwhile, the teachers believe that the existence of interactive multimedia in teaching situations can increase the student's motivation and interest. Thus, these findings showed the importance of training or assisting for teachers in developing interactive and digital-based learning media with the help of the Internet and digital apps.

To define the digital application used during the training, the results also contains some questions about any applications that have been or often used by teachers during the teaching process. Most of the teachers stated that they used Google Form (94.4%), Google Classroom (72.2%), and some video editing application (38.95%). However, the teachers also acknowledged that the application has not been considered significant in compiling interactive/multimedia materials. When viewed from the level of teaching media used so far, namely textbooks/LKS/modules, PPT slides, videos and Infographics, the participants and research team decided an application that is considered most appropriate to accommodate the needs and situations at school, namely Canva application.

Canva is chosen as the interactive digital-assisted application taught during the training for developing interactive and digital-based learning media. It is because Canva is easy to access and can be used in any electronic devices anywhere and anytime. Canva is also very easy to use and has auto-save feature in registered account without the need to save and transfer to any device for further usage. Another plus point of this application is Canva can accommodate the drafting of learning media which need the interactive tools and multimedia features. The appearance of media designed with Canva is also very attractive which is believed to increase student motivation.

Training, Focus Group Discussion and Survey
Results of Training

The training was held for eight (8) meetings involving 40 teachers as participants. There were 5 members of the research team who work collaboratively to assist and guide the teachers in creating interactive and digital-based learning media using Canva App. The training was administered in school computer laboratory once in week. Thus, two months training was held to create several teaching media based on the the major or the expertise of the teachers.

The products designed were also various, depending on the students'characters or the materials learned in the classrooms. For instance, some teachers focused on developing interactive and digital-based learning module equipped with some links of multimedia learning materials (learning videos and audio recorded materials) and assessments that can be accessed through hitting the provided links. Other teachers who teach History, Biology, and Physics were more interested to create Infographic materials which also interactive and multimedia based. Others, like Sport teacher or Fine-arts teachers are more into video making and editing. All of those learning media were developed and constructed in one application, that is Canva.
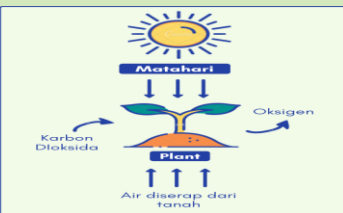
Graphic 1. Sample of teachers' design on Infographic media

Graphic 2. A sample of Infographic material for History subject

Once the training (the eight meetings) was done, the teachers were allowed to use the designed product into their blended classrooms for four (4) weeks to see its effectiveness and to know the students' response. The results of product effectiveness and students' perception on the product designed will be discussed furtherly in other article.

Findings of Focus Group Discussion and Survey of Teachers' Beliefs and Reflection on Interactive and Digital-Based Learning Media

After the products have been applied and practiced in the classrooms, the teachers were gathered in a group discussion to collect the data about their perception/beliefs and reflection on interactive and digital based multimedia. This is necessary to carry out in order to know the effect of the training and whether their expectations have been achieved.

The first questions of the discussion was regarded on the effect of multimedia and interactive digital-based media on students' learning activities. The teachers admitted that most of the students were enthusiast for the "upgraded" materials used in their blended classrooms. Some of the teachers comments are displayed as follows:

".... they were surprised to see me displaying the module with some links that can be clicked to access many materials......, they were more motivated to do exercise since they can access individual tasks right through the module without closing the media (Module)...." (Teacher 1)

"What they mostly love about this newly-designed material is they can access it anywhere and anytime with their gadgets." (Teacher 8)

" .... classroom was sooo noisy because they were busy discussing the materials only through the Infographic I designed previously.... even, they add some details and information on printed infographic..... i think it works appropriately in my classrooms." (Teacher 23)

"I am not the center of attention any longer, I attached the materials in WAG and the students directly accessed the materials... they keep being busy with the material..they only raise their hand when they are confused..." (Teacher 28)

"It helps me very much, since i should attend some sport competition representing my region, i cannot teach my students every week.... with this video, my students can learn individually prior to the face to face classrooms meeting...." (Teacher 33)

More and more appraisal and positive aptitude toward the use of interactive and digital-based learning media were admitted by the teachers. It can be inferred that the teachers believe that this kind of learning media effectively help them in administering the teaching practices, especially in blended classrooms. However, some teachers noted some drawbacks and weaknesses of this media in the learning process.

".... I see that some students who has laptops advantage more on the use of this learning media..... students who do not have compatible or modern gadgets needs more attention...." (Teacher 5)

"*Several students needs to be taken care of the use of this technology. They need more adaptation....... sometimes, they have to borrow their friends gadget, unless they were left behind....*" (Teacher 18)

"*.......sometimes, the process did not run as planned, there were some students misused the allowance to use gadgets....more supervision is needed to make sure that the individual learning run effectively.....*" (Teacher 38)

The statement above portrays the teachers' reflection on the use of interactive and digital-based learning media. Although they admitted that this kind of learning media positively boosted students' motivation, but they saw some drawbacks and weakness of allowing students to use internet and gadgets during learning, especially in flipped/blended classrooms. This reflection strengthen the needs of more supervision under the use of Internet and digital application for students. The teachers also see any chances of repairs/upgradings the pre-designed digital-based materials to be improved for the next meetings/semesters.

Discussion
The findings of the needs analysis and focus group discussion reveal that the teachers need more guidance and assistance in preparing digital learning, especially in implementing blended classrooms. This is to tackle the obstacle in developing modern and updated learning media with the help of advanced technology (Haryono, et al, 2018). On the one hand, the use of technology and internet of things surely affect the learning process as they increase the students' motivation and interest (Cantika & Fudhla, 2023; Shafira & Rosita, 2022; Wijaya, Mustaji & Sugiharto, 2021). The results of the study strongly apprehend the suggestion of technology utilization in IR 4.0 and Society 5.0 Era (Fudhla dkk, 2023; Rukun dkk, 2019; Susilawati, Suyanto, & Samhati, 2018).
The teachers' reflection after the product being practiced in the classroom also depict the possibility of any drawbacks and weaknesses of digital-technology based education. This situation calls for further attention and preparation to repair any disadvantages and negative effects of gadgets usage during the classroom practices. This is necessary to reflect, assess and evaluate the designed media for better improvement for future teaching practices (Farrell, 2006).

CONCLUSION
Based on the problem found in initial research, it was found the teachers need assistance to help them in creating their own interactive and digital based learning media. According to the needs analysis, the chosen application is appropriate to be used and was effective to boost the students' interest in learning, especially in blended classroom. Besides, some reflection and repairs need to be made for better improvements. The teacher said that the training activities were very useful and hoped that they would similar training held in the future**.**

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