CLOSING THE ACHIEVEMENT GAP BY USING VIRTUAL REALITY

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1

What is your role in education?

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ACHIEVEMENT GAP

- Occurs when one group of students (grouped by race, ethnicity, gender, socio-economic status) outperforms another group by a statistically significant difference.
- Factors:
  - Schoolwide Factors
  - Outside School Control
  - Teacher and Teaching-related Factors
  - Students' Background
  - Education Funding Shortfalls
  - Families' Support of Students' Learning

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ACHIEVEMENT GAP FACTORS

- Some factors that lead to achievement gaps
  - Lack of instructional supplies
  - Lack of organized curriculum
  - Families Income
  - Lack of student engagement
  - Lack of experiences
  - Lack of related experiences

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ACHIEVEMENT GAP

- What can we do to to close the achievement gap?
- Most schools decide to just give MORE.
- Student shows a gap in math, let's give them more math.
- So a student in disinterested, disengaged in math, so we give them more of the same and think that will help????

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How important is closing the achievement gap to your district?

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"Most of what we call the achievement gap is a resource gap. If you are in a hospital and your recovery isn't going so well, we give you more resources to catch you up, to make sure you walk out that door as strong and healthy as anybody else. In school it should be the same way. If you're falling behind, we should devote more attention to you, more and different resources."

- Ben Jealous, Former President NAACP

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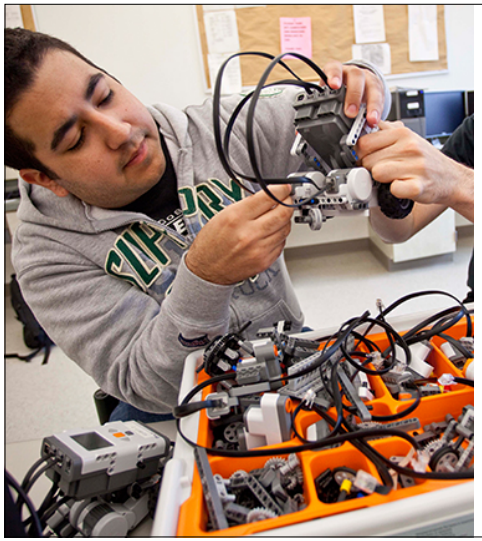

ACHIEVEMENT GAP

- To close that gap we need to do something DIFFERENT!
- We need to reengage the student, get them back into be interested in learning.

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“

We cannot close the achievement gap, until we close the engagement gap.

- Dave Burgess, Teach Like a Pirate

Can We Use Virtual Reality to Help Close the Achievement Gap?

“Achievement gaps can be caused by a lack of experiences.

- Richard Rothstein, Harvard University

So, can we use virtual reality to give students virtual experiences to help close the achievement gap?

VIRTUAL REALITY

No ocean? No problem! VR offers experiences when real life doesn't

By Brian Seymour 2/15/2017

For students in Ohio, going to the beach is no easy outing. Those with means can fly to the east or west coast during summer vacation. But many will never see the ocean up close.

So what's a teacher to do when the curriculum map has you teaching a lesson about the oceans and marine animals for a three-week unit? The answer for Pickerington Local Schools, where I am the director of instructional technology, is virtual reality.

Third-grade teacher Matt Smith used the new technology to take his students on a

ISTE Connected learning. Connected world.™

ISTE Article on Using VR to close the Experience Gap - https://goo.gl/CI5VI8

13

TECHNOLOGY BEYOND THE DEVICE

14

VIRTUAL REALITY

- Computer generated simulation of a three-dimensional environment with a seemingly real or physical way by a person using special equipment can view or interact with the environment.
- Needs:
  - Virtual Reality Goggles
  - Phone or iPod Touch
  - Apps

