IN360: A 360-Degree-Video Platform to Change Students Preconceived Notions on Their Career

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Abstract
To motivate primary school students in Indonesia to learn more, career inspiration sessions are usually held by communities of professionals. However, these activities face limitations such as time, distance and physical infrastructure. We propose IN360, which is an exploration of alternative media to deliver career education to elementary students in remote, undeveloped and frontier area in Indonesia utilizing digital platform and 360-degree-video. The goals of this research are twofold; (1) to create a sustainable system or model for career education content using 360-degree-video format and (2) to deliver it through a digital platform.

Author Keywords
career education; 360-degree-video; ICT; remote area

Introduction
United Nations International Children's Emergency Fund (UNICEF) Indonesia stated in their 2012 report that 92 percent of children in Indonesia are registered in primary school [3]. In the same report, UNICEF also mentioned that 2.5 million childrens aged 7 to 15 years are not going to school, in which most of them were dropped out during the transition period to junior secondary education.

One of the co-founder of Komunitas Inspirasi Jelajah Pulau or Island Hopper, Novi Safitri, believes that besides extrinsic influence like financial problem and inequality of access to good quality of education, intrinsic value like learning motivation is still one of the biggest factor that determines students involvement in school. In remote or undeveloped areas like Seribu Islands, exposure to the benefits of higher education for the future is scarce, resulting in a lower prioritization for education from both parents and students.

As a contribution to primary level education in Indonesia, a community called Kelas Inspirasi or Class of Inspiration was initiated in 2012 by the alumni of Teach for Indonesia and several professionals[4]. Professionals from various field of jobs like engineering, journalism, health care, education, government, marketing, design and many other fields conducted a one-day profession sharing session in primary schools that are located in remote or undeveloped areas around their town. In 2014, Island Hopper was established with a similar goal and approach [2]. However, they focused more on the small islands areas to shorten the gap of education between islands.

According to the professionals who volunteered in Island Hopper,the one-day inspiration class gives students a lot of new example of future job, shown in the increasing variety of career that they choose before and after the session. Moreover, some students who did not have any plan for their future before finally find a profession they are aspired to be. Unfortunately, despite the positive result of Island Hopper activity, time, distance and physical infrastructure are still some of the main obstacles to expand the value of their community. The activity in the islands is limited into two session for each year, which make it less flexible for the professionals to participate. The transport option is also limited resulting in the minimum amount of props can be brought to the island to share most of the experience with the students.

Related Work

Sense of purpose to support Learning Motivation

Even though there is no further evidence yet on the escalation of students attendance continuation to junior secondary level school over the two and a half years of activity of island Hopper, a study on students academic tenacity by Carol S. Dwek suggest that students with long-term purposes, especially those with social impact, improve students academic tenacity and cultivate a motivation for students to accomplish their learning goals in school [6]. Vice versa, it is important for the knowledge they learn to be transferable to everyday life and future work [10]. A set of example of successful people who has experienced the process of becoming that profession will help students to relate their school studies to realistic plans in achieving their long-term goal [6]. In that manner, professionals have to share not only the basic information of the profession, but also the value and the process of becoming one.

ICT in Education

Indonesia is an archipelago country. Therefore, there is always a gap in the development and distribution of infrastructure and human resource. Utilization of Information and Communication Technology (ICT) will eliminate the barrier of distance between educators and learners. Appropriate use of new media in learning environment can also expand the level of engagement, accessibility, social support and expanding diversity to support classroom activity [10]. Jaka Warsihna wrote in his journal that even though small-scaled ICT projects have been utilized in remote, undeveloped and frontier

areas, ICT could be used in such area under the principles of empowerment, bottom-up, sustainability, modern learning approach and partnership [11]. By connecting the professionals and students, as well as other parties in their environment, the digital platform that is being proposed plans to empower the community surrounding the students and ensure the sustainability of the model.

Immersive Storytelling Media in 360-degree Video
Story telling is the oldest profile of education and its development into digital form is important both as a process as well as a product [7]. Storytelling reflects culture and social status, and as a product it helps people feel closer and connected to each other.

In asynchronous distance learning, there is a lack of direct physical interaction. By eliminating the presence of the square medium by using 360-degree-videos, the story will be delivered in a more engaging way. 360-degree-videos or spherical videos, are an immersive video where views in every direction are taken at the same time, enabling viewers to control the viewing direction like panorama [5]. Researches on engagement in 360-degree-video or immersive media have been conducted, and based on the experiment by StoryUp, 360-degree-video beats fixed frame videos in terms of views, cost per impression (CPM) and click through rate (CTR) [9].

