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Model of Video Aided Retention Tool for Enhancing Disaster Survival Skills on Earthquake among International Students

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Abstract: The purpose of this research is to design an integrated video-based learning support system to provide training on earthquake Disaster Survival Skills (DSS) among the international students in the universities in Japan. The available literature shows a significant gap in the field of earthquake disaster survival skills between Japanese and international students. There are different types of contents used in DSS education and training. Among them, video contents received broad interest from the students in a self-directed video-based learning environment. However, in Japan, DSS video content specially designed for international students is limited. Often many topics are included in a single video, making the content long volume. So, arranging the essential parts inside the video with meaningful indexes and representing them in a logical order to keep the students' motivation is important. Also, filtering and recommending more important content to fill the empty knowledge of the students is essential. In addition, tracking and analyzing students' learning behavior inside video parts including the attention and retention process to support them during learning is equally important. Accordingly, the research designed the essential models of the VART system to accomplish such requirements. The proposed VART system is the combination of video fractioning, indexing, tracking, analyzing, and filtering tools, with the integration of domain model, students' model, and e-teaching strategy model to assist in self-directed video-based learning. The system organizes and makes fractions of each video into different important parts and put automatic indexes for each fraction. It also tracks each student's ID, content preferences, duration, repetition of the content, most watching parts, etc. Based on the detailed watching history data VART analyzes and determines each student's learning needs and filters and delivers essential video parts sequentially to support the video-based learning process.

Keywords: Video Aided Retention Tool (VART), Disaster Survival Skills (DSS), Learning Technology, Video-based Learning, Earthquake

1. Introduction

Disaster Survival Skill (DSS) training for students is considered as mandatory criteria to reduce the risks and increase the survival capacity during the disasters. However, many researchers identified that a huge number of international students studying in Japanese universities have little or no prior knowledge and skills on how to survive in a disaster situation, especially in the earthquake (Emanuel Leleito et al., 2016). To reduce vulnerability, providing DSS training on earthquake to international students is considered a mandatory part of disaster education. So, a well-designed and target-oriented DSS training on earthquake is very important for them to increase their awareness and preparedness, and enhance their survival skills to prepare and tackle any catastrophe during an earthquake.

In Japan, disaster education is provided elaborately to primary and secondary school students in their native language. As a result, Japanese students are well-trained about how to tackle disasters before they are entering universities. But in the case of the higher educational institution, there is a lack of standardization in Japanese universities' in providing disaster education (Emanuel Leleito, et al., 2016). Besides, most of the international students come to study at the university level who have different disaster knowledge and skill levels (Kawasaki, et al., 2018). It is found that a large number of students who have a low level of awareness are very nervous during the disaster and unable to take proper actions and cannot protect themselves sufficiently during an emergency.

It is very challenging to conduct an earthquake disaster education or training course because it cannot be replicated. It is also hard to involve the students emotionally in the learning process or take them to the real affected sites. The study found that, like many other disciplines, video contents are very popular and essential in disaster education and training and have a greater impact on the learning and retention process as well as increase student's skills and awareness of disaster. The learning procedure becomes more stimulating, supports self-directed and collaborative learning, and learners get emotionally engaged in the learning process.

2. Research Problem

In Japan, the number of DSS video contents, specially designed for international students is not enough. Moreover, the available contents are usually integrated with several topics and make it a long video. Filtering expected contents, including important inside parts based on students' attention and retention process and learning progress, is essential in video-based learning. In self-directed learning, such long video content pose some difficulties. Firstly, long videos are combined with several topics or learning objects (LO). If one video has this kind of hierarchal structure, it is difficult for the system to control the video sequences and the student's watching/learning behaviors. Secondly, defining target parts from the long video consumes time and much concentration of the students (Sagorika & Hasegawa, 2019). Several studies found that students' concentration drops around 10-15 minutes while watching long videos (Bradbury, 2016). So, segmentation of long videos into meaningful chunks for faster skimming and re-watching is important (Guo, Kim, & Rubin, 2014). Finally, it is hard to select the right video content in the traditional video learning process based on the students' needs and knowledge levels. It is also challenging to know students' preferences/attention and retention process inside the video parts, including the duration and repetition of watching. In this situation, there needs a user-responsive video learning support tool that could resolve existing limitations and fulfill the students' requirements.

