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Affective role of video content in recycle learning

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Abstract: In this paper, we describe the affective role of multimedia learning, specifically on video as a medium to tell the stories for recycling awareness. Recycling has become an important agenda in today's society and addressing the awareness of recycling has become critically important in education. Affective learning is one of the ways to achieve learning motivation, intention and therefore action for recycling. Using Video as a communication tool to motivate the learners is considered as a way of learning interaction. Therefore, video design with affective intention in mind can be an effective way to foster awareness and subsequently learning. This paper intends to explain the processes and content used for creating a recycling workshop promotional video that potentially evoke the affective domain of the young learners between 15 – 30 years old, in a storytelling kind of progression. This video will serve as a platform of communication with the audience about the importance and impact of plastic pollution. Future directions of research on this project is to create more such videos for recycling awareness and actions.

Keywords: Affective learning, recycling, video, Adobe Premiere Pro

1. Introduction

In this digital age, affective learning can be destined through the use of digital video and its technologies. Affective learning revolves around emotions, feelings and learning. Affective learning domain as one of the three main domains of learning from Bloom's taxonomy of knowledge. Affective domain links to feelings, value, attitudes and motivations of learners (Sha & Hong, 2017; Belanger & Jordan, 2000; Krathwohl, Bloom, & Masia, 1964). Rosalind (2000) defined emotion as an art, entertainment and certain social interaction that is not limited to itself, but also acts as a motivator to influence perception. Digital media computing can be an effective supportive and widely available tool (with its methods) for creating digital media content such as video. With emotional treatment in mind, video is currently the modern and important communicative and learning tool (Giannakos, Chorianopoulos, Ronchetti, Szegedi, & Teasley, 2014). Video is a part of multimedia and it is the medium to transfer knowledge as well as information. It is considered as a very convenient way to learn with the assistant of visual, motion, audio and graphics. To trigger the learners' affective domain, it is important to implement the emotion or affective design elements into video creations.

The purposes of this paper are two-fold: 1) To explain how a video design based on affective learning is created for instilling awareness on recycling to the audience, 2) How is the sentiment of audience after viewing the video on their own in recycling? This paper is arranged with the first section explains the importance of video for affective learning domain, it then explains an example of the processes of creating an affective oriented video content and finally presents a simple analysis of sentiment or emotion of audience towards the video.

2. Video and Affective Learning Domain

Online videos have become popular due to the easy access and immersive content that attracts the audience. YouTube, the largest video-sharing site has 2 billion monthly viewers worldwide as of May

2019 (Statista, 2020). This number is still growing and it is more influential than traditional TV or other online content creation platforms and particularly beneficial in e-learning which relies on digital content. While video is valuable for many types of instructional events, its role in meeting educational outcomes within the affective domain of learning is compelling. Video is a powerful medium for conveying the spectrum of human emotion through the drama of the audiovisual story. Therefore, it is believed to be a faster way to instill learning and awareness among learners.

Krathwohl et al. (1964) explains that the affective domain often relates to the feeling, degree of acceptance and emotions. To associate both video and affective domain in learning, the content of the video needs to be emotional, highly and lowly arousal and valence in nature (Berger, 2011). However, video in neutral, i.e., contrast to the context of emotion will not be shared or caught attention (Eckler, 2011). Emotional effects, disgust and empathy images and videos are displayed in the video. Figure 1 shows the three screenshots of a video content designed for a workshop on recycling developed by the main author of this paper.

Figure 1. Left showing the death of the sea turtle caused by plastic waste, middle showing the landfill and right showing a sick person. (Source: depositphotos.com and mixkit.com)

The above images are shown to instill the emotional effects of empathy (death of sea turtle), disgust (landfill) and fear (sick person), which are related to the issue of learning, namely recycling awareness.

3. The Processes of Video Content Development (to be described in the workshop)

The core part of this paper will be the description and explanation of the design and development of the affective video content of a recycling workshop's introductory video. The workshop is called Edcraft Workshop. The storytelling steps of this introductory video follow these steps: The introduction to explain the problem, the solutions that have been carried out by current researchers and practitioner, and how we provide solution through Edcraft Workshop. The key steps of creating the awareness video consist of the following:

Step1) Idea Conception.

Step2) Content gathering and script writing.

Step3) Voice-over and arrangement of audio.

Step4) Category Organization.

Step5) Final testing and checking.

Step6) Completion and export.

Following are some screenshots of processes and captured documents based on the above processes.