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Virtual Reality Goggles

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Phones or iPod Touch

works with both Android and iOS

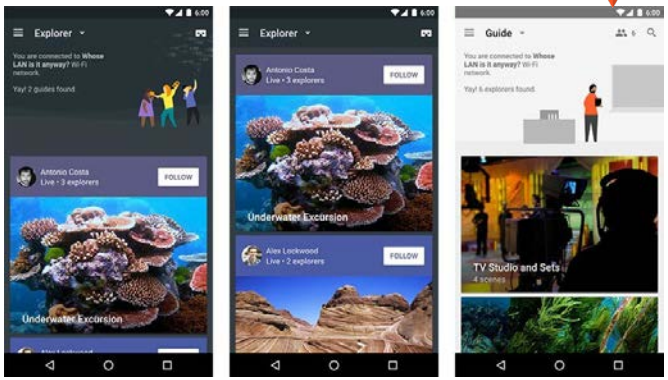
Apps

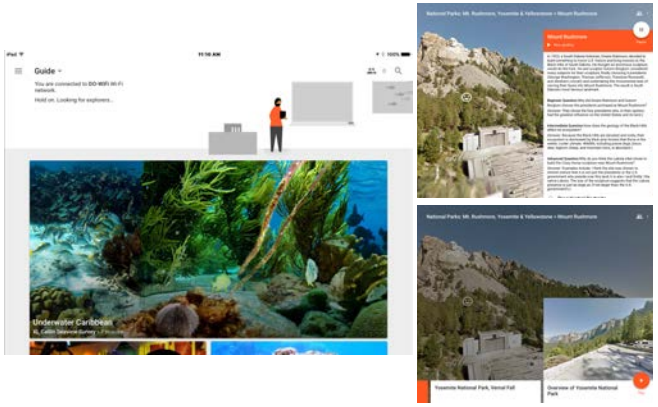
Android and iOS

GOOGLE EXPEDITIONS

- Allows teachers to bring students on virtual field trips like museums, underwater and outer space.
- Expeditions are 360 degree panoramas and 3D images.
- Over 600 expeditions are currently available.
- Teachers have a script that can be followed
- Need a tablet, phone or iPod Touch for the teacher.

GOOGLE EXPEDITIONS





Google Expeditions

LIST OF SOME OF THE EXPEDITIONS

- Animals and Insects
- Astronomy Expeditions
- Career Expeditions
- Colleges and Universities Expeditions
- Diversity Expeditions
- Historical Places and Events
- Human Body Expeditions
- Military Expeditions
- Museums & Art Galleries
- National Parks & Reserves
- Religious Expeditions
- Science Expeditions
- Technology & Engineering Expeditions
- Tourist Expeditions
- Underwater Expeditions

Complete list at:
seymoureducate.com/google-expeditions/

Let's Play!

OUR VR KITS

- 1 – Pelican 1780 case – Amazon – $455
- 2 – 10-port USB chargers – Amazon – $35 each
- 28 – ViewMaster VR Goggles – Amazon – $18 each
- 28 – iPod Touch (16GB) – Apple – $199 each
- 28 – Lightning cords for iPod Touch – included with iPod Touch
- 5 – Viewmaster Experience Reels (Destinations, Underwater, Wildlife, Dinosaurs, Space) – Amazon – ranging between $8 – $18
- 1 - iPad - $299

HINTS & TIPS FOR USING VR

- Make sure the **students are seated** the entire time they are viewing VR. They will tend to want to walk around.
- Make sure as the **teacher you take time to "play"** with the apps. Know what the students will be seeing.
- **Let the students time to "play"**. This will be the coolest thing of their day. Allow them time to be immersed in the app.
- Use VR to help "close the gap". Part of the instructional gap is the **lack of experiences**. VR can be used to bridge those gaps.
- To close the achievement gap, you must first close the engagement gap. VR is a huge on closing the engagement gap!

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25

What are three words that describes virtual reality?

