



Multicultural Service Learning Technology Innovations: Preparing Undergraduate Education Majors Using the SAMR Model

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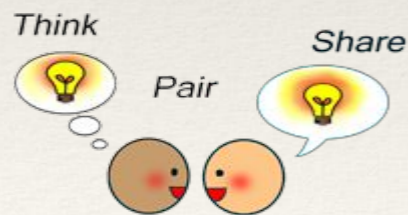
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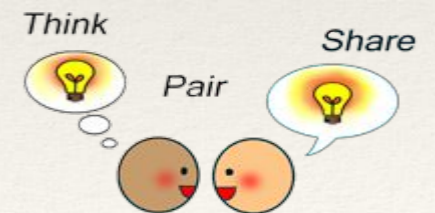
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SESSION GOALS:

- Discuss the **mixed-methods research design** of a **service learning technology innovation project** preparing 23 education majors and teacher candidates with practice using the **SAMR Model** with **elementary English language learners**.
- Data were collected through **pre and post surveys** with 22 response questions and **final reflective papers** describing the students' perceptions of the SAMR Model.
- Results of the **SAMR Model integration**, including the survey results, and recommendations will be shared.



Think-Pair-Share:



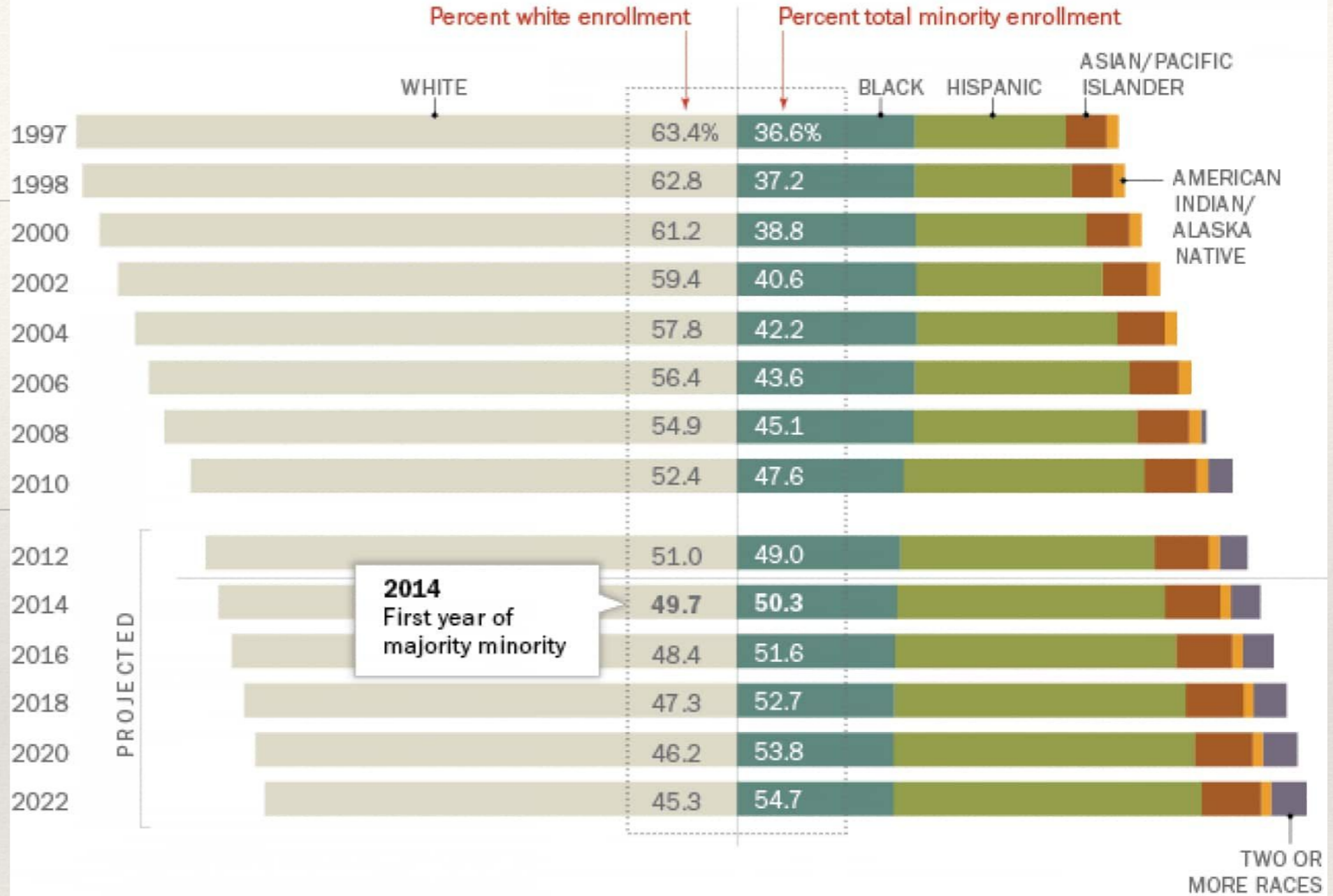
What do you know about any of the **blue highlighted words**?

