

Google Cardboard for a K-12 Social Studies Module



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TCC 2016 Online Conference



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#TCC21st

<https://www.flickr.com/photos/pestoverde/18634310535>

https://commons.wikimedia.org/wiki/File:Email_Shiny_Icon.svg

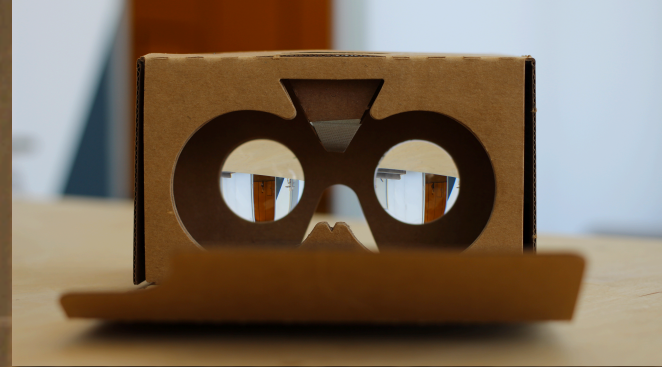
https://commons.wikimedia.org/wiki/File:Twitter_Logo_Mini.svg

About Me

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University of Hawai'i at Mānoa
College of Education
Learning Design and Technology
Master's Candidate
TCC 2016 Online Conference

- 20 years IT & A/V
- IT manager
- K-12 technology research



Agenda



- About
- Design and Development
- Virtual Reality
- Student Perceptions
- Summary and Reflections
- Questions and Thoughts

Audience Poll

Have you used Google Cardboard?



YES



NO

Google Cardboard

- David Coz and Damien Henry - Paris
- 20% Time
- Virtual Reality viewer
- Low cost
- B.Y.O. smartphone



https://c2.staticflickr.com/6/5664/23398921652_c34f1b5ced_b.jpg

<https://i.ytimg.com/vi/duBEu4P0NoM/maxresdefault.jpg>



ABOUT

About: Purpose

A 2014 study by Edison Research found that 75% of 12-17 year olds had a smartphone

(Webster, 2014)

About: Purpose



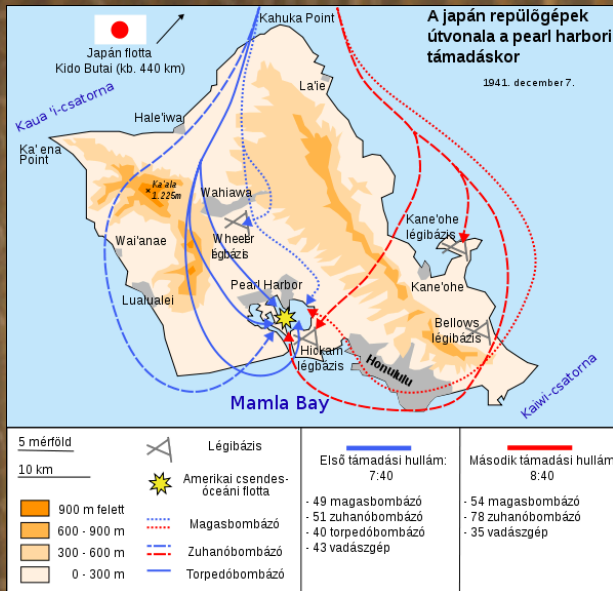
<http://idealisten.wpengine.netdna-cdn.com/wp-content/uploads/2015/04/micro.jpg>

https://upload.wikimedia.org/wikipedia/commons/4/47/Mumbai_Guy_on_phone_November_2011_-2-5_Closeup.jpg

About: Purpose

The purpose of the instructional design project was to develop a module within a learning management system (LMS) and to gather affective domain research data on student perceptions of students in grade 9, who utilized a Google Cardboard device to view content for a high school social studies class at a Hawai'i Public Charter School.

