

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 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

Recreational use- water used for enjoyment

Domestic use- water used in home or private sphere

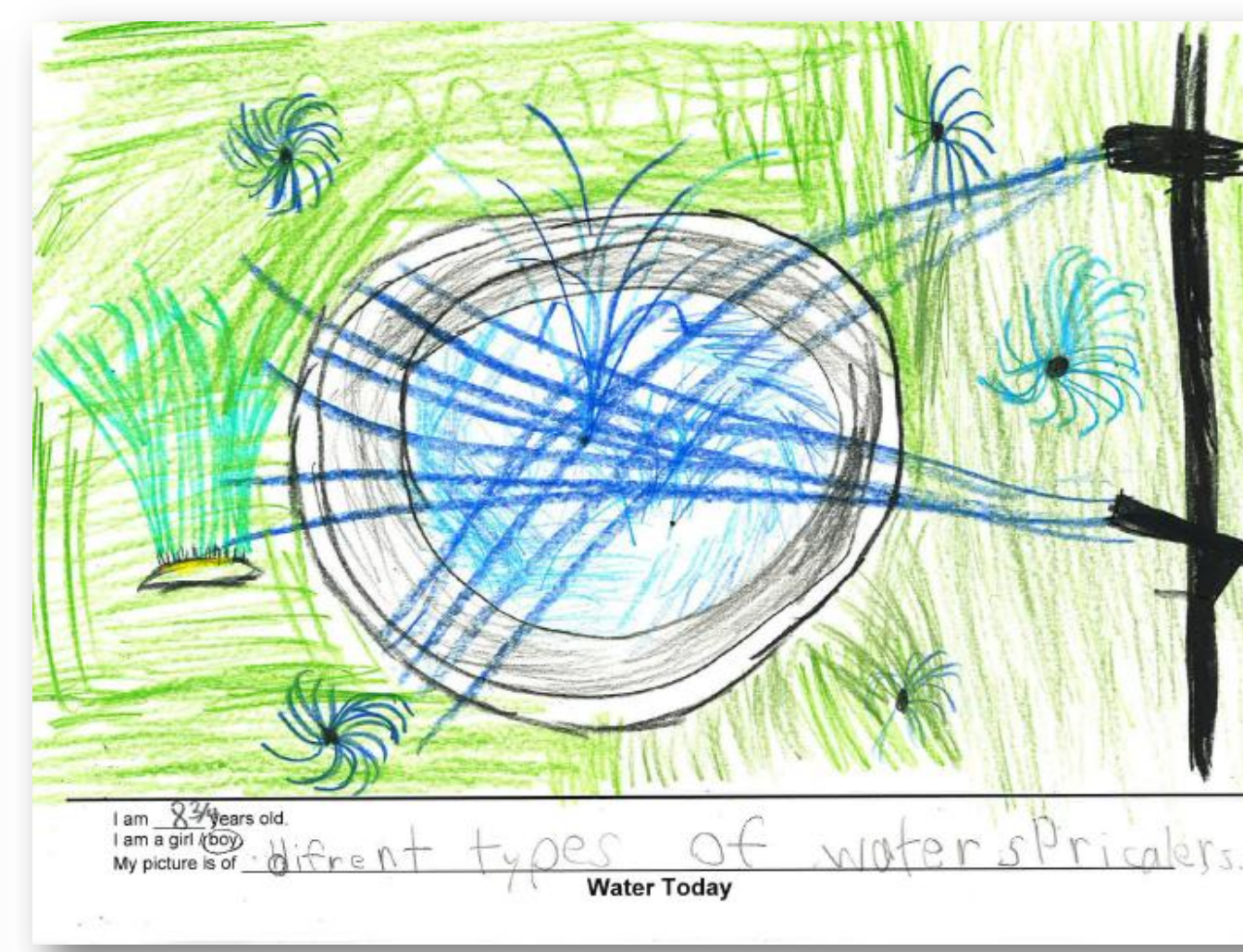
Natural sources- naturally occurring water sources