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26

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I'm Presenting at The "Wild" Side of Blended and Personalized Learning Conference

ITIP Ohio Summit 2017 Presenter

Apple Teacher

Outstanding Tech Administrator 2017

MAKING IT HAPPEN

DISTRICTS OF DISTINCTION

27

Virtual Reality

Virtual Reality in the Classroom, Giving Students New Experiences

"These virtual reality glasses allow them to experience the things we are talking about in a more realistic way,"
-Matt Smith, 4th Grade Teacher (PLSD)

Educators around the world are looking for ways to close the achievement gap that exists between privileged students and disadvantaged kids. The gap is widened when some children have more learning opportunities and experiences than others. The virtual reality kits do a fantastic job of allowing students to virtually have experiences they might not have had otherwise.

More Information on Using Viritual Reality seymoureducate.com

VR KITS

Large Classroom VR Kit

- **28 Viewmaster Deluxe VR Goggles**
- **28 iPod Touches**
- **2 10-port USB Chargers**
- **Viewmaster Experience Reels**
- **Total Cost = $7,200**

Small Classroom VR Kit

- 12 Viewmaster Deluxe VR Goggles
- 12 iPod Touches
- 10-port USB Chargers
- Viewmaster Experience Reels
- Total Cost = $2,900

Hints & Tips with VR

- Make sure the students are seated the entire time they are viewing VR. They will tend to want to walk around.
- Make sure as the teacher you take time to “play” with the apps. Know what the students will be seeing.
- Let the students time to “play”. This will be the coolest thing of their day. Allow them time to be immersed in the app.
- Use VR to help “close the gap”. Part of the instructional gap is the lack of experiences. VR can be used to bridge those gaps.
- To close the achievement gap, you must first close the engagement gap. VR is a huge on closing the engagement gap!

No ocean? No problem! VR offers experiences when real life doesn't

By Brian Seymour 2/15/2017

For students in Ohio, going to the beach is no easy outing. Those with means can fly to the east or west coast during summer vacation. But many will never see the ocean up close.

So what's a teacher to do when the curriculum map has you teaching a lesson about the oceans and marine animals for a three-week unit? The answer for Pickerington Local Schools, where I am the director of instructional technology, is virtual reality.

Third-grade teacher Matt Smith used the new technology to take his students on a field trip to the ocean. Using virtual reality headgear and apps, our landlocked students were able to walk on the beach, go snorkeling and experience the inside of a shark cage.

Smith teaches at Tussing Elementary, where 58 percent of students receive free or reduced-price lunch and more than 25 languages are spoken at home. Only one of his 26 students had ever been to the ocean. He knew even before starting the marine unit that the lack of experience would leave students disengaged with the material. So he set out to try something revolutionary.

Getting started

It was at the Ohio Education Technology Conference where some of our staff first had a chance to play around with Google Cardboard and Expeditions. We were hooked. We purchased about 10 different kinds of VR goggles to test, from cardboard ones to plastic ones, with straps and without.

Some were too heavy for the kids heads and some became grimy really quickly. Since we wanted the goggles to last, our team decided that the ViewMaster VR Goggles were the best fit for students of all ages. Also, most of the VR goggles are only for viewing and very few have a button to interact with the app. That was one of the major reasons we picked the ViewMaster VR Goggles for our kits and purchased enough goggles and iPod touches to create four classroom sets of 28 each. The district invested about $7,000 per kit.

After we got the hardware, we needed to think about apps. Because the technology is so new, the selection is still limited. Fortunately, new apps are becoming available all the time.

The staff started downloading apps at the district office and played around to see which would apply to the subjects teachers needed to cover. We even enlisted the help of a teacher's teenage son to help determine what was age appropriate.

Meanwhile, Smith was two weeks into covering his nine week module about the ocean. As he began to work through the marine unit, he noticed a lack of engagement. He read books to his students, showed them pictures, but the writing prompts fell flat. Something was still missing.

