The Science of Water Art: A Citizen Science Project  
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**Background Information**

The Science of Water Art project is a collaborative work that brings together professionals, community members, college students and children to think about the role that water plays in each of our lives. This research project is part of the larger Global Ethnohydrology Study that, in its fourth year, is looking at the role of water, climate change and health in several communities worldwide.

The Science of Water Art project is the facet of this study allows for a look into how climate change and water insecurity is viewed by younger generations and gives a voice to children so that they may share their outlooks on this vital resource.

**Methodology**

This study used a sample of 4th grade classrooms in Maricopa County to collect over 3000 drawings of children’s perception of water today and in the future. The 9-11 year olds were asked:

Prompt A – Please draw a picture showing water being used in your neighborhood (Time 1).

Prompt B – Please draw a picture showing how you imagine water will be used in your neighborhood 100 years from now (Time 2).

The artwork was then collected and coded. Coding the children’s artwork involved developing unique themes that could be found in the drawings and then analyzing each piece of art for the given theme. The codebook developed for the study currently contains nine different themes including: Vegetation- green space, living plants, Scarcity- water insufficiency, loss, or unavailability, Pollution- degraded water, Commercial sources- water treated as an economic good, Existing technology- use of contemporary objects in conjunction with water use, Technology innovation- new technology being used in conjunction with water use, Recreational use- water used for enjoyment, Domestic use- water used in home or private sphere, Natural sources- naturally occurring water sources.

**Qualitative Findings**

- Vegetation appears more varied, colorful and lush in T1 compared to T2.
- Vegetation and scarcity is linked, as scarcity is commonly shown in T2 as dying plants.
- Artwork also commonly showed theme of conservation in connection with scarcity.

**Statistical Findings**

- Vegetation, existing technology, recreational use, and domestic use more present in T1 than T2.
- Pollution, scarcity, commercial sources of water, natural sources or water, and technological innovation more present in T2 than T1.

**Discussion**

The varied depictions of vegetation when comparing T1 and T2 show that, even if vegetation can be coded for in both times, it may not always represent an abundance of water. When comparing several instances of the same student’s artwork from T1 and T2, vegetation was present in both pictures but it was visually less luscious and lively in T2.

Note that this student’s T1 drawing clearly depicts healthy, watered grass. While there is still grass depicted in T2, it is significantly less vibrant and not as extensively present in the picture.

Note the clear depiction of scarcity in this student’s T2 picture in comparison to T1. Trees, grass and flowers that previously thrived are now sparse while water is shown to be in short supply.

Note the comparison between this student’s T1 and T2 drawings and the two different futures he imagines if water is or is not conserved. Scarcity is again shown through the clearly depicted healthy, watered grass. While there is still grass depicted in T2, it is significantly less vibrant and not as extensively present in the picture.

Note the presence of vegetation in both of this student’s pictures (trees and grass). However, the trees are visibly less green and luscious in the T2 picture.

**Conclusions**

Although the negative themes of scarcity and pollution were not present in the majority of the children’s artwork, that they were more present in T2 vs. T1 shows that, for those children aware of and thinking about these themes, there is a negative perception of the state of water in the future. However, the recurring theme of conservation shows that these children are conscious of the need to preserve water for the future.

Future study of the artwork should include a color analysis to better document the observation of a difference between vegetation diversity in T1 and T2.

**Future Research**

Additional interest should be given to the demographic data of where the children’s artwork was collected from. Are children from a certain area drawing specific themes? This will potentially lead to evidence of whether living in certain areas, such as rural or urban, affect children’s perception of water.