Qualitative Findings

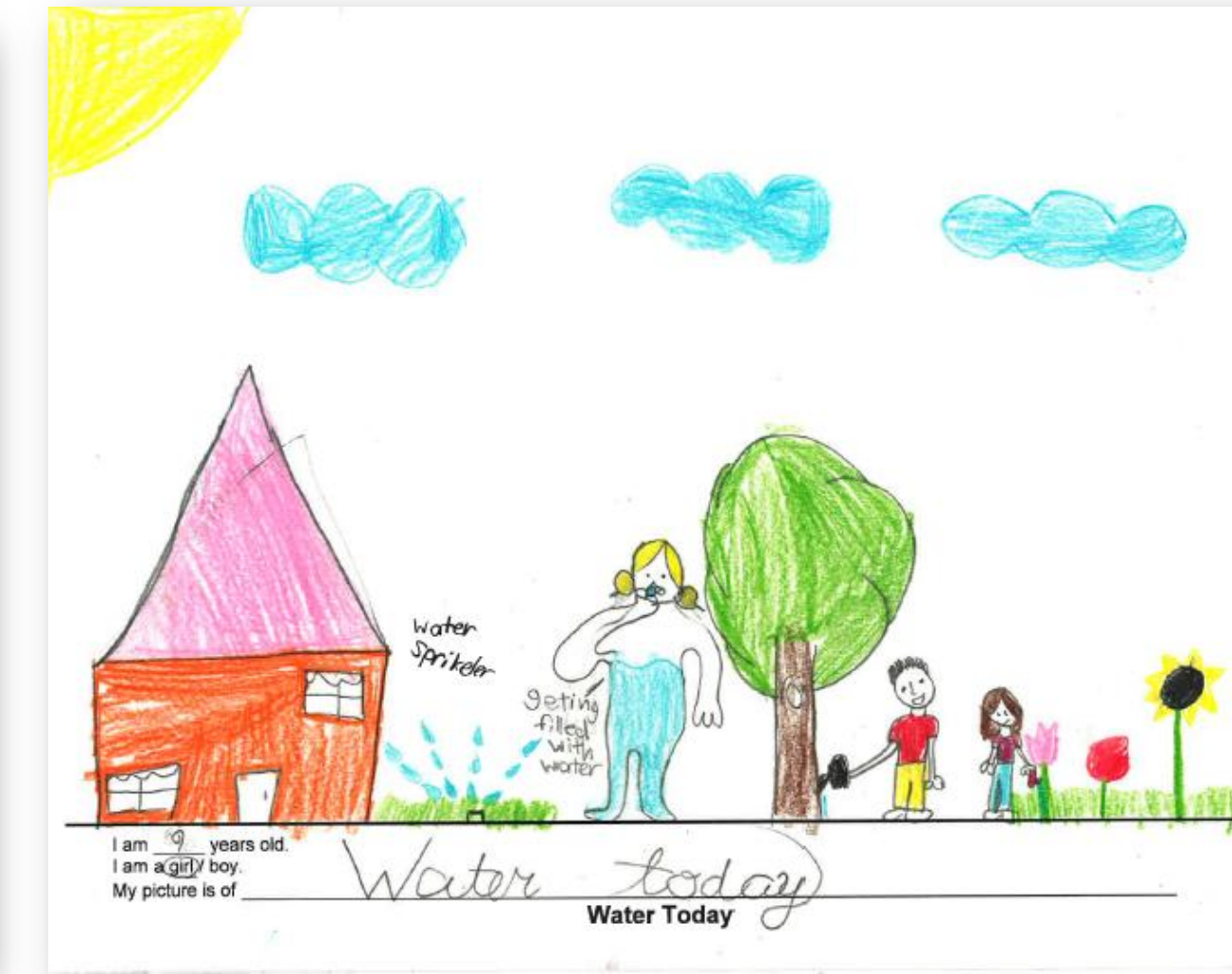
- Vegetation appears more varied, colorful and lush in T1 compared to T2.
- Vegetation and scarcity is linked, as scarcity is commonly shown in T2 as dying plants.
- Artwork also commonly showed theme of conservation in connection with scarcity.