BACKGROUND

Public Schools in the United States Projected to Be Majority-Minority in 2014

Actual and projected share of enrollment in public elementary and secondary schools, by race/ethnicity

With the growing population English Language Learners (ELLs) in the U.S. and the rapid growth of technology, teacher candidates need to be provided with the knowledge and skills to ensure digital equity. ELLs, students whose primary language is other than English, are the fastest



Note: Whites, blacks, Asian/Pacific Islander and American Indian/Alaska Native include only non-Hispanics. Hispanics are of any race. Prior to 2008, "two or more races" was not an available category. In 2008 and 2009, some students of both Asian origin and Hawaiian or Other Pacific Islander origin were included in the two or more races category. In 2010 and 2011, all students of both Asian origin and Hawaiian or Other Pacific Islander origin were included in the two or more races category. In 2008, five states reported enrollment counts for students of two or more races. In 2009, 14 states reported enrollment counts for students of two or more races.

Source: National Center for Education Statistics, U.S. Department of Education.

BACKGROUND



First School Visit

Who? 23 Undergraduate Childhood Education and Educational Studies Majors

What? 1 semester required course = Understanding Cultures in the Classroom

When? Fall 2017

Where? Large Southern University in the United States

WHAT ARE THE PROBLEMS?



Over 80% of preservice teachers are White, female, and monolingual and have little or no experience working with English language learners

Preservice teachers require experience integrating technology

Answer?

Service learning provides an excellent way to incorporate 21st century skills in an authentic way