About: Topic



- History of Hawai'i supplement
- World War II – Attack on Pearl Harbor
- Adding virtual reality component



https://commons.wikimedia.org/wiki/File:Pearl_Harbor_1941_hu.svg

https://upload.wikimedia.org/wikipedia/commons/1/1f/USS_California_sinking-Pearl_Harbor.jpg

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The background of the image is a dark brown, textured surface resembling a printed circuit board (PCB). It features intricate, light-colored circuit traces and numerous circular vias or solder pads scattered across the surface. The overall aesthetic is technical and industrial.

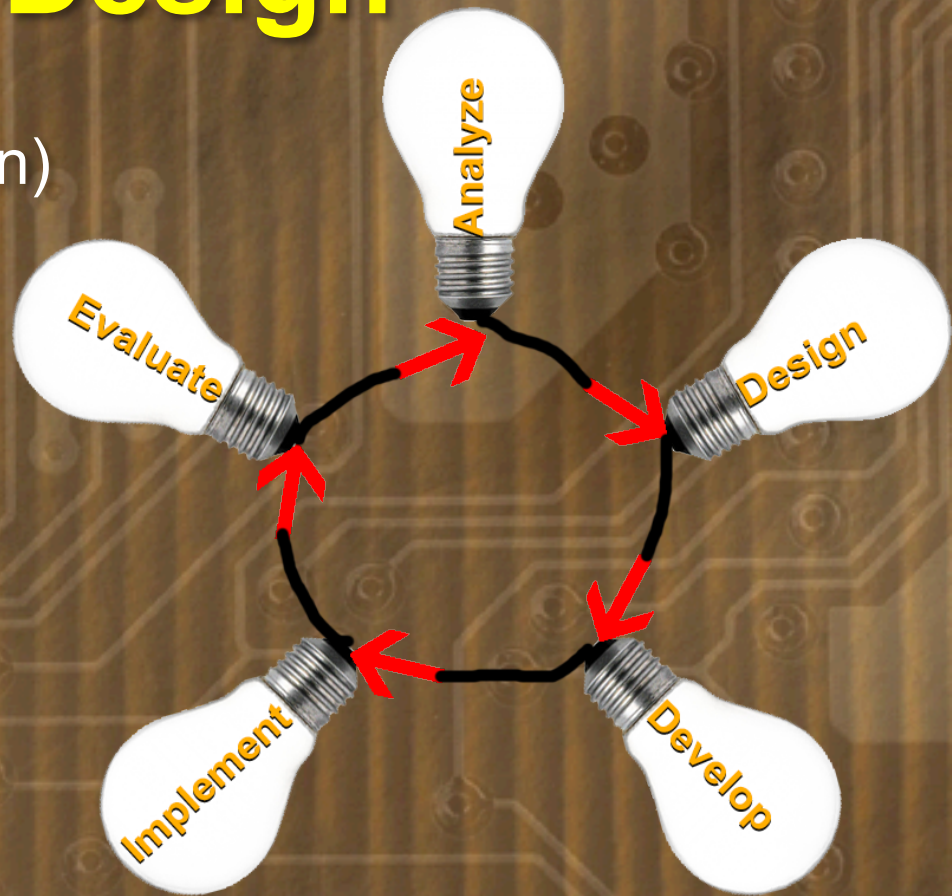
DESIGN & DEVELOPMENT

Project Design

- Develop modules in Canvas learning management system (LMS)
- World War II – Attack on Pearl Harbor
- Adding virtual reality component

About: Design

- ADDIE – (instructional design)
- Analysis
- Design
- Development
- Implement
- Evaluate



About: Design

- Post survey design
- ARCS – (John Keller – motivational design theory)
- Attention
- Relevance
- Confidence
- Satisfaction

Module - Assignments

☰ ▾ Assignments						+	⚙️ ▾
☰	📄 Pearl Harbor - Pre-assessment	Pre Test Module	Closed	Due Feb 17 at 11:59pm	10 pts	✅	⚙️ ▾
☰	📖 Bombing of Pearl Harbor	WWII - Attack on Pearl H...				✅	⚙️ ▾
☰	📄 Pearl Harbor Unit	WWII - Attack on Pearl H...	Closed	Due Feb 17 at 11:59pm	10 pts	✅	⚙️ ▾
☰	📄 Pearl Harbor - Post-assessment	Post Test Module	Closed	Due Feb 18 at 11:59pm	10 pts	✅	⚙️ ▾

Module - Content

Pearl Harbor Unit

▲ This is a preview of the published version of the quiz

Started: Apr 8 at 4:34pm

Quiz Instructions

Watch the video below. Then answer the questions.