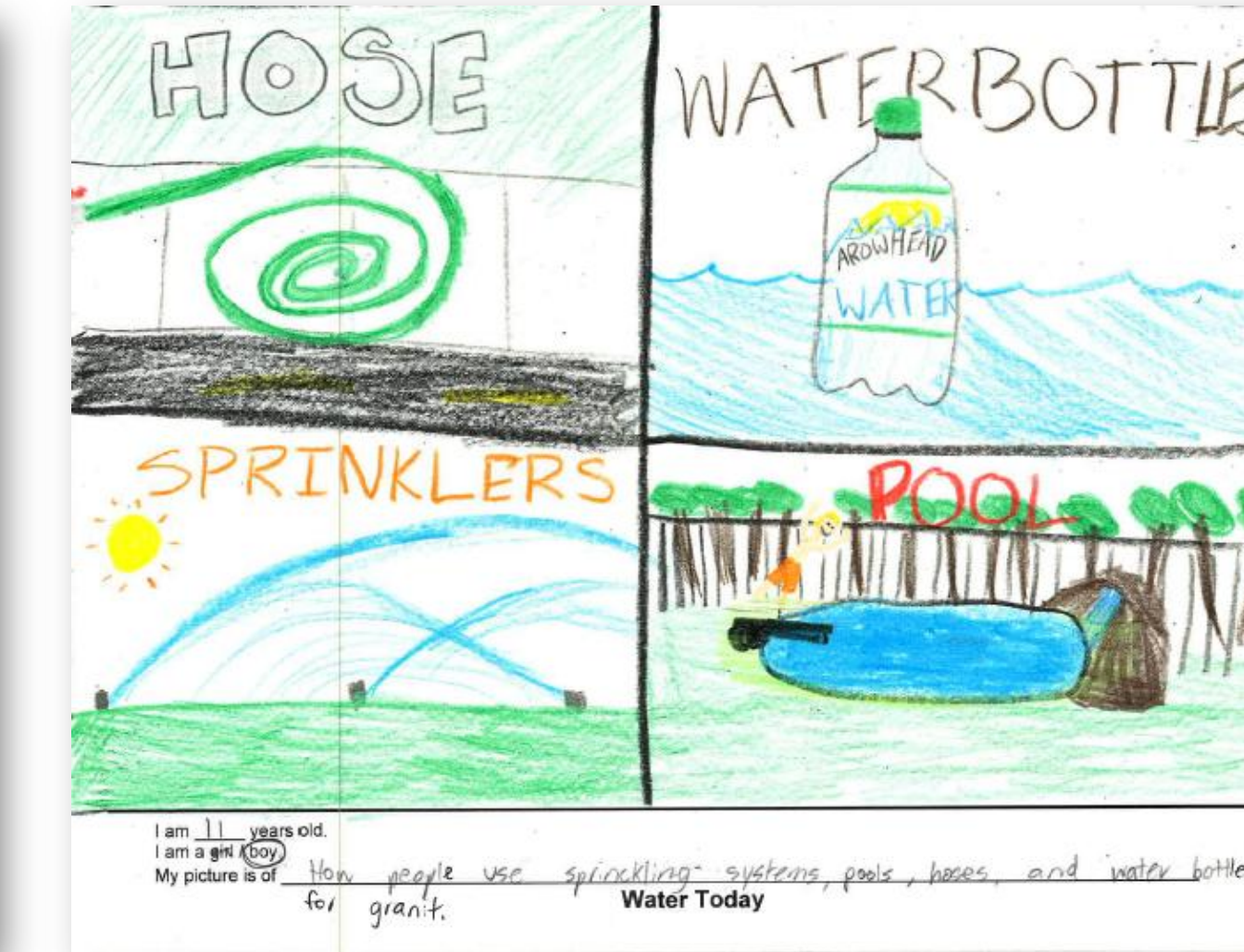
Note the presence of vegetation in both of this student's pictures (trees and grass). However, the trees are visibly less green and luscious in the T2 picture.