Step 1) Idea Conception (Figure 2)

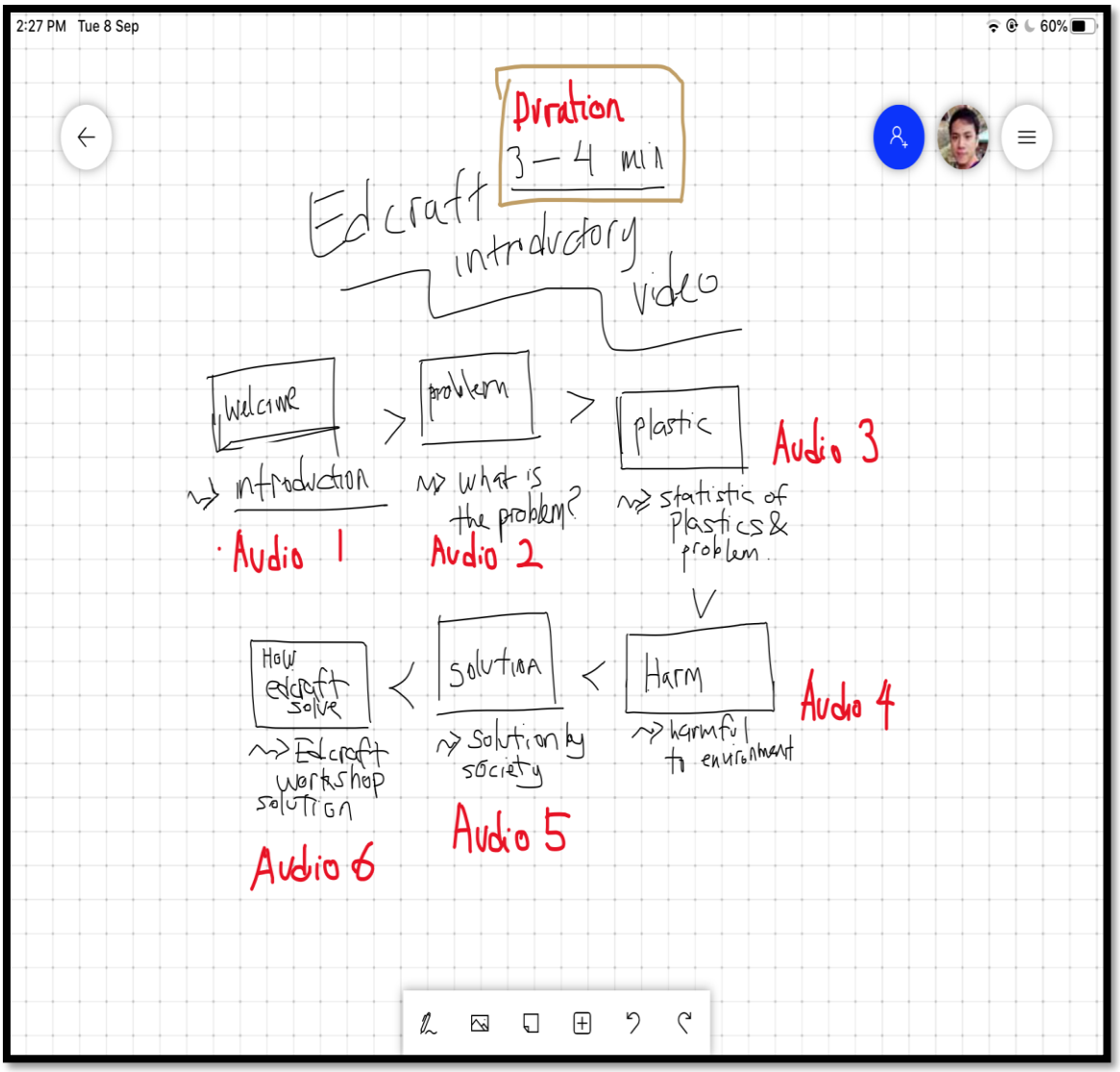
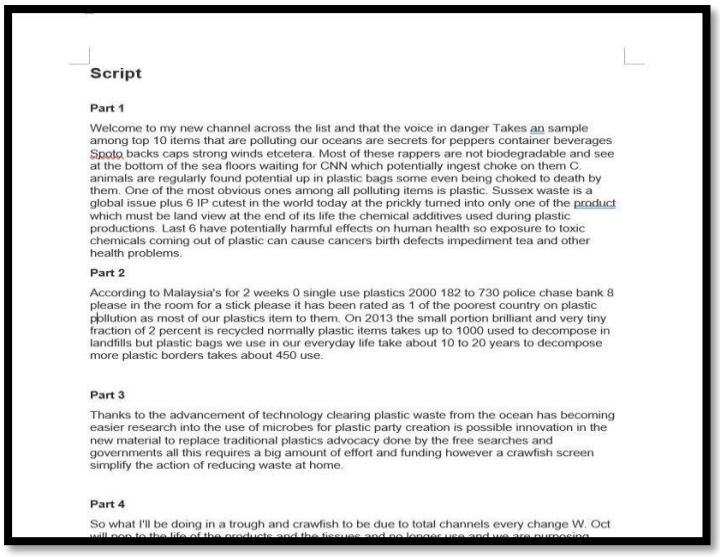