[Link](#) 







Martial law

Martial law, in effect for the duration of America's involvement in World War II, was lifted by presidential order in October 1944. After the December 7, 1941 attack on Pearl Harbor, Governor Joseph Poindexter turned over many functions of the civilian government to Lieutenant General Walter Short who took over as military governor of the Islands. The new military government instituted many changes in the name of the war effort: new agencies and regulations were created, military judges replaced civilian courts, censors operated, blackouts and curfews were enforced. The military took over parks and schools (the Army Corps of Engineers took the entire Punahou campus for the duration of the war), plantations relinquished land, equipment and manpower, and more than 300,000 acres were occupied by the Army, Navy and Marine Corps. The Army alone controlled more than a third of the land on O'ahu. While some land was leased from the owners, other land was condemned and bought by the military. In 1946, the U.S. Supreme Court found the declaration of martial law in Hawai'i unconstitutional.

HawaiiHistory.org - Hawaii History - Home. (n.d.). Retrieved December 19, 2015, from [http://www.hawaiihistory.org/index.cfm?fuseaction=ig.page&PageID=35&returnname=Short Stories&returntopageid=460](http://www.hawaiihistory.org/index.cfm?fuseaction=ig.page&PageID=35&returnname=Short+Stories&returntopageid=460)

Module - Assessments

Pearl Harbor - Pre-assessment

▲ This is a preview of the published version of the quiz

Started: Apr 8 at 4:33pm

Quiz Instructions

Question 1 1 pts

1) On what date was Pearl Harbor attacked?

April 6, 1917

September 1, 1939

December 7, 1941

September 2, 1945

Question 2 1 pts

2) About how many Japanese planes attacked Pearl Harbor on Dec. 7, 1941?

360

510

720

915

Pearl Harbor - Post-assessment

▲ This is a preview of the published version of the quiz

Started: Apr 20 at 9:32pm

Quiz Instructions

In thinking back on the unit on Pearl Harbor, please select the best answer.

Question 1 1 pts

1) What was the exact date and time Pearl Harbor was attacked?

September 2, 1945 7:55 AM

April 6, 1917 6:50 PM

September 1, 1939 12:00 AM

December 7, 1941 7:55 AM

Question 2 1 pts

2) Which of these United States battleships did not sink in the attack?

USS Maryland

USS Arizona

USS California

USS Utah

Learning Portal



cardboard

 Search this site

Home

Pretest + Module 1

Post

vr

survey

Sitemap

Recent Site Activity

Navigation

Home

Site owners

CRDG IT

Home

This is the portal for "Google Cardboard in a K-12 Social Studies Classroom".

There are (4) parts to this research activity:

Date Assigned	Unit	Due
Tue 2/16	Part 1 - Pretest + Module 1	Wed 2/17
Wed 2/17	Part 2 - Posttest	Thu 2/18
Fri 2/19	Part 3 - Virtual Reality (Google Cardboard)	In class activity
Fri 2/19	Part 4 - Survey	Fri 2/19