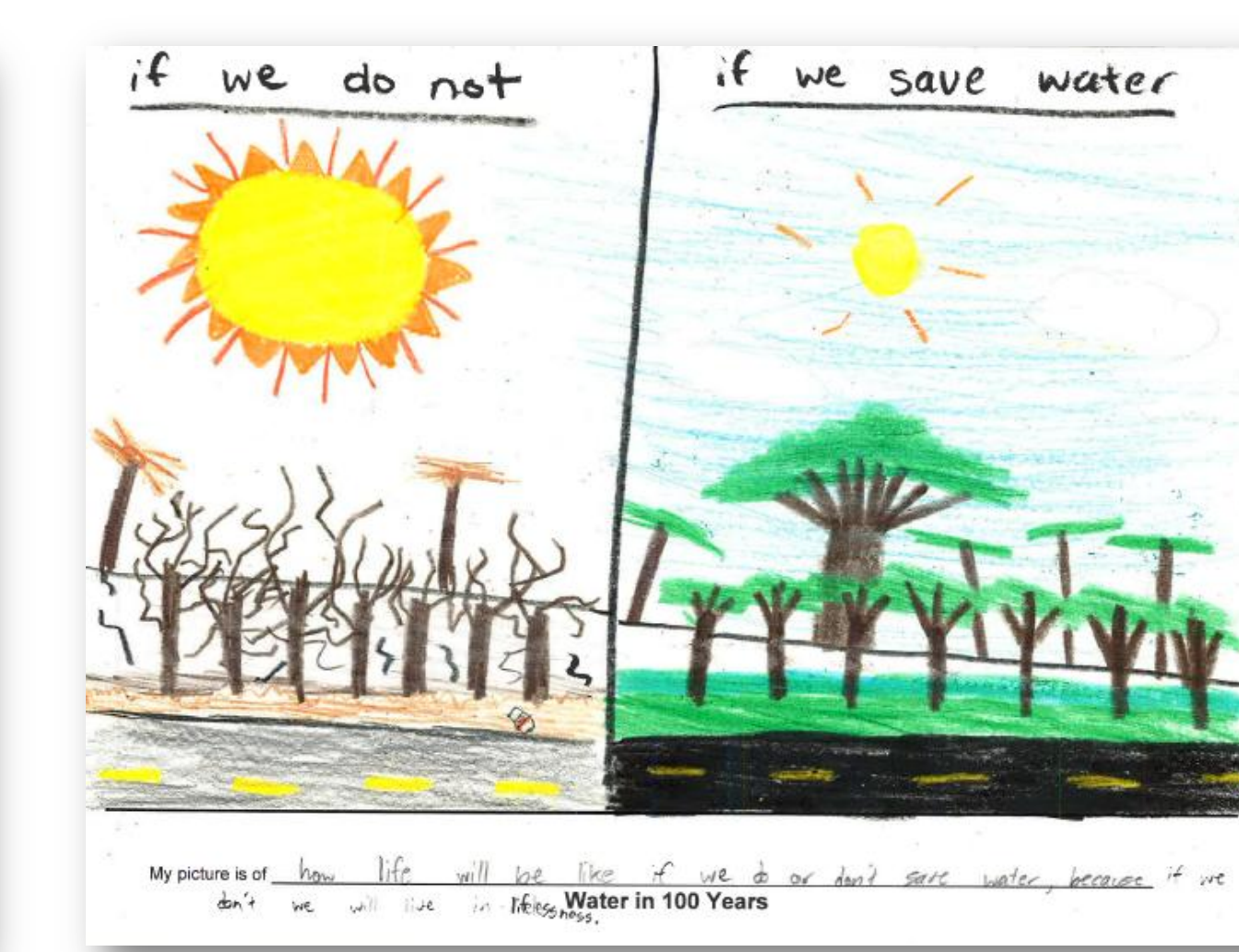
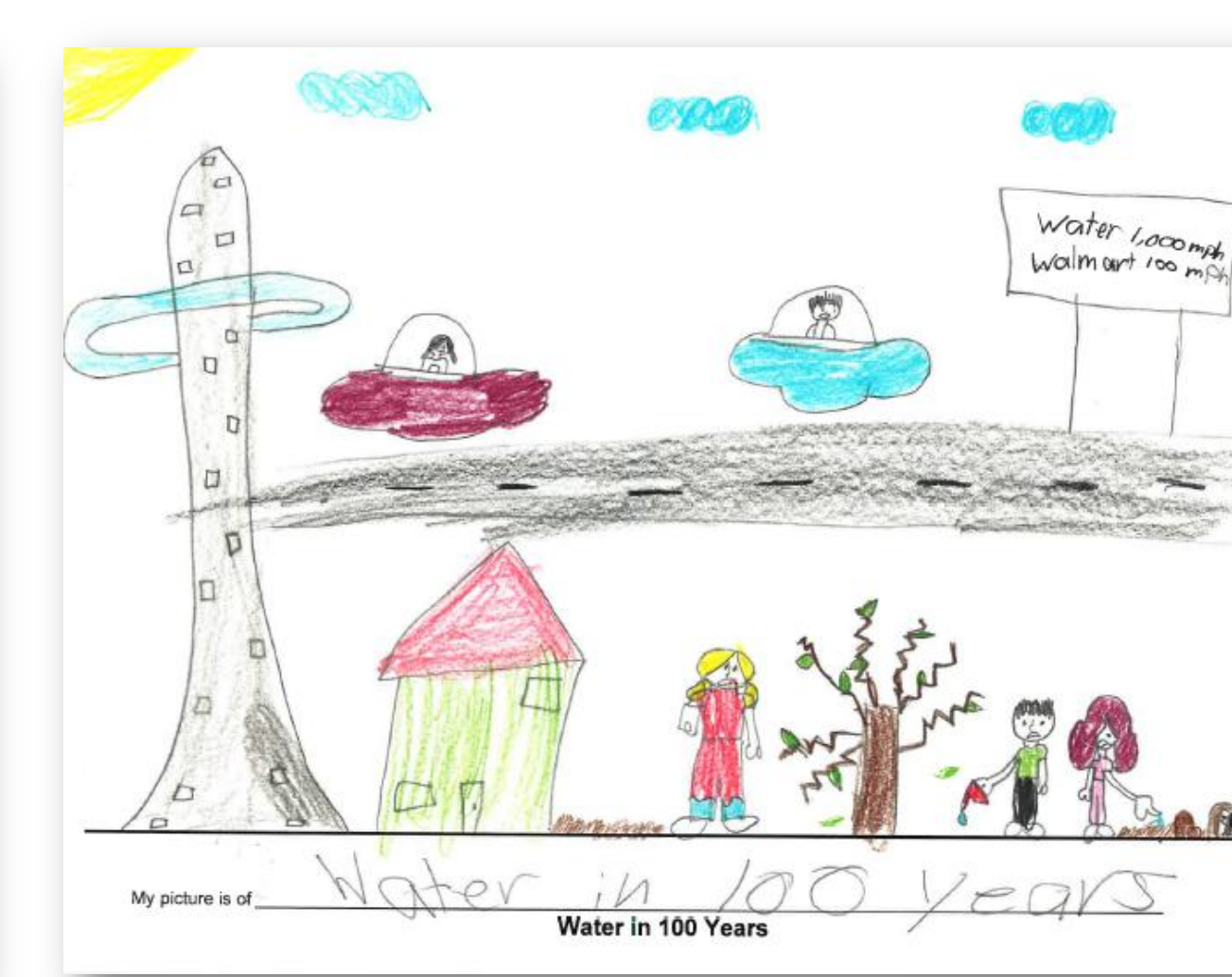
Note that this student's T1 drawing clearly depicts healthy, watered grass. While there is still grass depicted in T2, it is significantly less vibrant and not as extensively present in the picture.