Figure 2. A preliminary concept idea of the topic and planning for the video

The video duration, content and audio are written on Microsoft Whiteboard application as the video pre-work plan. From this flowchart, six topics were planned, 1) Welcome, 2) Problem, 3) Plastic, 4) Harm, 5) Solution and 6) How Edcraft solve the problem. With these 6 topics, it will be organized in a 3 to 4 minutes video.

Step 2) Content gathering and script writing (Figure 3)



Script

Part 1

Welcome to my new channel across the list and that the voice in danger Takes an sample among top 10 items that are polluting our oceans are secrets for peppers container beverages Spoto backs caps strong winds etcetera. Most of these rappers are not biodegradable and see at the bottom of the sea floors waiting for CNN which potentially ingest choke on them C. animals are regularly found potential up in plastic bags some even being choked to death by them. One of the most obvious ones among all polluting items is plastic. Sussex waste is a global issue plus 6 IP cutest in the world today at the prickly turned into only one of the product which must be land view at the end of its life the chemical additives used during plastic productions. Last 6 have potentially harmful effects on human health so exposure to toxic chemicals coming out of plastic can cause cancers birth defects impediment tea and other health problems.

Part 2

According to Malaysia's for 2 weeks 0 single use plastics 2000 182 to 730 police chase bank 8 please in the room for a stick please it has been rated as 1 of the poorest country on plastic pollution as most of our plastics item to them. On 2013 the small portion brilliant and very tiny fraction of 2 percent is recycled normally plastic items takes up to 1000 used to decompose in landfills but plastic bags we use in our everyday life take about 10 to 20 years to decompose more plastic borders takes about 450 use.

Part 3

Thanks to the advancement of technology clearing plastic waste from the ocean has becoming easier research into the use of microbes for plastic party creation is possible innovation in the new material to replace traditional plastics advocacy done by the free searches and governments all this requires a big amount of effort and funding however a crawfish screen simplify the action of reducing waste at home.

Part 4

So what I'll be doing in a trough and crawfish to be due to total channels every change W. Oct

Figure 3. Content research and gathering of data/information into the video script.

Based on the 6 topics, content analysis and compilation were done through different journal papers and websites. After that, sources will be compiled and documented into a script for voice over. Relevant images and videos with affective domain learning experience were gathered.

Step 3) Voice-over and arrangement of audio.

Figure 4 shows the video recording processes based on the scripts written. Simple mobile tool is used with proper recording environment without noise.

ipts.

Based on the script, voice-over recording was done in 6 audio parts as shown in Figure 1.

Step 4) Category Organization.

Images, audio, videos and voice over recordings were compiled into one folder for video development. Figure 5 shows all the data created and gathered for the video production.