3. Objective and Research Questions

Based on the above situation the objective of this research is to design three essential models i) students' model ii) e-teaching strategy model, and iii) domain model, and finally a conceptual model with the integration of VART for supporting video-based DSS learning on earthquake for international students in Japan. In pursuing the above objectives this research has been formulated following Research Questions (RQs).

RQ1: What type of students', e-teaching strategy, and domain models are required for video-based DSS training? and,

RQ2: How these models can be integrated with the VART system for enhancing DSS skills??

4. Literature Review

The research explored available literature based on three essential components/models of the proposed VART system. The findings of the reviewed literature are categorized and presented below:

4.1 Characteristics of the International Students

Japanese students have a high level of disaster preparedness knowledge, but International student's knowledge level is quite low, and learning need is different from Japanese students. Also, there are different levels among international students based on their prior knowledge and experience (Haburi, Takahashi Sachiko, Miura Emi, 2016), (Emanuel Leleito, et al., 2016). The behavior of international students is different and not satisfactory in the disaster preparation situation. Iwamoto & Ishikawa (2011) found that around 60% of international students never experienced an earthquake in their home country, and 80% of respondents were very worried during the earthquake in Japan. Bustanul, Bisri, & Sakurai (2016) suggested that it is important to know the special needs of international students, understand their risk awareness and preparedness levels to provide inclusive education and training to them. Therefore, the study suggested that the education method should be conducted in a different way for international students (Emanuel Leleito, Kaori Shimasaki, Rumi Watanabe, 2016). The language barrier, cultural differences, lack of knowledge about local disasters and drills, etc. lead them to lack of access to the disaster education resources (Kawasaki et al., 2018), (KONDO Yumi, 2015). They also have a low interest in the existing disaster survival education because often education and training provided on disasters are not suitable based on their need (Nakagawa, 2016). Their special needs are specific, fast, reliable, easily accessible contents with no language barrier tied to relevant knowledge on disaster prevention actions (Xin, Sugiki, & Matsuo, 2017), (Gómez, 2013), (Nakagawa, 2016).

4.2 Characteristics of the DSS Educational/Training Strategy in Japan

In Japan, Nagoya University and Tohoku University started a combined Disaster Risk Reduction Education (DRRE) program for the first time in 2014 to cultivate disaster preparedness skills among the international students. The course provided important teaching and learning experiences on disaster both for the teachers and students in many positive ways. At the same time, combining several methods, for example, face to face, video conferencing, field trips, group projects, and reports were challenging. The study suggested combining the pre-recorded video lectures with video conferencing and sorting out the duplicate contents. The final version of the video contents may be compiled and shared with different universities through the web. Finally, the study seeks a proper model and platform for future DRRE to cover a wide range of international students in providing collaborative education throughout Japanese universities (Emanuel Leleito, et al. 2016).

On the other hand, Shiroshita (2017) suggested that disaster education might be conducted in such a way that it could provide the opportunity of co-learning and sharing the sense of disaster among the learners. The APRU-IRIDES multi-hazards campus safety workshop, 2018 in Sendai, proposed that orientation training to the new students and special training on disaster preparedness to the international students should provide regularly (APRU, 2018). However, from the literature, we could not find any solid teaching strategy for DSS education. On the other hand, we found that the nature of the disaster education/training is mainly single university-based and, in some cases, joint-university collaborative education-based. There needs special disaster training for international students and the repetition of disaster training is also required.

