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Research poster: Losing the lake: Misconceptions regarding water resources and climate change

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Losing the Lake: Misconceptions Regarding Water Resources and Climate Change

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Background: Losing the Lake Project

- “Losing the Lake” is an interdisciplinary science grant project
- Funded through NSF/EPSCoR Infrastructure grant
- Goal: To design, develop, and evaluate an educational computer game regarding:
 - Changing/declining water levels in Lake Mead
 - Water supply, usage, and conservation in Southern Nevada
 - Effect of climate change
- This study was conducted to aid in the design process of the “Losing the Lake” Project.

Background: Misconceptions Regarding Water Resources and Climate Change

- **Goal:** Identify and assess common misconceptions that college students have regarding water resources and climate change, as well as the effect both have on Southern Nevada
- **Participants:** 10 university students, 8 females and 2 males. All were selected from the Educational Psychology Department subject pool.
- **Method:** Participants were involved in a 60-minute semi-structured interview, where they were asked a series of questions pertaining to climate change, water usage, and the role these variables have on Lake Mead and the Las Vegas Valley.
- A total of 20 questions have been analyzed to determine a list of misconceptions participants had in regards to climate change and water usage.

Interview Questions

1. Where does the water in Nevada go once we are finished using it?
2. Where does Lake Mead receive its water from?
3. Where does the Colorado River receive its water from?
4. What is happening with Lake Mead’s water levels?
5. Why are Lake Mead water levels dropping?
6. How long have water levels been dropping?
7. What are the two or three most important factors that affect lake levels?
8. Do you think Lake Mead will ever run out of water?
9. Which states receive their water from the Colorado River?
10. Which state uses the most amount of water?
11. Which state uses the least amount of water?
12. What can you tell us about climate change? Can you provide an example?
13. How does weather differ from climate?
14. Do you think the climate is changing?
15. By what percent do you think climate change will reduce the net inflow of water into Lake Mead over the next 50 years?
16. What is causing climate change?
17. Can you explain the greenhouse effect?
18. What is a scientific model?
19. If all Las Vegans conserve water, how do you think that will affect Lake Mead’s levels?
20. Do you see any relationship between water use and energy use?

Results

Misconception	% of participants with misconception	Quote
Lake Mead’s water levels are dropping because of population growth or excessive water use	50%: 30% of participants mentioned excessive water use and 20% mentioned population growth	“I guess it’s dropping because the Las Vegas Valley has grown so much and it needs that much more water.”
Nevada uses the most amount of water from the Colorado River	80%	“Cuz Colorado has like snow and probably other lakes and stuff and Utah has a lot and we have like no water. We are in the middle of a desert so...” Colorado or Utah uses the least amount of water from the Colorado River – “Probably Utah... cuz they have like Salt Lake... and a lot of other ways of getting water.”
Colorado or Utah uses the least amount of water from the Colorado River	80%	“Probably Utah... cuz they have like Salt Lake... and a lot of other ways of getting water.”
Weather and climate are interchangeable	60%	“[Climate change is] just a shift in the normal trend of what the climate has been in the past... Um, anything to do with weather and temperature and... Um, weather is, wow, um, different... different types of, um, I wanna say climate, but I already defined climate, um... different types of environmental trends. I think weather is more like wind and rain and climate is like desert, um, you live in the desert or the... water regions, or uh...”

Results

Students demonstrated general knowledge of:

1. Where Nevada receives its water from
2. Where Lake Mead receives its water from

Students did not demonstrate general knowledge of:

1. The relationship between water use and energy use
2. What a scientific model is
3. What the greenhouse effect is
4. The allocations states have for taking water from Lake Mead
5. Which states receive water from Lake Mead

The following misconceptions were identified:

1. Lake Mead’s water levels are dropping because of population growth or excessive water use
2. Nevada uses the most amount of water from the Colorado River
3. Colorado or Utah uses the least amount of water from the Colorado River
4. Weather and climate are interchangeable

Implications

If our sample is like the general public, then:

- The “Losing the Lake” Project cannot assume that the user of the game would know the meaning of climate change or even “climate.”
- Few understand causal mechanisms involved in climate change
- The general lack of knowledge opens up room for skepticism and indifference

In terms of how water flows to Southern Nevada, the mental link to Colorado’s “mountain snow pack” is weak. There is a need to:

- Refocus users from “demand” to “supply”
- Dispel the misconception that Nevada uses the most water