Definition of Terms

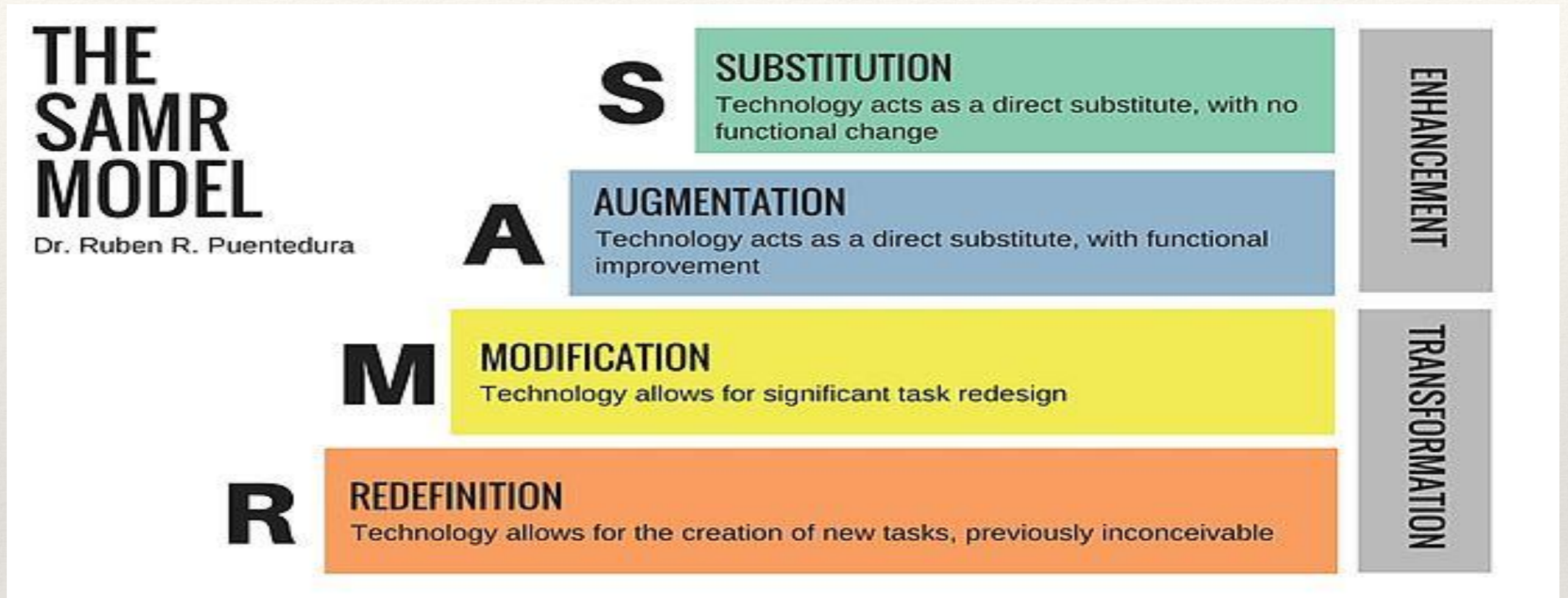
- *Service Learning is an educational approach that combines **learning objectives** with **community service** in order to provide a **practical**, progressive learning experience while meeting societal needs.*
- *"**Digital Equity** refers to the equal access and opportunity that individuals within diverse groups of race, ethnicity, socio-economic class, language, gender, and other culturally diverse groups possess" (Mysore, 2017).*
- *78 percent of non-limited English-speaking households and 55 percent of limited English-speaking households had a broadband Internet subscription (Ryan and Jamie, 2015).*
- *If there are digital inequities, it is it the **role of the schools** to level the playing field (Darling-Hammond, et al., 2005).*



RESEARCH QUESTION

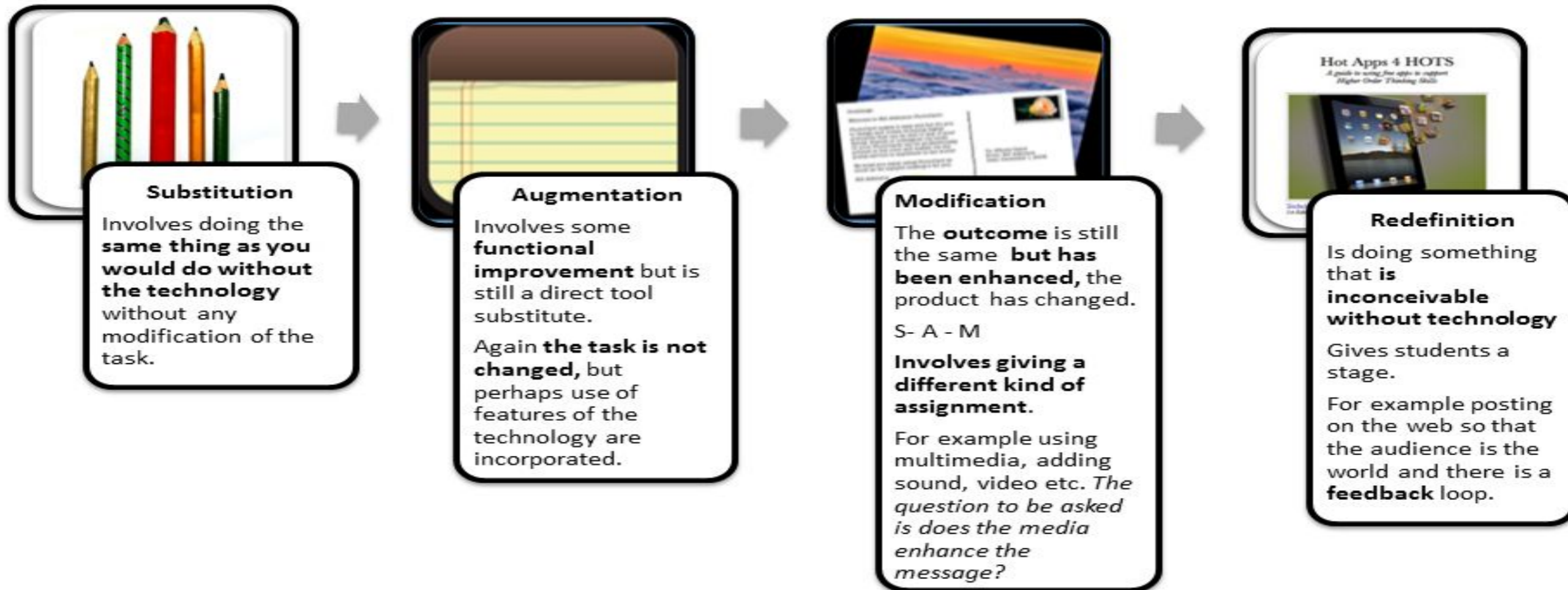
How do students integrate technology and describe their perception of using the **Substitution, Augmentation, Modification and Redefinition (SAMR)** framework in a service learning experience tutoring elementary ELLs (English language learners)?