4.3 Characteristics of the Current Content Delivery Method

Japanese universities arrange emergency evacuation drills/training once or twice a year to create emergency awareness among students. Besides, there are text-based instructions on the university webpages on 'guideline for crisis management' verbal lectures and e-mails for foreign students on disaster control (JAIST, n.d.), (University, n.d.). But many international students are not fully aware of such drills, and instructions are delivered by unknown language. Besides, the contents on disaster are provided to them are not necessarily specific based on their demand (Nakagawa, 2016). There are also different types of contents such as text-based, verbal lectures, audios, videos, games, simulations, etc. that are available for disaster education and training on different sources. Wahyudin & Hasegawa (2015) developed a 3D role-playing mobile serious game named MAGNITUDE to train inexperienced disaster volunteers to make proper ethical decisions. Hatakeyama, Nagai, & Murota (2016) developed a scenario-based learning support system named Evacuation Scenario Simulator System (ES3) to improve students' judgment capacity in an emergency. Hiroyuki Mitsuhara et al. (2015) developed a web-based system using 'Bosai Yattosar' (BY) to design a game-based evacuation drill (GBED). Toyoda & Kanegae (2019) established a connection between problem-based learning (PBL) and gaming simulation (GS) to provide earthquake evacuation practice and training among university students. However, only game-based content cannot full-fill the DSS learning requirements, and creating a virtual reality (VR) environment for simulation training is expensive and time-consuming to teach a huge number of international students in public universities. Research results show that, among all other content and content delivery methods, inclusive disaster training videos are very convenient and effective and can improve learners' understanding of disaster education more deeply (Mar et al., 2019). Therefore, students showed high interest when learning is conducted with audiovisual contents (Sejati, Budiningsih, & Pujianto, 2019). But, in the contemporary video learning process, it is hard to select the right video content based on the learner's knowledge levels, attention, and retention process. Also, defining and fractioning essential parts with meaningful tags from the long video is challenging and time-consuming (Sagorika & Hasegawa, 2019). On the other hand, replicating the natural disasters like earthquake and providing real feelings through conventional contents and content delivery methods is very difficult (Lin et al. (2013).

The literature review from the above three main topics found that there are limited scholarly publications focused on emergency preparedness related to university students, and how disaster education is developed for the newcomer and international students (Tanner & Doberstein, 2015), (Bustanul et al., 2016). A very few researches have been conducted to realize the suitable content and content delivery method for effective disaster education based on students' special needs (Dufty, 2018). Very limited research was also found on DSS teaching and training strategy in Japanese Universities.

This lack of previous research support factor itself emphasizes the need for disaster survival skill training among the international students to save them from an emergency. The most important finding is among all other contents video content being considered as effective and widely used in disaster survival education and training. Therefore, this research initiates to provide DSS training among international students in the universities using selected and effective video content with the help of VART to assist in the self-directed video-based learning.

5. Research Method

This paper mainly focuses on the ADDIE model's design phase for the development and implementation of the VART system. The ADDIE model includes five important phases analyze, design, development, implementation, and evaluation, which is traditionally used by instructional designers and training developers. First, we analyzed the problems of the international students they face in DSS learning, their demand, and why they need support. Second, we analyzed different teaching strategies as well as content and content delivery methods, especially video content used in DSS learning, and identified the difficulties in the traditional video-based DSS learning. Third, we have defined the system's technical requirements/functions to be developed to resolve the problems. Finally, the research has provided the design architecture of the essential models for VART. The models have discussed details in the following sections.

6. Components of VART

Based on the above discussion, how to create required domain functions to the videos and how to analyze the videos and provide support for the students with the support of VART, these three parts are considered the main functions for this paper. We have explained these primary functions to clarify the design phase of students' model, domain model, e-teaching strategy model, and relationship with VART with these three models. This discussion part has many similarities with our previous published journal article titled "design of video aided retention tool for the health care professionals (HCPs) in self-directed vıdeo-based learning" (Sagorika & Hasegawa, 2020). In this paper, the international students' learning goal is different from the HCPs, and the learning support provided by the VART has some new features with many similarities with the mentioned article.