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VIRTUAL REALITY

VR Design

Google Cardboard v2.0



<https://www.flickr.com/photos/pestoverde/18634310535>

nexus⁵



VR Experience – Creation

Blue Hawaiian Helicopters Charter



VR Experience – Gear

360°
Cameras



VR Experience – 360°

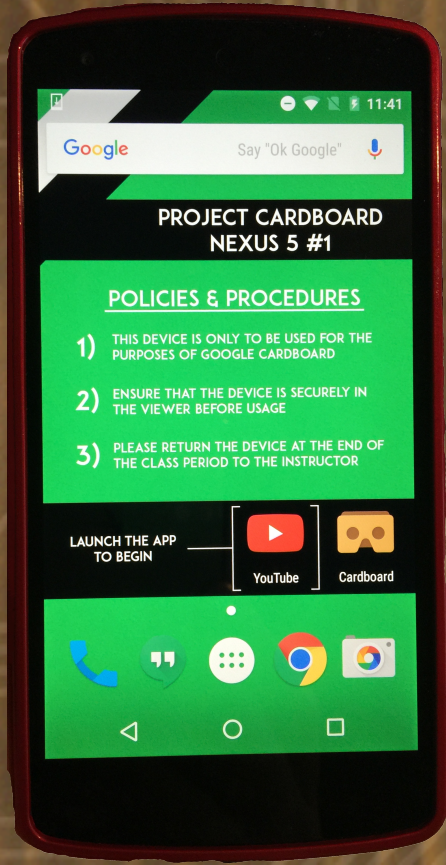


VR Experience – Students

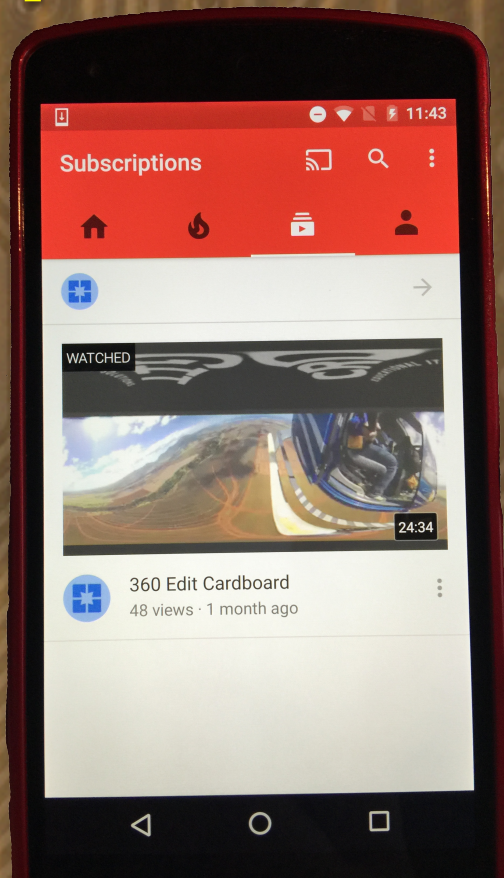


Images used via school photo release policy

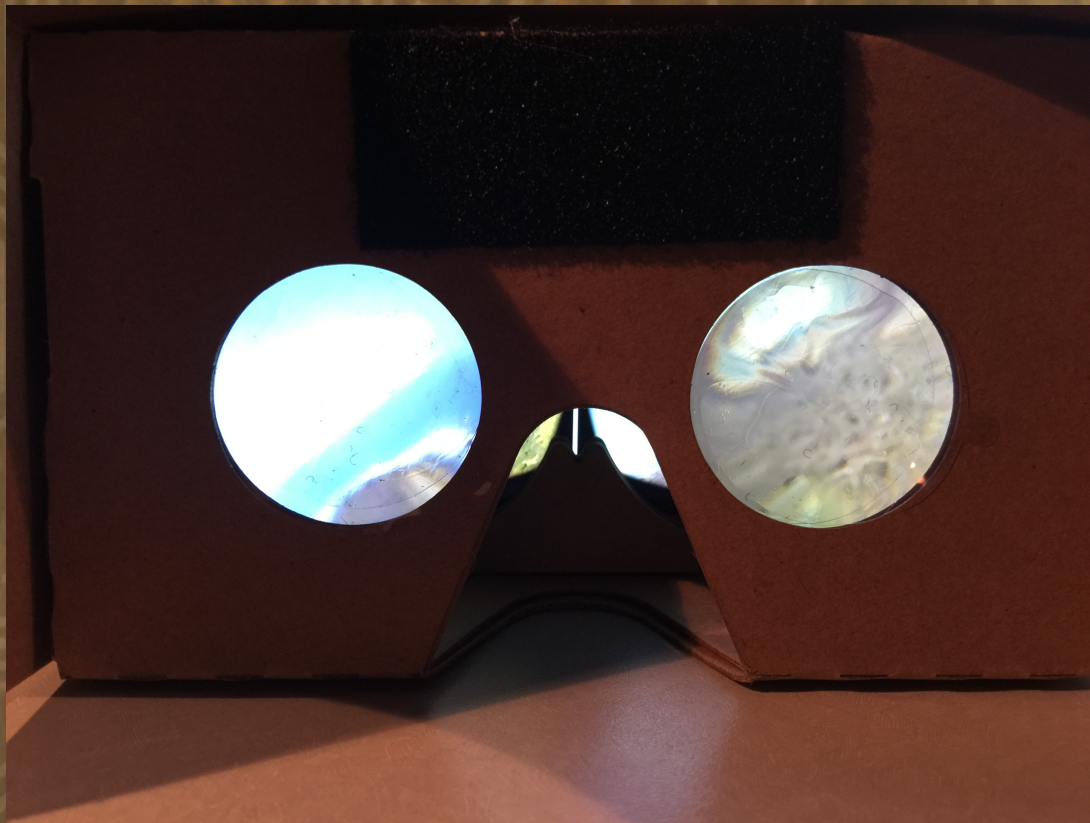
VR Experience – Devices



VR Experience – Devices



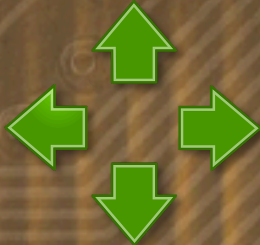
VR Experience – Devices



VR Experience – V.1.0



go.hawaii.edu/HL



Use navigational arrows
or fingers on mobile

Agenda

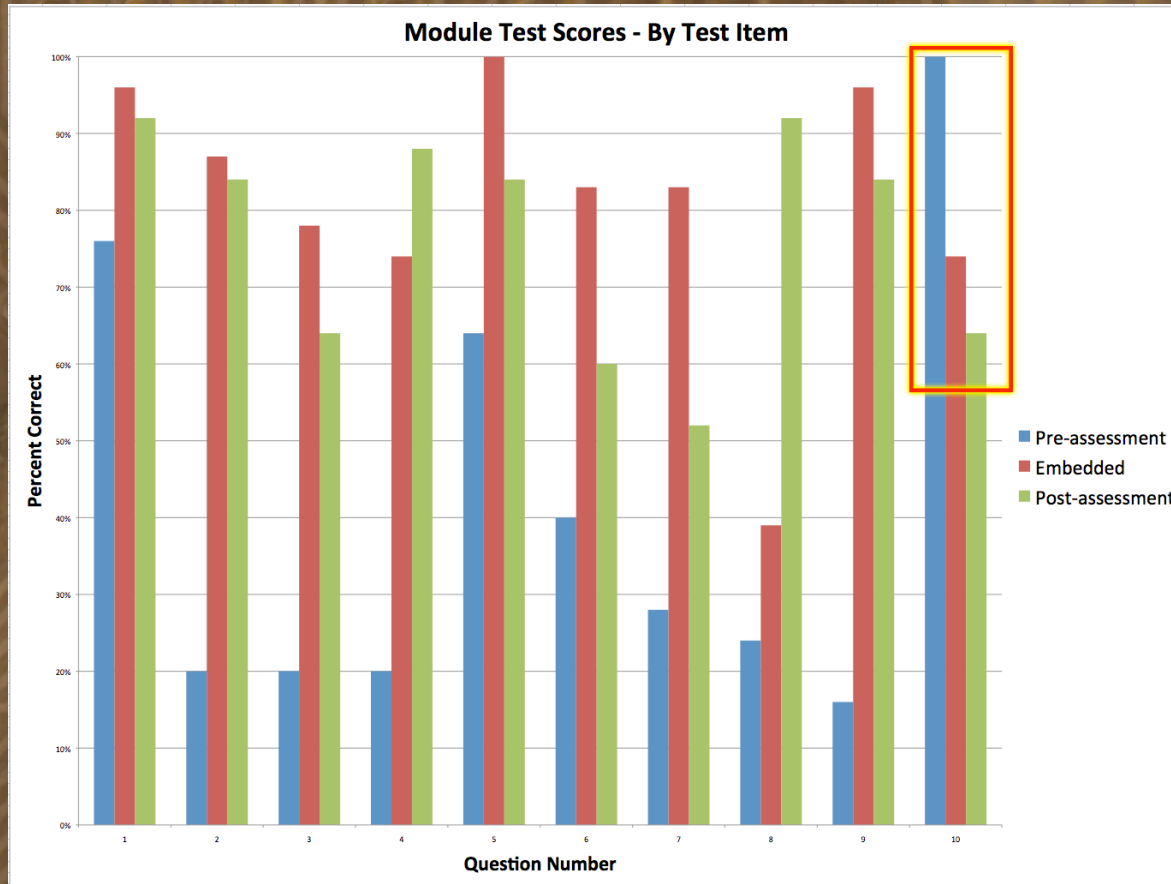