SAMR Model (in 120 seconds)



- According to Puentedura (2006), the SAMR model is intended to be a tool through which one may describe and categorize K-12 teachers' uses of classroom technology.
- The model encourages teachers to move up from lower to higher levels of teaching with technology.
- In the beginning of the course, students were asked to get to know their tutees, and then integrate the SAMR Model framework into 3 of the 15 tutoring sessions.

SAMR Examples



- *How will students integrate the SAMR Model in their tutoring experiences?*
- *Do you think that students will move up in the levels of SAMR integration?*

METHODOLOGY

- MIXED METHODS DESIGN
 - PRE AND POST SURVEY QUESTIONS (2 focus Areas)
 - **Technology**
 - Culture Integration
 - REFLECTION ESSAYS (2 focus areas)
 - **SAMR Model**
 - Service Learning





QUANTITATIVE FINDINGS

- Pre- and post-survey results showed that there was a **statistically significant increase** ($p = .013$) in **student confidence using various hardware, such as computers, phones, tablets, and cameras**
- There were no statistically significant differences in the applications and perceptions categories

Survey results highlight the need for preservice teachers to gain experience using various technological hardware in educational settings

QUALITATIVE METHODS

- A mixed methods approach was used to collect and analyze data which included students' self-reported perceptions in a **final reflection paper** of how the SAMR Model categories were used in 3 separate ESL tutoring sessions.
- To strengthen inter-rater reliability, **four researchers analyzed the narrative textual data** separately and reconvened to discuss their findings.
- A rating of **“1” = Researchers and students agreed** on the SAMR category.
- A rating of **“0” = Students incorrectly identified** the use of the SAMR.

Name _____

Aa	Bb	Cc	Dd
Ee	Ff	Gg	Hh
Ii	Jj	Kk	Ll
Mm	Nn	Oo	Pp
Qq	Rr	Ss	Tt
Uu	Vv	Ww	Xx
Yy	Zz		

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Narrative Example

RATING OF “1” = *In one session, Veronica stated, “I used **Substitution** a cordless keyboard replaced an A-B-C chart. The keyboard is to improve skills in what letters look like while also learning about computer key placement. Instead of a basic A-B-C chart, students convey analytic thought using the keyboard, rather than just memorization of the chart. Using items that will be used daily, such as a keyboard can create excitements for students while also learning curriculum.*





Narrative Example

RATING of “0” – The 3rd technology we used, was [Google Earth](#). On our first day together, we were talking about her family and she told me she had family in Mexico, but she did not know what Mexico looked like and where it was on a map. On our last session together, I brought my Chromebook and used Google Earth to see pictures of Mexico. This would be an example of transformative learning, because it helped gain insight into who her family is and where some of them still live. This would be an example of **augmentation**. Using a normal map, we would not have had access to the satellite pictures that Google Earth provides. Using the interactive map, my student was able to see different parts of Mexico and the vast difference between the small villages and large city. Without this technology, this activity would not have had the profound impact that it did. Seeing these images helped both of us to learn more about the country of her family. She did not know the name of the town they were from, so we used the map to find random towns, then we used the Internet to look up the population, business, and traditions of the places. This was a fun activity, and I think my student learned that learning is at the tip of her fingertips.