The goal of this research is to support international students in the video-based disaster survival skill learning. As mentioned, video contents, especially real-life scenario-based, situational and demonstration video has the potential that students can learn DSS from it. Nevertheless, the videos are long, and the relationship is not clear in different videos, and the navigation is poor. So, the proposed system provides the function to track the student's activities and provide the navigation function to improve the retention process for learning. To understand the proposed design models, the retention process is fundamental in DSS learning. Because retention realizes the skill of learning from the videos. Retention, mini-tests, and similar activities can fill the gap between the knowing concept and be able to act. For the first time watching students get to know the concept, but by several times watching and answering mini-tests, they move to act which will ultimately help them to do the right action in case of a disaster situation. So, retention is a process of knowing the concept to move to an act of being able to act. Based on this, we designed these retention-based models. The learners' specific goal is to achieve the skills or act by watching the videos several times effectively. Moreover, the specific skills to be learned are disaster survival skills, i.e., preparedness skills, decision-making skills, and so on based on different video contents.

6.1 Students' Model

In the e-learning environment, some commonly used student models are overlay models, the stereotypical model, and the perturbation model, and so on to design student models. The overlay model represents a student's problem-solving approach in a particular domain on a modular basis. Brusilovsky & Millán (2007) stated that the overlay model represents students' model as a subset of the domain/expert knowledge. Shyamala et al. (2011) described that based on the domain model, the overlay learners' model consists of the value of an assessment module of a particular concept. This value may be binary (0 – does not know or 1 - know) and a categorical variable (low, medium, high). Based on international students' learning requirements, this research designed a students' model following overlay approaches. Figure 1 illustrates the DSS students' model of international students.

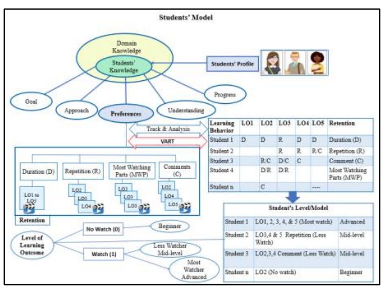

Figure 1. Students' Model

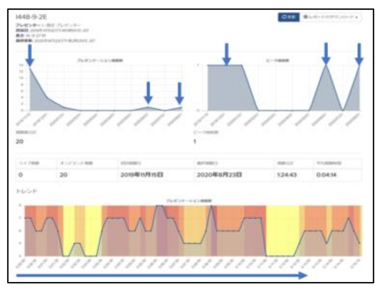

Figure 2. Retention of a single viewer

International students have different knowledge and skill levels, goals, approaches, preferences, understanding, etc. Based on the preference, students may watch some videos from the domain as retention and system get the student's model based on watching duration, repetition, most watching parts or comments, etc. This is considered as student's behavior on the Learning Objects (LO). The students' model basically indicates the relationship between the domain model and the student's activities. In figure 1, there are five learning objects on the upper table at the top right side, and how students watch these objects is a retention process. Figure 2 is a visual example of a single students' retention history on a 15 minutes 27-second video. The student watched the video twice. The blue arrows on the top indicate the student's most watching parts, repetition of watching and duration of watching, and the arrow at the bottom level shows the learner's detail watching fluctuation history. This process could be applicable for a certain student or other students or groups of students; such as, 'the watching duration'. Student 1 may watch LO1 9 minutes, LO2 0 mins, LO3, 6 mins, LO4, 5 minutes, or vise versa. On the other hand, students 2 may watch in a different way. Based on students' preference and retention, the system can recommend different videos to student 1 and student 2 subsequently.

Besides, the level of learning outcome is determined on whether students watch a particular video or not. If a student does not watch a certain video, VART will identify him/her as a beginner.

Similarly, if any student watches the video, the VART system will calculate the total number of watching videos, watching duration, repetition, and important parts to identify as a mid-level or advanced level student.

6.2 Domain Model

In the proposed domain model, different types of DSS courses could be designed and structured based on international students' learning requirements. The traditional video domains mainly focus on video content management and control including the organization of subjects and displaying the contents sequentially one after another. But, in the proposed domain model, it includes the traditional features with extended features of VART, which has made the video content more specific and students' centered. These features include the control inside the video, provide adaptation using automatic indexes to identify important parts with meaning, and track, analyze, filter, and recommend features based on student's requirements. Moreover, we use the H5P interactive content plugin integrated with the Moodle to create, modify, rich, and interactive video contents in the domain. This plugin also adds interactions and mini-tests to the videos to realize students' retention outcomes or skill learning outcomes.

