

# How To Apply Digital Technology Into The Classroom Environments: A Case Study In A Regional School In Western Australia

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## ABSTRACT

Technology has become one of the most important elements in human society in the 21<sup>st</sup> century. Digital technology and technology education are some of the popular applications and topics in the current education system. This study aims to understand the application of the Visual-Only Video Teaching Strategy (Dos Santos, 2019) and the feedback of the Visual-Only Video Teaching Strategy from the users (i.e. teachers) at one of the secondary schools in Western Australia. Two research questions guided this study, 1) How can technology and Visual-Only Video Teaching Strategy help teachers to increase the learning motivation of liberal arts and foreign language students? 2) How can teachers merge technology and the Visual-Only Video Teaching Strategy into their classroom environments after the COVID-19 pandemic? Based on the qualitative data from the teachers, three themes were categorised, including 1) Active Learning Behaviours and Feedbacks from the Students, 2) Localised Images, Materials, and Videos Encouraged the Cognitive Learning Growth, 3) Beyond the Textbook: Able to Answer the Questions based on the Visual Videos and Materials. The outcomes of this study will contribute to the following: school leaders, teachers, department heads, and government leaders may take this study as the blueprint to upgrade digital technology and technology education, and encourage teachers to design their visual-only videos in their classroom environments.

**Keywords:** digital education, digital technology, regional school, technology in education, visual-only video teaching strategy, Western Australia

## INTRODUCTION

Technology has become one of the most important elements in human society in the 21<sup>st</sup> century. Digital technology and technology education are some of the popular applications and topics in the current education system (Dos Santos, 2021a; 2021b; 2021c). Although many schools and school communities want to merge technology into their classroom environment, the appropriate strategies and systems are hard to locate. A previous study (Siemens, 2005) suggested that individuals tend to learn new knowledge and applied skills from the informal learning environments via personal networks, causal environments, and practical backgrounds. Over the decades, due to the developments of social media, videos, and technology, many people are getting used to the learning platforms

and learning strategies via social media and online learning platforms (Nicol et al., 2018).

Over the decades, teachers, students, parents, potential employers, and researchers believed that technology, technologically-assisted tools, and social media should enter the classroom environments as the current society and organisations require extensive technology and technical skills (Dos Santos, 2021a; Mutekwe, 2015). At the secondary school level, PowerPoint, computer, and even social media platforms have become some of the active technologically-assisted tools in order to increase students' learning experiences and achievements.

However, in many regional and rural schools and school communities, due to the shortage of resources and support, many classroom

environments and lessons continue to use the traditional textbook and paper-based materials as their main teaching tools, particularly in the liberal arts and foreign language courses. Although some schools have upgraded their tools with computer and technologically-assisted tools, many classrooms are still running out of computers (Reidel, 2021).

## BACKGROUND

Western Australia is Australia's largest state but one of the lowest areas with the lowest population internationally. As of 2021, Western Australia has about 2.67 million residents (nearly 80% of the residents live in the Perth area. According to the Australian Bureau of Statistics (2021), Western Australia (1.5%) has one of the lowest annual growth rates in student enrolments by state and territory from 2019 to 2020 (*Australian Bureau of Statistics: Schools*, 2020). Although the Australian federal government and Western Australian government support the resources to each school community for technology upgrading and developments, not all students may enjoy an individual computer or technologically-assisted tools due to the limited financial supports.

More importantly, due to the COVID-19 pandemic, many schools and classrooms have moved to online platforms. Many teachers and students did not have experience with any online courses. Therefore, many liberal arts and foreign language courses relied on the traditional face-to-face delivery and physical textbook materials, the contemporary technologically-assisted tools, such as videos, PowerPoint, online exercises etc., were not available immediately. Therefore, a series of digital education materials need to be established for the current situation and potentially after the COVID-19 pandemic.

## PURPOSE OF THE STUDY

This study aims to understand the application of the Visual-Only Video Teaching Strategy (Dos Santos, 2019) and the feedback of the Visual-Only Video Teaching Strategy from the users (i.e. teachers) at one of the secondary schools in

Western Australia. Before the COVID-19 pandemic, many regional and rural schools and school communities tended to use paper-based materials in their traditional classroom environments. Although some subject matters such as chemistry, computer, and vocational subjects, required lab experiments and the internet for their lessons, liberal arts and foreign language courses tended to employ paper-based materials with limited technology in the classroom environments. As a result, technologies were rarely used in these classroom environments (Dos Santos, 2021b).