Web-based Tools

Web-based Tool	Website
Brain Pop	https://www.brainpop.com/
Duolingo	https://www.duolingo.com/
Free Rice	http://freerice.com/
Front Row	https://www.frontrowed.com/
Google Earth	https://earth.google.com/web/
IXL	https://www.ixl.com/
Prodigy	https://www.prodigygame.com/
Quizlet	https://earth.google.com/web/
Reflex Math	https://www.reflexmath.com/
Spelling City	https://www.spellingcity.com/
Story Bots	https://www.storybots.com/
Weirdwood	http://weirdwood.com/

QUALITATIVE FINDINGS

- Only **3 of the 23** students were able to **successfully identify** the SAMR in each of their three practices.
- Conversely, another **3 of the 23** students labelled all three SAMR levels **incorrectly**.
- 1st attempt using technology = **13 of the 23** students accurately used the first two levels, **Substitution and Augmentation**.
- 2nd attempt integrating technology = **11** students moved to the next level of the SAMR model
- 3rd attempt = **3** students implemented a task using Redefinition.
- **10 overestimated** and **11 underestimated** the use of the SAMR framework.
- 35 attempts were coded as “1” and 24 as “0.”

HOW DO THE FINDINGS RELATE TO THE RESEARCH QUESTION?



- **Only half** of the education majors' attempts accurately identified the level of the SAMR framework at which their technology integration activity was performed.
- Although all of the undergraduate students tried to integrate technology into their instruction, they mostly integrated it at a **low level (substitution or augmentation)**. This may be due to the fact that the students were provided with only a brief training with several resources to read and view on the SAMR framework and then asked to select a technology and integrate it without any one on one mentoring or modeling.

RECOMMENDATIONS

- Teacher education faculty should *model the use of technology with teacher candidates* and
- *the use of technology should undergird assignments, field observations, and practice.*
- Survey results highlight the need for preservice teachers to gain experience using various **technological hardware** in educational settings

ADVANCING THE RESEARCH

Digital equity can be brought about by preparing teachers who can effectively use technology to bridge the digital divide.



QUESTIONS?



References

- Darling-Hammond, L., Banks, J., Zumwalt, K., Gomez, L., Sherin, M. G., Griesdorn, J., & Finn, L. (2005). Educational goals and purposes: Developing a curricular vision for teaching. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able To Do* (169-200). San Francisco, CA: Jossey-Bass.
- Kreck, C. (2014). *Learning English in rural America*. Denver, CO: Education Commission of the States (ECS). Retrieved from <http://www.ecs.org/clearinghouse/01/15/59/11559.pdf>
- Mysore, A. R. (2017). Teacher education and digital equity: Research in the millennium. In J. Keengwe (Ed.), *Handbook of research on promoting cross-cultural competence and social justice in teacher education* (pp. 120-136). Hershey, PA: IGI Global.
- Pew Research Center (2014). <http://www.pewresearch.org/fact-tank/2014/08/18/u-s-public-schools-expected-to-be-majority-minority-starting-this-fall/>
- PuenteDura, R. R. (2006). Transformation, technology, and education in the state of Maine [Web log post]. Retrieved from http://www.hippasus.com/rrpweblog/archives/2006_11.html
- Ryan, C., & Jamie M. L. (2015). Computer and Internet use in the United States: 2015. *American Community Survey Reports, ACS-37, U.S. Census Bureau, Washington, DC, 2107*. Retrieved from <https://www.census.gov/history/pdf/2013comp-internet.pdf>