However, the VART also analyzes and identifies essential parts inside each video, puts automatic indexes or tags, and represents the video with a brief description. As a result, students can easily pick up the most important part first saving their time and concentration. There are some approaches to put automatic indexes inside the video. For example, VART can apply the Natural Language Processing (NLP) to automatically detect the rough contents to get keywords from the slide data, title, and subtitle of the video, and create some necessary meta-data for each video part. Another function is if students make comments for the video, the system can detect such text data as a part of the indexing to provide the meaning of that content. Here, we have designed a sample domain or content model based on the main course DSS on earthquake, since this is a very important topic for all the international students. In our proposed system, VART relates to the domain model through Moodle LMS. Figure 3 shows the VART connection with the domain hierarchy. The bottom part of figure 3 shows how it displays the short description of the video and how it analyzes and filters important parts in video content.

Figure 3 also illustrates that, in the domain model, there may have different domain hierarchy based on different subjects or topics. But, in the case of self-directed video-based learning, students should have enough flexibility in their learning. They can choose different topics and sub-topics which are known as Learning Objects (LO) from different modules as they prefer. For example, any student can learn the 'nature of earthquake' and 'preparedness' from module 1 and then move to any module and any topic they like. In the domain hierarchy, contents are inter-related with module to module and LO to LO. The blue arrows show the connection among the module to module, and the green arrows show the connection among LO to LO.

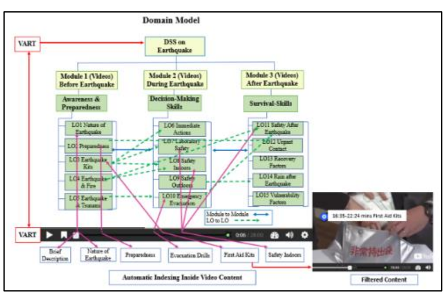

Figure 3. Domain Model

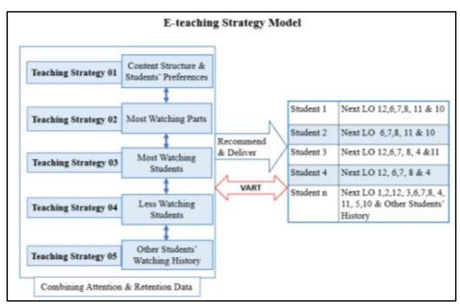

Figure 4. E-teaching Strategy Model

6.3 E-teaching Strategy Model

In the proposed system, the e-teaching strategy technique is determined based on the combination of content structure and students' preferences data from the domain model and the students' model. The

VART system will combine students' watching history data, including content preferences, watching duration, repetition, most important or most watching parts, and other information from the students' model and domain model and decide the proper recommendation. For example, in content structure, some contents are considered key content or fundamental concepts to be learned first. In figure 3, in the domain model, for instance, learning object 3 has many links to other LOs. Usually, this kind of learning object is considered as the pre-requisite object. So, if some students did not learn the LO 3, 6, 7, 8 they should learn from the LO3 from the content structure. The DSS contents are selected and limited. So, the system can recommend the basic concepts to be learned first. Another strategy is that if someone learns the LO3, following recommended content, they should go to LO 6, 7, or 8. Of course, another idea is LO4, and LO4 has connections with LO8 and LO11. If LO8 is already watched, after learning LO4, they can move to LO11. This kind of relationship is important, with the number of the students watched the video. It may depend on the students' preferences too. If students want to pick-up the important topic, in that case, most hunted parts or most watching parts are okay. But, if they want to learn the concept based on the domain hierarchy, they should follow the domain structure. In this way, the system can also create some teaching strategies from the domain model. So, the system can propose different strategies combining different parameters; for example, content structure and students' preferences, students' preference, and most watching part, students' preference, and repetition, or less watching and no watching, etc. The e-teaching strategy model of VART is illustrated in figure 4.

