Arijo: Location-Specific Data Crowdsourcing Web Application as a Curriculum Supplement

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Abstract – Smart devices are quickly becoming more accessible to the general public. With the proper tools, they can be used to supplement the work of educators. According to studies by Beeland Jr. and Roussou, learning through interaction has been considered to be effective by both students and teachers. This study aimed to develop an interactive curriculum supplement for smart devices in the form of a Location-specific Data Crowdsourcing Web Application (Arijo) which teaches students how to conduct experiments and upload their results to the internet for archival purposes. Arijo was developed with a combination of the Appsheet framework, Adobe Photoshop, and Google Maps. Three core functionalities were programmed: data input/output, data interpretation, and information dissemination. Arijo was able to perform its intended features such as recording and displaying data within specific locations, along with displaying guides on how to conduct an experiment. Arijo was able to fulfill its main objective, to be a curriculum supplement, through the aforementioned features. In the future, Arijo may be expanded to support more year levels and multiple curriculum, the Advanced Placement and International Baccalaureate systems for example, because of its modular nature.

Introduction. – Science, Technology, Engineering and Math or STEM, is an educational discipline focusing on the four aforementioned fields. Apart from promoting and exposing students to those fields, teaching STEM has been shown to have a positive impact on both students and educators alike. This includes teaching the efficiency and inquiry skills required to succeed in STEM-related endeavors[1]. A study by Estonanto[2] showed that there was a low acceptability of the new Philippine STEM curriculum among stakeholders. It revealed that the major problems were on the areas of the Facility and Instructional Materials, and the difficulty of coursework. He concluded that there was much to be improved about existing learning materials. New ways can be added to the area of the Facility and Instructional Materials to promote STEM, one of which is interactive learning. There exist studies that prove that interactive learning benefits both students and teachers. Beeland Jr.[3] in 2002 studied the effects of interactive whiteboards in classrooms, the purpose of which was to determine how student engagement was affected by using interactive tools throughout the learning process. The results showed that the aforementioned tool resonated with learners and lecturers alike

while also increasing student engagement. Nowadays, the technology present in the interactive whiteboards of old can be found in everyday smart devices such as phones, laptops, and tablets. Smart devices are hardware that possess the ability to perform ubiquitous computing, which gives them the ability to run complex programs known as applications. These programs have multiple uses, one of which is data input and output. Using sensors commonly found in contemporary smart devices, some applications can find location-specific data such as GPS coordinates and ambient air temperature. Using the internet, some applications are able to disseminate information like news, weather forecasts and stock market statistics. Other applications even involve data crowdsourcing, the act of gathering data from the public. Data gathered via crowdsourcing is valuable for researchers, businesses, and the public alike, as they can help predict trends and identify potential solutions to problems. Location-specific data are among these, it being information related to a specific locale. An example of an application that primarily makes use of crowdsourced location-specific data is Waze, which uses traffic information sourced from public repositories to- For the full article, please visit https://bit.ly/2HS3u5L