However, due to the COVID-19 pandemic, lockdown, and the social distancing recommendation, many classroom environments have moved online, including the liberal arts and foreign language courses. As mentioned, liberal arts and foreign language courses tended to use traditional paper-based materials as the main teaching and learning tools. Some of the materials could be outdated due to the shortage of resources in the regional and rural schools and school communities (Dos Santos, 2021a; 2021b; 2021c). With the coordination of a secondary school in regional Western Australia, the researcher shared the Visual-Only Video Teaching Strategy (Dos Santos, 2019) with their liberal arts and foreign language departments and fellow teachers to upgrade, particularly the teaching strategies during the COVID-19 pandemic. The participated teachers employed the Visual-Only Video Teaching Strategy (Dos Santos, 2019) in an academic term for their subject students. After the academic term, the researcher gathered the sharing and feedback from the fellow teachers to understand the strategy's development. Two research questions guided this study,

- 1) How can technology and Visual-Only Video Teaching Strategy help teachers increase the learning motivation of liberal arts and foreign language students?
- 2) How can teachers merge technology and the Visual-Only Video Teaching Strategy into their classroom environments after the COVID-19 pandemic?

## THE VISUAL-ONLY VIDEO TEACHING STRATEGY

The Visual-Only Video Teaching Strategy (Dos Santos, 2019) is a self-developed technology and digital education theory. Unlike the traditional digital education strategies with sound-track videos and images, the Visual-Only Video Teaching Strategy advocated the videos for the lessons should only contain images and videos without any sounds and audio tracks. During the COVID-19 pandemic, almost all secondary school lessons and courses were conducted via social media and online platforms (Atmojo & Nugroho, 2020). Although many courses and lessons have already established a series of online teaching and learning materials, many liberal arts and foreign language courses and exercises continued to rely on face-to-face delivery and exercises between peers and teachers. In other words, many teachers did not have any backup materials for the online delivery (Dos Santos, 2021a; 2021b; 2021c).

Before the new academic term started (i.e. the tested academic term), the researcher shared the design, curriculum and instruction to the liberal arts and foreign language teachers about the overall development of the Visual-Only Video Teaching Strategy (Dos Santos, 2019). One of the most important factors for the Visual-Only Video Teaching Strategy is the relationship between localisation, students' learning motivation, and positive learning experiences. The researcher categorised four steps as the following,

- 1) Based on the chapters and units, the teachers should capture some images and videos in the surrounding communities and cities of the learners. For example, the teachers should capture the visual materials within the town of the students' local communities.
- 2) After the teachers captured the pictures and videos, the teachers should combine the visual materials and create videos (i.e. up to four minutes per video) based on the knowledge from the textbook materials. Only one knowledge should be taught per video. As this strategy focuses on visual learning ideas, only visual

materials without audio tracks can be merged into the videos.

- 3) To outline the main idea(s) of the video, the teachers should indicate the main idea(s) within the first 10 seconds of the videos with some eye-catching pictures, images, and points. The video series should continue to use the same word size, font and style for the whole series as the students need to remember the main points based on the same style and format throughout the course.

- 4) The teachers should upload the videos to either the social media platform (e.g. Facebook private learning group) or online education platform from the school system before the chapter starts.

After the students watched the video(s), they should comment on the video with their ideas and knowledge. Other students are encouraged to answer the comments and questions from other classmates and peers before the lesson. During the lesson, the teachers may ask for the response to the comments and ask students about their understanding and ideas from the videos. The teachers may continue to use and combine the videos with the textbook materials and exercises throughout the lesson.

## METHODOLOGY

As none of the teachers understood the application of the Visual-Only Video Teaching Strategy (Dos Santos, 2019) before the study, the researcher decided to introduce the application to the secondary school two months before the beginning of the academic term. With the coordination of the secondary school in Western Australia, the liberal arts and foreign language departments and fellow teachers agreed to join the study with the application of the Visual-Only Video Teaching Strategy (Dos Santos, 2019).

A total of 10 teachers joined the study (N=10). Three data collection tools have been used: semi-structured interview sessions (Seidman, 2013), focus group activity (Morgan, 1998) and member checking interview sessions (Merriam, 2009). After the academic term, the researcher invited each participant to join the semi-

structured interview session individually to share their feedback and comments on the Visual-Only Video Teaching Strategy (Dos Santos, 2019). Each interview session lasted from 78 to 83 minutes. After all participants finished the interview sessions, the researcher arranged the focus group activity for all teachers (N=10). The focus group activity lasted 129 minutes with a ten-minute break. After the interview sessions and focus group activity, the researcher categorised the related sharing based on each participant. The researcher sent the related data to the related participant for the member checking interview. During the member checking interview, all participants agreed with their data and confirmed for further development. Please note that due to the COVID-19 pandemic, all the procedures were conducted online without any face-to-face and in-person interactions.

The grounded theory approach (Strauss & Corbin, 1990) was employed for the data

analysis procedure. The researcher employed the open-coding technique to categorise the massive data and information into groups and directions as the first-level themes. Afterwards, based on the first-level themes, the researcher further employed the axial-coding technique to narrow down the materials. As a result, three themes were yielded as the second-level theme for the study.

## RESULTS AND DISCUSSIONS

Based on the sharing and stories from 10 participants currently teaching liberal arts and foreign language subjects at one of the regional schools in Western Australia, three themes have been categorised to provide effective feedback and comments for the Visual-Only Video Teaching Strategy (Dos Santos, 2019). Table 1 outlines the themes of the study.