In the e-teaching strategy model, the system will provide mainly five approaches to the recommendation. Figure 4 shows (i) it will track content structure and students' preferences (ii) most watching parts, (iii) most watching students, and (iv) less watching student's data. Based on the students' different attributes and attention approaches, it will filter or recommend and deliver different content to the different students depending on their levels. The fifth approach is to use other students' watching history. If a similar level of other students watches a certain part in the video, the system will recommend it. For example, everyone watches LO3, but a certain beginner did not watch LO3, in that case, LO3 should be recommended to that student. If there is no other student's data in some LOs, the system can recommend based on student's preference data. Another pattern is that if some students are advanced learners and have enough knowledge of earthquake survival, they can skip the earthquake awareness and preparedness basic contents even if other students watched those parts.

6.4 Integrated VART Function Model

The VART model has a three layers structure, including the students' model, e-teaching strategy model, and domain model. Figure 5 demonstrates the integration of VART functions with different models on the LMS. With the support of VART, the domain model presents the content hierarchy, essential parts with the meaning of the videos, and students watch and learn from the video as retention and system get the students' model based on the duration or repetition or comments or other information. This is considered as the students' behavior on the learning objects. The VART also helps the e-teaching strategy model to receive and combine data from the domain model and the students' model and know the student's attention and retention process. Accordingly, it proposes strategies, using the parameters on students' models and learning objects. So, students' model and e-teaching strategy models assist students based on their learning process and progress in the domain and provide adaptation in the self-directed video-based learning system. Thus, the three models are the essential computational models inside the VART system. The learning process from LO to the students is retention, and the system filters or recommend the contents add attention. Therefore, these are the major VART functions with different models which are the main part of the LMS.

7. Functions of VART

7.1Control the videos

The VART system combines the domain hierarchy information, notable attention, and retention parts, and the learning history of the previous learners and picks up the important video sequence and provides it to the students as a brief description. If students feel the video is useful, they can watch it from the actual learning resources. In the disaster education field, often many topics are included in a single long video. If one video includes all most all the important content, students should learn all of them. So, it is needed to fill the empty knowledge of the students from all the topics. Besides, the content order should be organized by the system to keep interested or motivated or consider the more important skills for the students to be learned first. In this case, the VART organizes and split one video into some specific topics and make a hierarchy and control the learning. Moreover, if enough content is not found, the system can recommend different video sources or webpages.

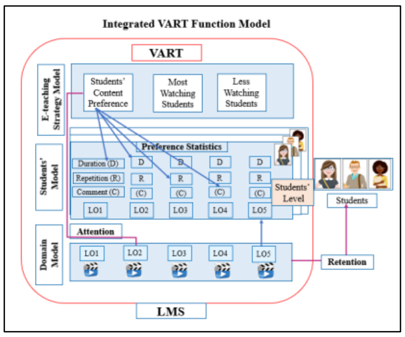

Figure 5. Integrated VART Function Model

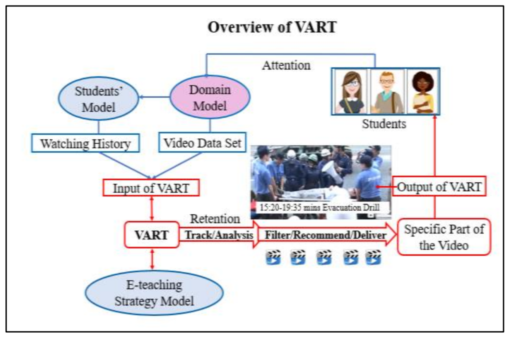

Figure 6. Overview of the VART Model

7.2 Analyze video contents

Traditional video service platforms, including YouTube, TED, DTube, Dailymotion, Google Video, etc. provide a specific video's history. But, in DSS learning, only such kind of general history data is not enough. Students need to know both about the video and the essential parts inside the video. Besides, students have a variety of learning behaviors, knowledge, and skill levels. In this case, the proposed VART can detect the number of watching and duration of the watching history of the specific part of the video. For example, the part of the watching history from 1minutes to 6 minutes, etc. Only such history data might be a popular part, but if the system can add meaningful indexes or metadata for inside video contents, students can find each part of the video's meaning. For example, this popular part includes this topic, i.e., from 1-4 minutes nature of earthquake, 4-10 minutes preparedness, 10-16 minutes immediate actions, etc. The VART system can put such indexes for videos, not video files, but tags for each timeline inside videos, students can easily understand the topics included in the video and which parts are more important for them to learn first based on their knowledge levels.