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.

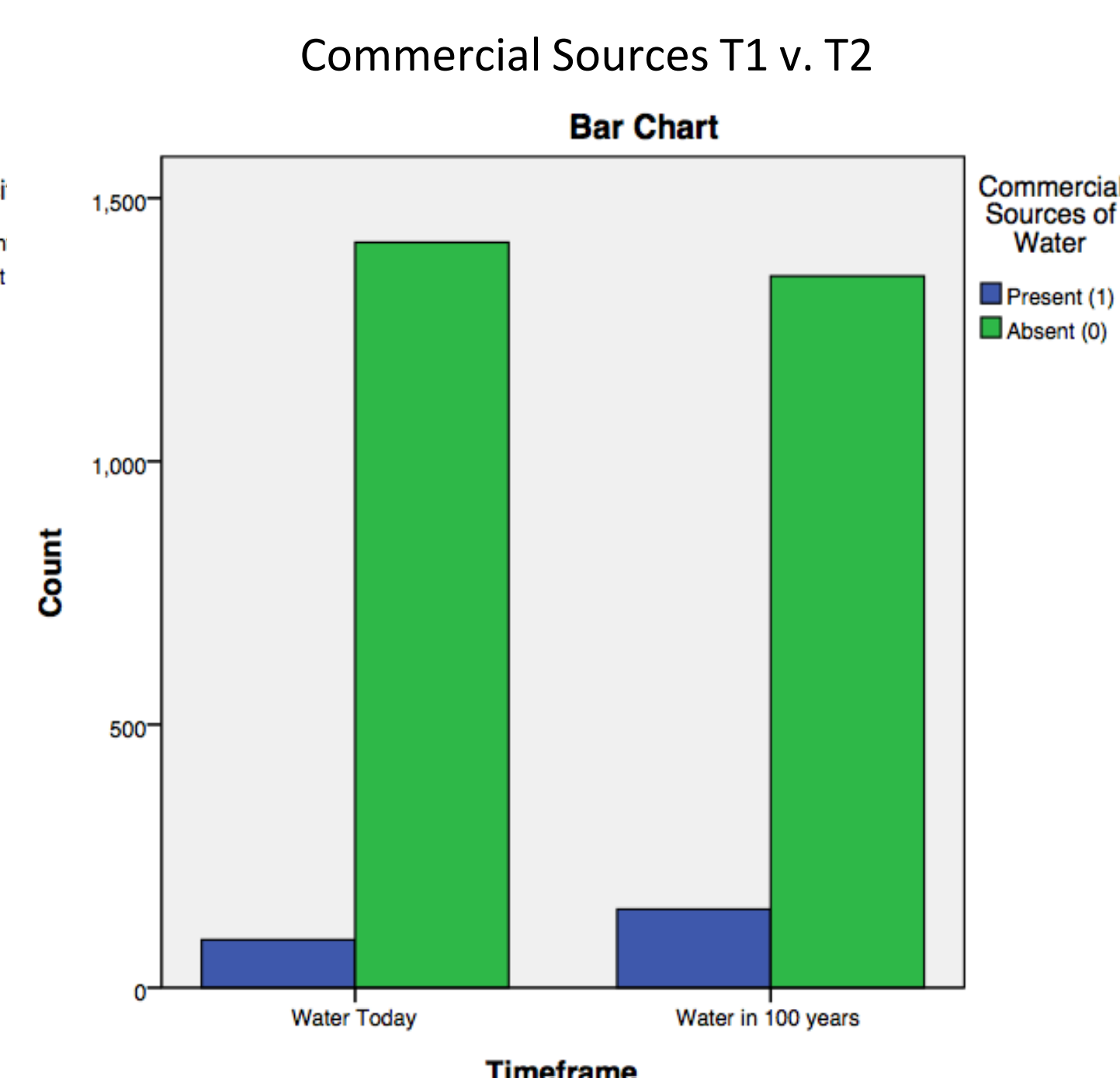
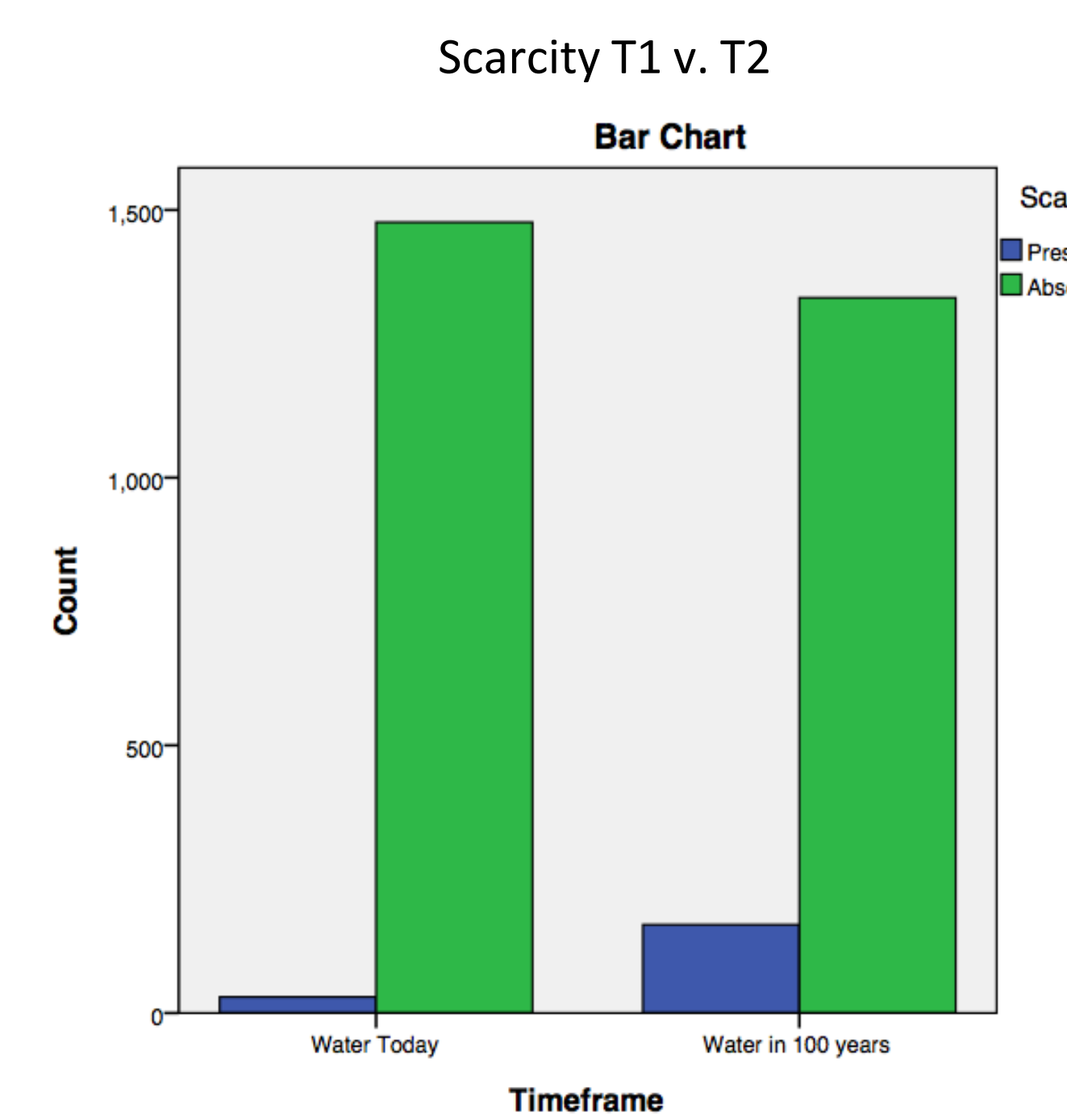
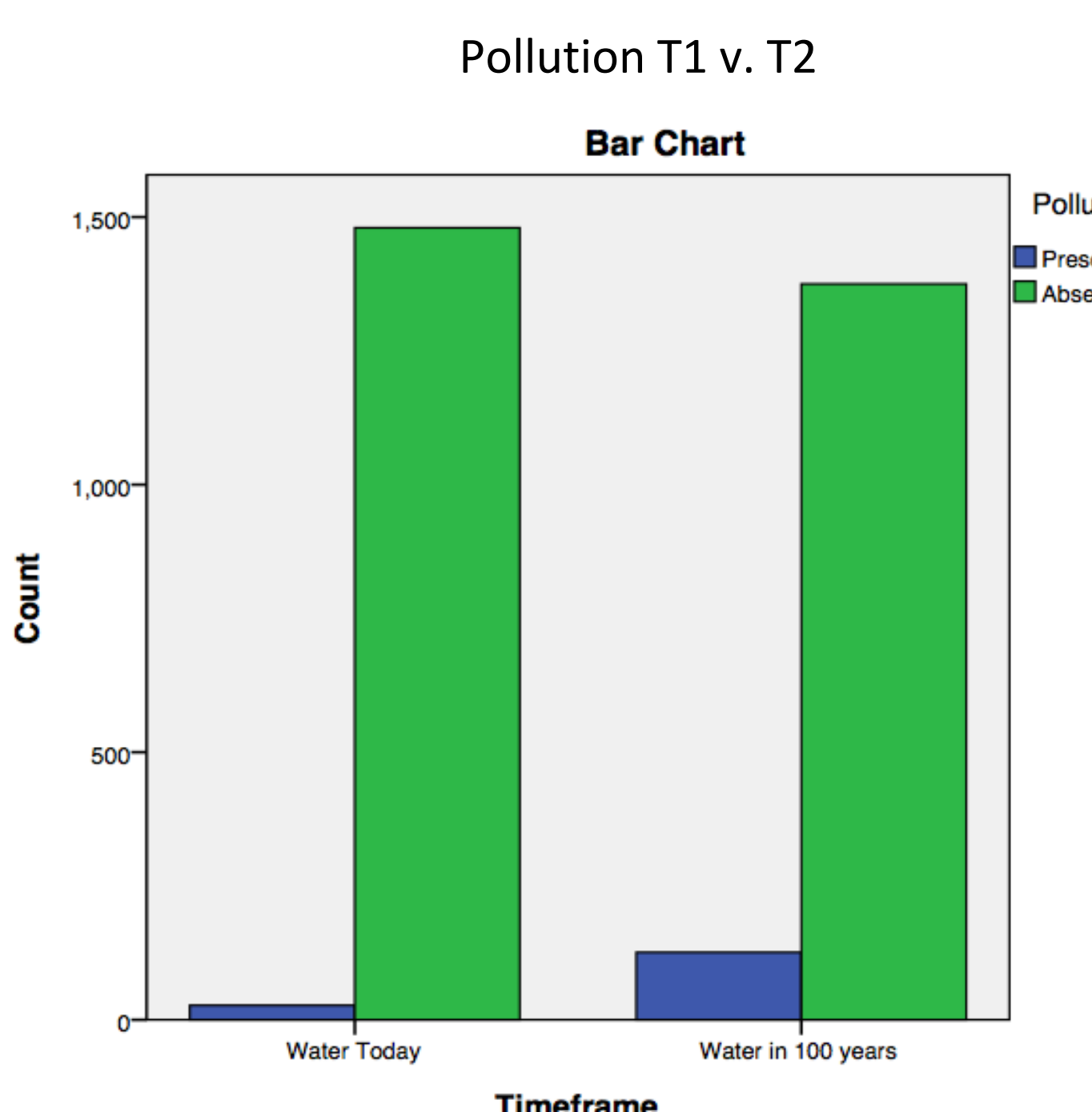
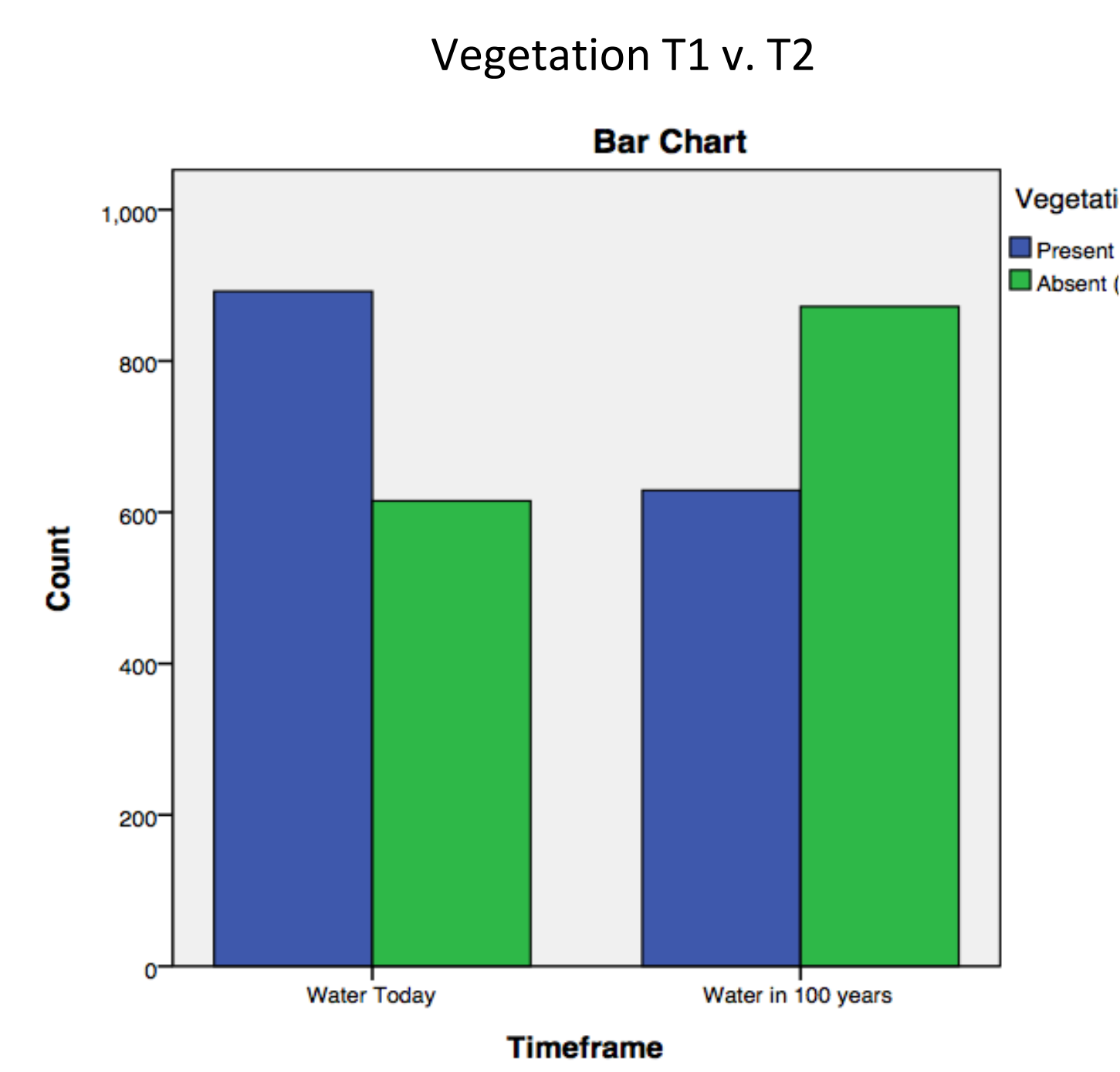


Note the comparison between this student's T1 and T2 drawings and the two different futures he imagines if water is or is not conserved. Scarcity is again shown through the dead vegetation, but this student also shows an understanding of the need to save water.



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 visibly less luscious and lively in T2.

Relating this to scarcity, dying vegetation was often how scarcity was represented in the artwork. Therefore, even if not clearly stated as dying vegetation, the visibly less lively vegetation in T2 should also represent that some children think that water will not be as abundant in the future and vegetation may not be as thriving as a result.

Additionally, along with the theme of scarcity came the idea of conservation, showing that the children are very much aware of the state that water is in and the possible future that waits for them if nothing is done.

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 Research

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.

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.