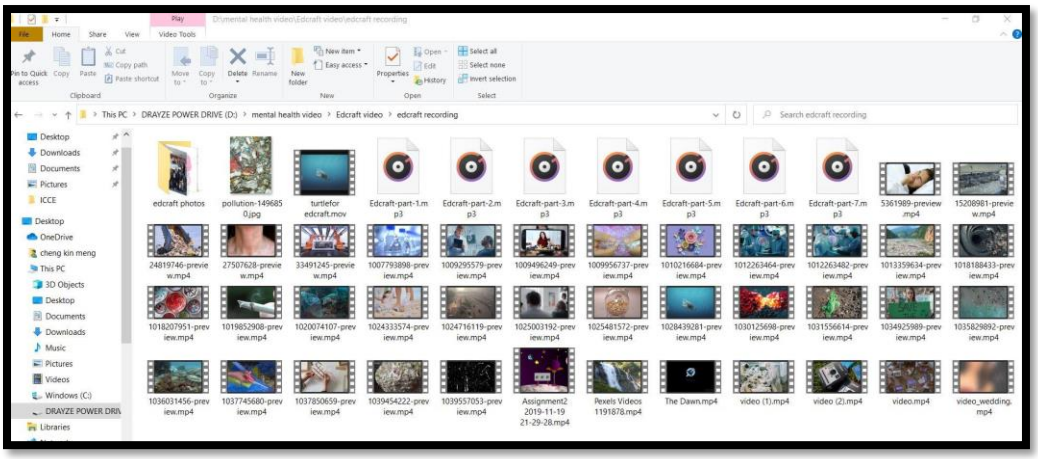


Figure 5. Compilation and organization of video and audio content based on different parts

Step 5) Combine, touch up, checking and refine.

Adobe Premiere Pro (Figure 6) is the main video editing software used to manage all the resources. Images and videos were imported together with music and voice over. These resources were to be processed and arranged into the storyline that we planned in Step 1.

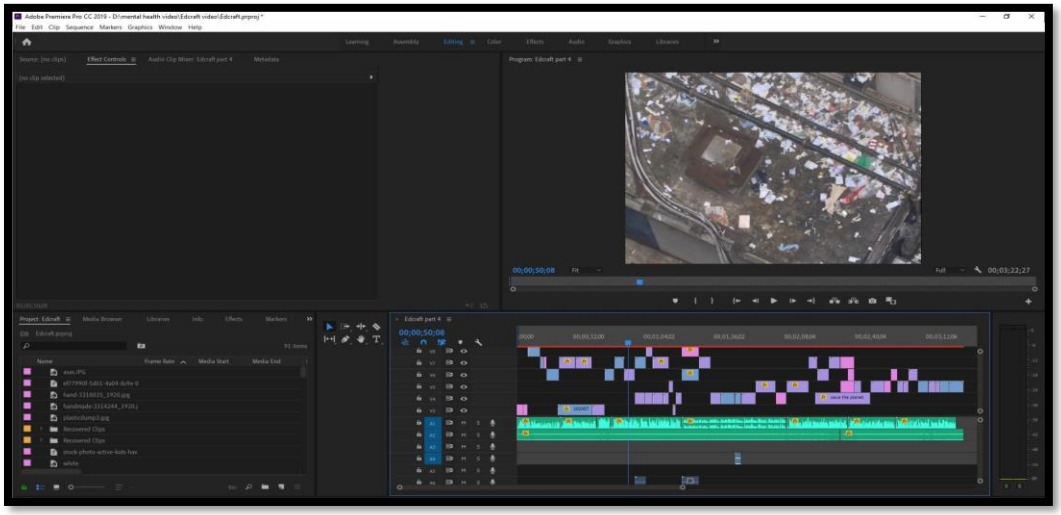


Figure 6. Images, video and voice recording are inserted into Adobe Premiere Pro for video compilation, effects and touch up.

Step 6) Completion and Export

The completed video was exported to YouTube (Figure 7) as a platform for workshop participants to view during and after workshop.

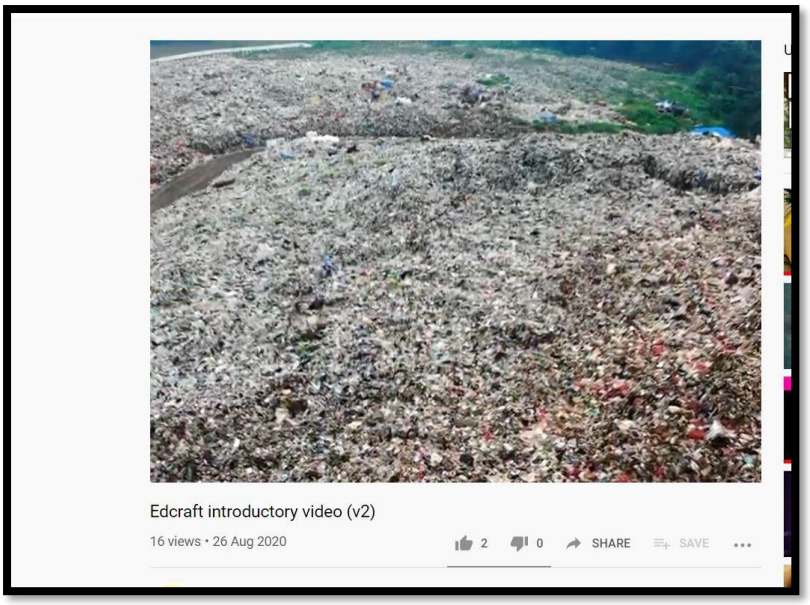


Figure 7. Completed video export to Youtube,
(URL: https://www.youtube.com/watch?v=PUl33BCozGA)

4. Video Creation of Recycling Workshop Explained

This work is an introductory workshop video for recycling awareness. It was developed with photographs and videos captured from the waste dumping area, also from open source video stocks. This is also the first step to engage the participant to the recycling workshop.