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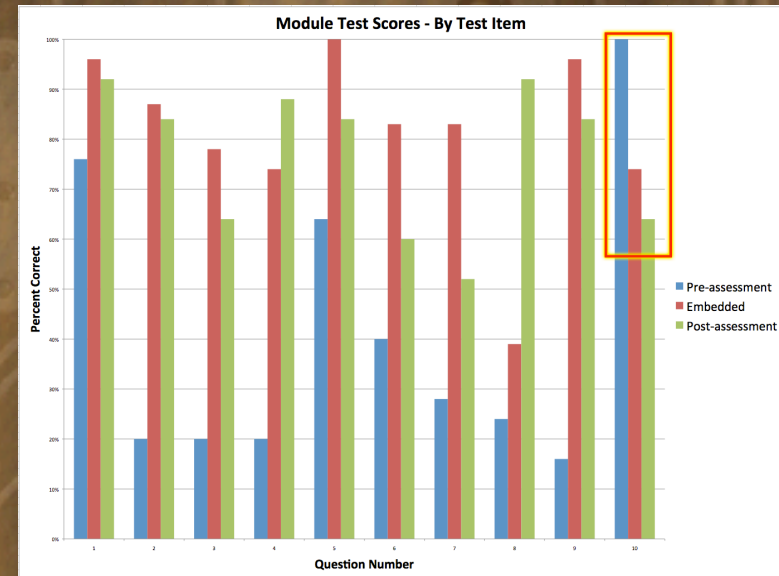
STUDENT PERCEPTIONS

Data – Student Assessment



Data – Student Assessment

- 2 main ideas
 - Pearl Harbor
 - Martial Law
- Item 10 – post-test
- 100% - 74% - 64%
- Final area of the module
- Left students confused



Demographics

Participants: Local charter school in Hawai'i

Male	13
Female	13
Grade	9
Multi-ethnic sampling	
Final n	24

Data – ARCS Survey

General		Responses
G1	What is your gender?	50% Male / 50% Female
G2	Do you own a smartphone? <i>Skip to Q5 if you've answered No</i>	100%
G3	If you've answered yes to Q2, What operating system is it running?	54% - iOS 46% - Android
G4	I use my smartphone for school purposes, while in school...	4% = 5X+ A Day 25% = 1X A Day 29% = Once Every Few Days 13% = Once a Week 29% = Never
G5	How important do you think it is to have a smartphone for class purposes?	Very Important, Important, Neither Important or Not important, Not Important, Not Needed At All

Data – ARCS Survey

Attention		Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
A1	Previously to this module, I have <i>never</i> used Google Cardboard.	54%	17%	13%	0%	17%
A2	I enjoyed learning about Google Cardboard.	71%	25%	4%		
A3	I enjoyed creating my very own Google Cardboard device.	67%	21%	13%		
A4	I enjoyed using Google Cardboard.	75%	25%			
A5	I would like to see other social studies lessons incorporate the use of Google Cardboard.	75%	13%	8%	0%	4%