Then he asked the question, "How many of you have ever been to the ocean?" One hand went up. That was the problem! Most students had no experience with the subject matter. Smith knew he had to make a change, and Vicki Cooper, Tussing Elementary School's instructional coach, had a solution. Cooper showed Smith the VR goggles the district had purchased and after a 20-minute training session, Smith and Cooper decided to use the ViewMaster Ocean app and virtually take the students to the oceans.

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The lesson

The first time through, Smith and I set up all the goggles while the kids were at lunch. We placed the iPods inside the goggles, and the app was ready to go. When the kids came back, we gave them about three minutes of instruction and then they were off exploring. The three adults in the room were needed only to make sure students stayed in their seats so they wouldn't bump into each other.

The adults walked around the room, asked some questions and prodded the kids to remember to experience all 360 degrees, look up and down, as well as side to side. The great thing about most VR apps is they are not just viewing a picture or video, but the kids can interact with the environment. With the ViewMaster oceans app, there is a little white dot that viewers trigger to learn more information.

As these students ventured under the sea, they went on a treasure hunt to find different parts of the ocean habitat and see an array of marine animals. After getting used to the goggles, we switched to a different experience in that same app. We circulated around the room as the students were in the shark cage or scuba diving.

Engaged learning

The kids were having so much fun that from the outside, it might have appeared that they were just playing with toys. But in reality, important learning was happening.

"These glasses could be used for fun, but right now the students get to experience something that goes along with our curriculum," Smith said. "We can't go underwater, but we can experience it in virtual reality and look around as if they were there."

Smith and Cooper decided for the second virtual trip to adopt more of a blended learning approach and have half of the students on the VR goggles and half of the students reading a story related to their VR experience. The class was easier to facilitate with only half of the students on the VR goggles at any one time.

Students were able to go snorkeling near the Great Barrier Reef and see fish of all kinds and colors, such as sharks and rays. Some were so immersed in their environment, they screamed as a great white shark swam past their cages. One student said the experience of being under the ocean and surrounded by hungry sharks was "kinda creepy."

But most found it thrilling as they swam down into a sunken pirate ship looking at the habitat that it created. Others went in search of Nemo and Dory along their journey under the ocean.

Before the VR experience, class conversations about the marine world were lacking because the students had never been to the ocean. Afterward, you'd hardly know that they'd never experienced a day at the beach. They excitedly talked about sharks bumping them and described the drop off between the continental slope and shelf. They were far more willing to share ideas and talk about the things they saw.

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Lasting effects

The 30-minute virtual trip had a lasting effect on most students. They constantly referred back to things they saw, heard or learned during their virtual trips, and their writing was more vivid and detailed.

"These virtual reality glasses allow them to experience the things we are talking about in a more realistic way," Smith said. "Right now, we're learning about why a person would want to explore the sea. Virtual reality allows them to see what would be exciting about going down there."

The kits have since traveled around the district, taking students from the oceans to Mt. Rushmore, outer space and the inside of a cell or the human body. The nice thing about VR is that once you have the equipment, most of the apps are free and more expeditions are being added everyday.

Closing the achievement gap

Educators around the world are looking for ways to close the achievement gap that exists between privileged students and disadvantaged kids. The gap is widened when some children have more learning opportunities and experiences than others. The virtual reality kits do a fantastic job of allowing students to virtually have experiences they might not have had otherwise.

For those students who do not have the means or ability to go on trips or have unique experiences, I really believe that virtual reality is a positive way to increase students knowledge about the world around them.

Brian Seymour is the director of instructional technology for Pickerington Local School District in Ohio. He was recently named the ITIP Ohio Outstanding Technology Using Administrator for 2017 and named the Ohio representative for the 2017 Making It Happen award. He is currently leading Pickerington Schools through an edtech transformation with 1:1 devices and the adoption of blended learning pedagogy. Learn more about virtual reality at Pickerington Schools.

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