5. Method and Sentiment Analysis

To analyse the sentiment (emotion) expressed after watching the video as developed in this study and experiencing the recycling workshop, we use the SentiStrength (Thelwall et al. 2010) classifier. Thelwall (2010) mentioned that SentiStrength is a free sentiment analysis tool that uses a lexical approach that exploits a list of sentiment-related terms and has rules to deal with standard linguistic and social web methods to express sentiment, such as emoticons, exaggerated punctuation and deliberate misspellings. This study is performing a mixed method analysis to detect the emotion strength through interview, text and scaling between negative and positive score. Moreover, this technique is capable to triangulate qualitative and quantitative methods (Rambocas, M., & Gama, J., 2013).

Four participants (A, B, C, D) who participated and experienced the workshop, watched the recycling video and created their videos during the workshop, have been invited for an interview. A list of questions was asked to them, but in this paper, only the sentiment on one interview question to be discussed. SentiStrength can manage short informal texts during the discussion, also it can evaluate texts that have been coded by humans (Kucuktunc et al., 2012, Thelwall et al., 2012).

Thelwall mentioned that the algorithm available in sentiment analysis; the result estimation can be in several forms in "binary – either positive/negative or objective/subjective; trinary – positive/neutral negative; scale – e.g., -5 (strongly negative) to 5 (strongly positive); dual scale – e.g., 1 (no positivity) – 5 (strong positivity) and -1 (no negativity) to -5 (strong negativity); and multiple – e.g., happiness (0-100), sadness (0-100), fear (0-100)." This study focuses on the trinary score to conduct between positive, neutral and negative classification.

SentiStrength can be evaluated by applying it to a set of texts that have been coded for sentiment by humans and comparing the SentiStrength scores with the human scores.

Below is the question asked to the four participants.

Question: Do you think video creation is important and how significant is video creation for you? What is important and not important?

Table 1. *Sentiment detection in video on recycling using SentiStrength*

Participant	**Answers input text of focus group discussion transcription from participants**	**Classification rationale based on word and sentence scores**	**Final Sentiment Score**		**Overall Trinary Score**
			Negative Score	**Positive Score**	
A	I think video creation is important for the judging part, for the proof that you are doing the artwork.	"[sentence: 1,-1] [result: max + and - of any sentence][trinary result = 0 as pos=1 neg=-1]"	1	-1	0
B	some people might not know how to edit video,	"[sentence: 1,-1] [result: max + and - of any sentence][trinary result = 0 as pos=1 neg=-1]"	1	-1	0
C	Contrary to what they said, yes, it is important.	"[sentence: 1,-2] [result: max + and - of any sentence][overall result = -1 as pos<-neg] "	1	-1	-1
D	find correct background music for my video, then take account in time	"[sentence: 1,-1] [result: max + and - of any sentence][trinary result = 0 as pos=1 neg=-1]"	2	-1	0

The answers input text of focus group discussion transcription from participants are selected and coded based on the most suitable theme from the discussion based on the question asked. The classification rationale based on word and sentence scores uses the "dual positive – negative scales because psychological research reports positive and negative emotions can be experienced simultaneously by humans and to some extent independently" as mentioned by Norman et al (2011). In this preliminary test, the result of the classification rationale based on word and sentences score are generated directly from SentiStrength. 3 participants showed a neutral score of 0 in overall Trinary score, means the overall of the emotion is neutral from the result of the 3 participants and only one participant with overall score of -1. Emotions still require an in-depth analysis in the next stage of the study.

6. Conclusion

Through this workshop, audiences who are interested in content based (i.e. video) recycling workshops will be able to learn how an educative video with affective domain was created, from initial stage to the final stage. Also, this stage or future study allows researcher or educator to understand the emotions of

the participants with sentiment analysis. With this research data, we understand that one interview is insufficient to achieve a more concrete result, as qualitative research is to understand belief, experiences, behavior and emotions, this research is to add qualitative in emotions to the quantitative area to detect positive, negative or neutral in one's emotion.

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