In a different experiment by Anne Schlosser on the effect of interactive media to peoples memory on a product, participants who used the interactive site would have better recall of the features of the promoted product than those who used the static website [8]. 360 video cannot be classified as interactive media, but it does attract users attention a lot more than conventional video media. A separate study conducted with 6 graduate students in international environments shows that 360-degree-video also affect the number of information being perceived by viewer. Two videos containing the same information in different format: conventional square video and 360-degree-video were shown to them. 4 out of 6 graduate students gave more correct answer to questions about the information existed in the video when they watch it in 360-degree environment.

Research Goal

To deal with the problem of time, distance and physical infrastructure, an exploration of alternative media to deliver career education to elementary students in remote, undeveloped and frontier area in Indonesia utilizing digital platform and 360-degree-video is proposed. The goals of this research are to (1) design a system or model for career education content using 360-degree-video and (2) to deliver it to the elementary students in remote, undeveloped and frontier area in Indonesia through digital means.

Design Concept

IN360 offers a holistic service of digital career education from content creation, web and mobile platform, until delivering the content to target users in primary school partners. While the main stakeholders are the primary school students and the professionals, Figure 1 illustrates how the model proposed encourages other parties in the two stakeholders surrounding to also contribute. Professionals and video makers are going to work together to create career inspiration content in 360-degree-video form. On the other side, teachers and parents will guide students to enjoy the content. The IN360 team will be in charge of organizing 360-degree-video workshop, developing the website and connect them to the targeted users.

The stakeholders included in the model are:

- **Professionals;** Has a minimum of 2 years experience in the field that require higher education or certain level of skill mastery.
- **Video Maker;** Has basic video production skill.
- **Students;** Primary school level students from grade 4 until 6.
- **Teachers & parents;** Guardians of the targeted students.

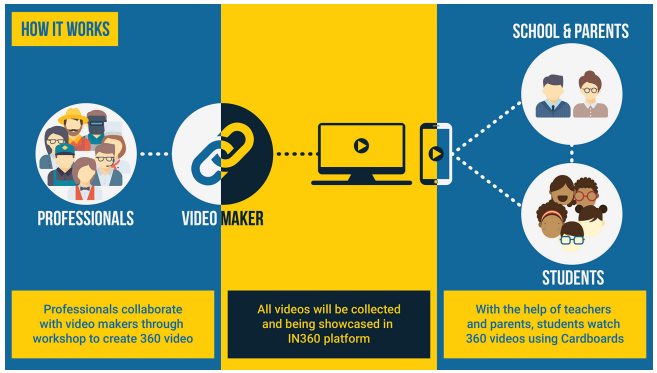

Figure 1: The model being proposed.

Content Creation
360-degree-video, one of the latest form of new media is still unfamiliar even for video makers. A lot of panoramic video for documentary, sightseeing, music video and extreme experience are already available online. However, there are limited examples of storytelling in 360-degree environment.

A workshop is designed to help video makers match the required level of knowledge and experience in 360-degree-video production. For people to understand the purpose of IN360 and build empathy on the subject, the workshop will start by introducing the background idea of the project. After that, practice on every basic video production process from research, script writing, story-boarding, video shooting, audio recording until editing will be conducted. Each process will accommodate introduction, practice and feedback time from peer participants.

The final product of the workshop is a finished 360-degree-video on career inspiration of the profession chosen by the participants [1]. The final video is expected to contain a footage of the working space, the value of the profession, personal motivation and accomplishment process of the professional to be in their current position. In terms of interactivity, the video should also utilize the panoramic setting of the video to emphasize its advantages over regular video.

Website Development
Google Cardboard is going to be the main tool for students to enjoy the video content. This is the only VR equipment that is accessible, under the guidance of adult, for kids under 12 years old [1]. For this reason, the website will be mainly developed in mobile platform with desktop site as its secondary access.

The website will be separated into two level of access; one that is accessible to students and another one available to the content maker only. Generally, some feature that should be available in the website are listed below:

- Categorized video gallery
- Download-able/offline video content
- IN360 account/channel for stakeholders
- Communication tools between professionals and students
- IN360 guideline

The website should be very intuitive and friendly enough for elementary students but also support readability of long text to accommodate communication between stakeholders.