In figure 6, we have represented the main elements and final output of the VART system. VART uses video data set and students' watching history from the domain model and student's model as input data. After that, it tracks and analyzes videos based on the student's attention and retention process. In this figure, attention indicates student's preferred topics or expected parts inside the videos, and retention indicates the remembering process or learning process of a student. However, after analyzing the input data it filters, recommends, and delivers specific content to the students considering different strategies. The detailed functions are described in the components of the VART section.

7.3 Track watching behaviors

In the proposed platform, the VART will first detect each student's ID and track what type of contents they seek; this is called attention. At the same time, it will follow the students watching duration and repetition of watching, their comments, their difficulties, or intentions, which is considered as retention or remembering process. Based on such a learning process and progress history data, the system could analyze, filter, and change how to show the video. Thus, the system can recommend which part is essential using the attention and retention process and watching history data and can filter contents based on students' preferences, learning behavior, and their competency level.

8. Originality

The approach of providing DSS training using selected video contents and fragmentation of the long videos into meaningful chunks in small, highly focused materials has similarities to microlearning. Microlearning is often referred to as a bite-sized method and provides the opportunity for the students to absorb the long volume contents in a digestible manner (Giurgiu, 2017). However, small contents are easy to understand, but the complicated content or concept is difficult to understand in microlearning. From the microlearning point of view, we have added function to navigate or to make retention for the important parts of the videos, which is different. In this research, tracking students' video watching behaviors inside video parts, and delivering the contents based on their attention and retention process is different. The form of the basic content is similar to the microlearning, but the support method is different. The main algorithm of this research is to provide support in the retention process of the students to understand the difficulties and unfamiliar concepts in the video content.

9. Conclusion

For effective DSS training, contents should be specific and appropriate for the international students and need to be represented based on their different knowledge and skill levels in a modest and convincing manner to feel the enthusiasm to learn from it. In addition, tracking learner's learning behavior, providing support based on their retention process, know their learning outcomes, and repetition of the training is also required. Some existing research discussed the lack of specific content, learning environment, socio-cultural, and language barriers for international students. However, nowadays we also have many effective tools i.e. smartphones, smart glasses (Kawai, Mitsuhara, & Shishibori, 2015), smartphone-based binocular opaque HMD (H Mitsuhara, Iguchi, & Shishibori, 2017), etc., and other smart devices. But we do not know how to use it instantly and effectively in the emergency disaster situation. In such a case, a video-based DSS training method could be effective, convenient, cost-effective, and can cover a large number of students to provide training in public universities. The proposed VART system might help overcome the existing problems in video-based DSS learning and help students acquire necessary DSS skills in the self-directed learning manner. In addition, the VART models and systems are flexible enough to apply in other disciplines of video-based teaching and learning environment. In that case, based on the different domains, some features might be changed or might need to add new features with the existing common features.

As the ongoing work, we are currently working on the development phase of the proposed system, and soon, we will implement the new system and assess the learning outcomes among the international students. In the evaluation phase, we will compare the different settings about the learning process. So, we will gather the number of participants, divide the participants into two or more groups, and assign different conditions. For example, we will apply the VART learning support tool while watching the video content. Second time there will have no support. Students will watch the video using the Moodle and we will compare the improvement of skills for survival. First, we will examine the initial skill for survival as a pre-test and after learning the video with support and without support, we will conduct the post-test to compare how they have improved in each category. In addition, we may assign one single student in two different conditions. For example, if we provide two different videos, the first one is for decision-making skills with VART support, and the second one is for survival skills without VART support. In this case, the skills to be learned are different. It depends on the target video content, but we can also compare such kind of different settings to know the effectiveness of the learning topics used in the DSS training.

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