Data – ARCS Survey

Relevance		Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
R1	I believe that Google Cardboard will help me to better remember the lesson because of the 3D and virtual reality content.	54%	29%	13%	4%	
R2	More classes (English, Math, Science, Social Studies, etc.) should incorporate Google Cardboard as a part of the class.	46%	29%	17%	4%	4%
R3	Google Cardboard allowed me to explore somewhere that I cannot ordinarily go to or visit.	71%	29%			
R4	Being able to visit other places in a 3D virtual reality environment are important to me.	42%	33%	21%	4%	
R5	If I were to be able to use Google Cardboard as a part of an exam, I feel that I would get a better grade on the exam (obtain a higher score).	38%	33%	21%	4%	

Data – ARCS Survey

Confidence		Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
C1	I did not have any difficulty using Google Cardboard.	42%	46%	8%	4%	
C2	I can use Google Cardboard on my own without help from others.	54%	25%	13%	8%	
C3	I feel comfortable that I can teach a friend or family member how to use Google Cardboard.	46%	42%	13%		
C4	I can use Google Cardboard for other classes besides social studies.	50%	29%	17%	4%	
C5	After using Google Cardboard, I can come up with a new use for cardboard on my own.	42%	29%	17%	4%	

Data – ARCS Survey

Satisfaction		Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
S1	Google Cardboard is important to me.	29%	29%	38%	4%	
S2	I am interested to know about Google Cardboard.	46%	38%	13%	4%	
S3	After using Google Cardboard, I want to explore more uses of Google Cardboard by downloading additional apps.	54%	33%	13%		
S4	I intend to tell 1 or more friends or family members about Google Cardboard.	50%	42%	8%		
S5	I intend to show 1 or more friends or family members how to use Google Cardboard.	58%	29%	13%		

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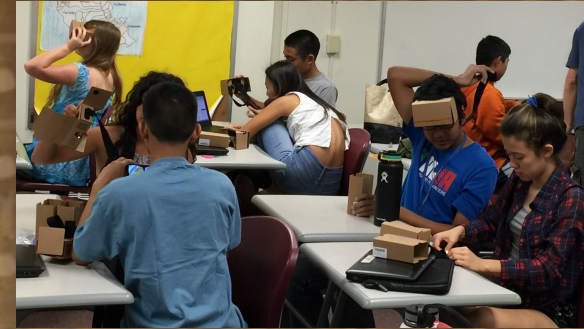


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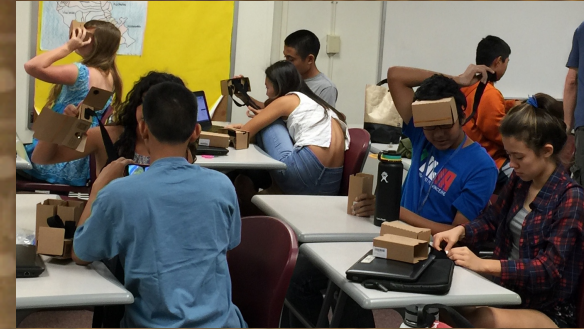
Summary & Reflections

Summary



- To use a VR device for an enhanced experience
- To further engage students with social studies content
- To gauge perceptions and obtain feedback about Google Cardboard and VR

Summary



- To use a VR device for an enhanced experience
- To further engage students with social studies content
- To gauge perceptions and obtain feedback about Google Cardboard and VR

“I loved using Google Cardboard during class. If I were to rate it out of ten, I would give it a over 9000.”

“I think that the Google Cardboard is so cool and all classes should use it.”

Lessons Learned

- Be passionate about your topic
- Start the conversation early for K-12 research
- Be engaging with participants

Lessons Learned

- Be passionate about your topic
- Start the conversation early for K-12 research
- Communication
- Be persistent
- Be engaging with participants

#its4thekids

Audience Poll

Interested in learning more and/or
buying a cardboard device?



YES



NO

Mahalo!



Professor and Advisor – Dr. Fulford

Critical Friends – Elon Ng & Claire Hitosugi

Fellow LTEC classmates

CRDG IT – Richard Tran & Robert Nakama

Principal – Keoni Jeremiah

Dean of Curriculum & Instruction – Laura Cottongim

Grade 9 social studies teacher – Noren Lush

Participants in grade 9

University of Hawai'i Foundation – CRDG IT Fund

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