[1] visit http://bit.ly/in360-ch

Figure 2: Workshop activity in Bandung, Indonesia (top) and Yokohama, Japan (bottom).

Connect to Target
To finally deliver the video content to primary school students in remote area, an information session to enable teachers and parent to operate the platform and ensure students safety while watching the video is necessary.

Stage 1: Content Creation

Workshop Design
Two workshops with a different set of undergraduate students were held in Bandung, Indonesia and Yokohama, Japan as seen in Figure 2. In both workshops, professionals were not being directly involved. Instead, 6 multimedia students from Indonesia with knowledge in visual narration and basic video production participated in the first workshop. The workshop was conducted in two sessions within the duration of 8 days. The first session consisted of project introduction, empathy development, story creation practice and 360-degree-video production practice. The participants were given a homework to interview, create a story line and shoot a video of one professional of their choice. In the second session the participants did post-production, video presentation and feedback time.

The second workshop in Yokohama Japan involved 10 Japanese undergraduate students from the Policy Management department. They were divided into 3 groups based on their Indonesian language skill and video production experience. Every two weeks, one session was conducted for 2 hours. The sessions are introduction session, research and story making session, storyboard and video production session, video editing session, extra session for video editing and ended with translation and dubbing session. After session two and three, they were given homework on research, story making, storyboard and video production with real professional of their choice.

Table 1: Workshop Setup

	Workshop I	**Workshop II**
Location	Bandung, ID	Yokohama, JP
Participants	6 people	10 people
Nationality	Indonesian	Japanese
Groups	2	3
Sessions	2 x 3 hours	6 x 2 hours
Time-span	8 Days	10 Weeks

Result
A total of 5 videos created in the workshop. The videos show five different professions as listed here:

- Game Illustrator
- Video Maker
- Restaurant Owner
- Entrepreneur
- Professor

All videos contain the footage of working place, working process/activity. While Indonesian participants let the professionals explain about their job by themselves, the videos created by Japanese participants show the interview session between them and the professionals.

User Test

Before moving on to mobile site development, a user test with 10 primary school students (5 girls, 5 boys) aged 9 12 years old was conducted in Panggang 02 Pagi Elementary School, Pramuka Island, Indonesia. As shown in Figure 3, each student was observed while they watch one video from the workshop. 3 of the students watched a video about game illustrator, another 3 watched a video showing ell restaurant owner in Japan and the last 4 students watch the video about video maker.

Figure 3: User test in Panggang 02 Pagi Elementary School, Pramuka Island, Indonesia.

After that, they were asked to answer some questions regarding their watching experience. Questions about the things that they like in the video, whether the students like the professions being shown and the reason as well as professions they would like to watch in the future are being asked.

They are fascinated by looking at the process of creation shown in the video. Gimmicks like fast-forward features in the video also attract their attention. Most of the students feel comfortable using Google Cardboard and only one of the student experienced dizziness.

Result

This research is still an ongoing process. So far, the result of the workshops show progression in the participants from being unfamiliar to 360-degree-video production to finally producing one video per group. Evaluation from both workshops suggest several things to be repeated and improved in the next workshop, as listed below:

- **Building empathy.** There are several ways to build empathy, from interviewing, watching video until acting out a skit.
- **360-degree-video experience.** Experiencing the 360-degree-video themselves will help participants to understand the difference with conventional video.
- **Video production practice iteration.** Several iteration in the production practice will help the participant to understand the character of 360-degree video better.
- **Importance of mentor.** When facilitators with prior knowledge being assigned to each group, participants tend to work faster.
- **Workshop Duration.** Direct involvement of professional will make the workshop more effective and efficient.

The first user test shows students acceptance to 360-degree-video. Another user test will be conducted with more variety of content and in-depth interview to find out the effect of the video to students' learning motivation. In the process of the first user test, it is noted that not every smart phone available in Indonesian market can play 360-degree-video. To receive more feedback, several mobile devices equipped with accelerometer and gyroscope sensor and more Google Cardboards should be prepared. Fortunately, school profides internet connection for academic activity. Further fieldwork on the speed and internet availability in students' house should be done to determine whether the model proposed will be focused in school area or can also be implemented outside school.

The research will then continue to website development stage.

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