**Table 1. Themes**

Themes
Active Learning Behaviours and Feedbacks from the Students
Localised Images, Materials, and Videos Encouraged the Cognitive Learning Growth
Beyond the Textbook: Able to Answer the Questions based on the Visual Videos and Materials

### Active Learning Behaviours and Feedbacks from the Students

All 10 participants advocated and echoed that the visual-only videos significantly increased the learning motivations and encouraged peer-to-peer discussions in the online classroom environments. Many teachers indicated that before applying the Visual-Only Video Teaching Strategy (Dos Santos, 2019), almost all students did not answer any questions from the online teaching platforms, such as the live video lessons. As one said,

*...the visual-only videos provided the stage...for them to comment...at least, I personally would not comment on the videos from the textbooks...as these videos are self-created...the*

*videos are pretty interesting...I would like to comment on my own videos, too...(Participant #1, Politics)*

In short, some previous studies indicated that (Brown et al., 2015; Pitarch, 2018) video learning strategies may increase students' motivations and engagements due to the visual images and real situation illustrations. Many learners absorb new knowledge and skills from observation (Dos Santos, 2018). Therefore, in line with the Visual-Only Video Teaching Strategy (Dos Santos, 2019), the visual-only videos and the procedures from the strategies significantly encouraged the learners' motivations and experiences.

### **Localised Images, Materials, and Videos Encouraged the Cognitive Learning Growth**

In line with the Visual-Only Video Teaching Strategy (Dos Santos, 2019), all the images and videos should be taken in the surrounding environments and towns. Therefore, many images and videos were familiar to many students. Although not all subject matters, such as ancient history, classics, Latin etc., may have localised images and videos, teachers tried their best to yield materials for the visual-only videos and related materials. As a result, many advocated that the localised materials significantly increased the cognitive learning growth of their students, as one said,

*...my students could use the foreign language to explain and describe the local communities...the previous lessons with the textbook-enabled videos played no roles in students' learning and knowledge bases...but the localised videos greatly helped...they understood their local communities...they could describe their local communities with the vocabulary and grammatical structures...(Participant #2, French)*

In short, according to a previous study (Brown et al., 2013), live lessons with localised or familiar images and items could increase the cognitive learning bases as the materials are reachable to the students. Although some participants indicated that knowledge, images, and videos from ancient history courses are hard to capture, museums and internet websites may overcome some challenges.

### **Beyond the Textbook: Able to Answer the Questions based on the Visual Videos and Materials**

Although liberal arts and foreign language courses do not need lab experiments and hands-on experiences from teachers and student interactions, the four-skill proficiencies, including reading, writing, listening, and speaking, are essential (Jaggars, 2014). Besides watching the visual-only videos created by the teachers from the online education platform and social media platform, students still needed to complete the exercises, reading, and case studies with the connections of the visual-only videos (Dos Santos, 2019). It is not hard to expect that

only a few students would answer the questions from the live lesson. However, in line with the visual-only videos, students actively answered the questions and completed the exercises without any problems, one said,

*...the videos become the stage...it can help the children...they like the exercises with some closed connections...of their worksheets and exercises...the videos from the textbooks are very old...at least 30 years old...but the current videos are new...they watched the videos and loved to complete and answer the questions during the live lessons...(Participant #8, History)*

In short, the participants advocated that students could answer the exercises and complete the worksheets due to the interactions and connections of the visual-only videos based on the Visual-Only Video Teaching Strategy (Dos Santos, 2019). The current strategy significantly allowed the students to reach their achievements. More importantly, the motivations and willingness to complete exercises and assignments were significantly important in order to overcome the challenges of live lessons.

### **CONTRIBUTIONS TO THE PRACTICE AND CONCLUSION**

Three contributions to the practice have been categorised. First, the Visual-Only Video Teaching Strategy (Dos Santos, 2019) is one of the latest technology and digital education tools in the field of technology education. Based on the users' behaviours (i.e. teachers and students), the strategy indicated that the visual-only video is the key point for enhancing students' learning motivations and outcomes. Based on the outcomes from this study, school leaders, teachers, department heads, and government leaders may take this study as the blueprint to upgrade and encourage teachers to design their visual-only videos in their classroom environment.

Second, online education will become the education trend after the COVID-19 pandemic, particularly in the regional and rural schools and school communities. The Visual-Only Video Teaching Strategy (Dos Santos, 2019) and the outcomes of this study illustrated the procedures, feedback, and potential achievements for

students learning, motivations, and long-term developments. Therefore, teachers may develop online courses and live lessons based on the Visual-Only Video Teaching Strategy (Dos Santos, 2019).

Third, although many courses will return to the traditional face-to-face classroom environments, the Visual-Only Video Teaching Strategy (Dos Santos, 2019) is also workable in physical classrooms, regardless of the subject matters, grades, and ages. Based on the comments from the participants, many students were active and motivated with the visual-only videos. Therefore, department heads may encourage their teachers to design similar visual-only videos to encourage their students' learning motivations and achievements in the physical classroom environments.

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