

# Dallas Environmental Education Initiative

Integrating Theory and Data: Unraveling Teaching, Learning, and Water Conservation Behaviors



# Fishbein's Model (2000)

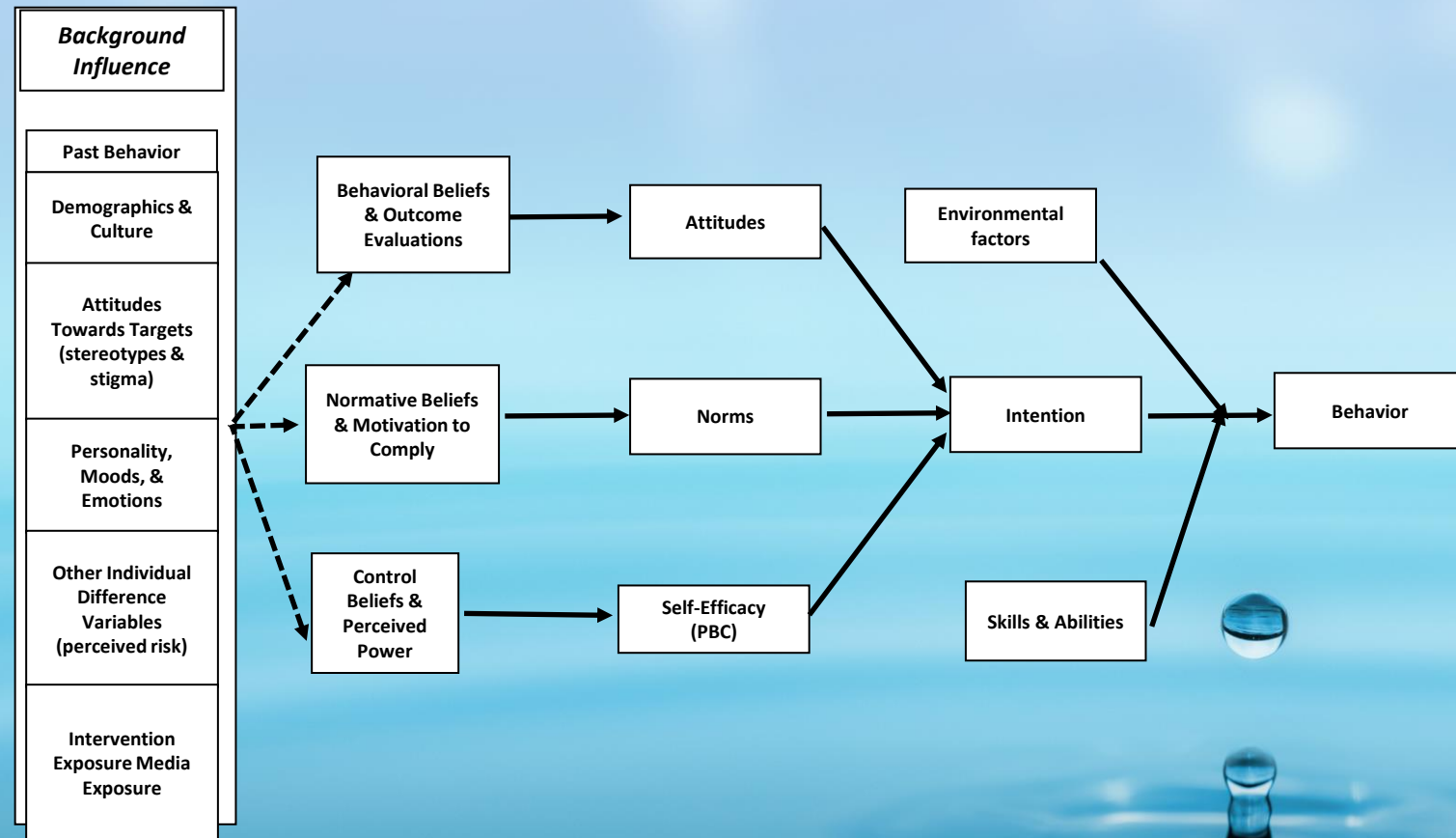


Figure 1A. Fishbein's Integrative Model

# Current Behavior



# Programmatic Application

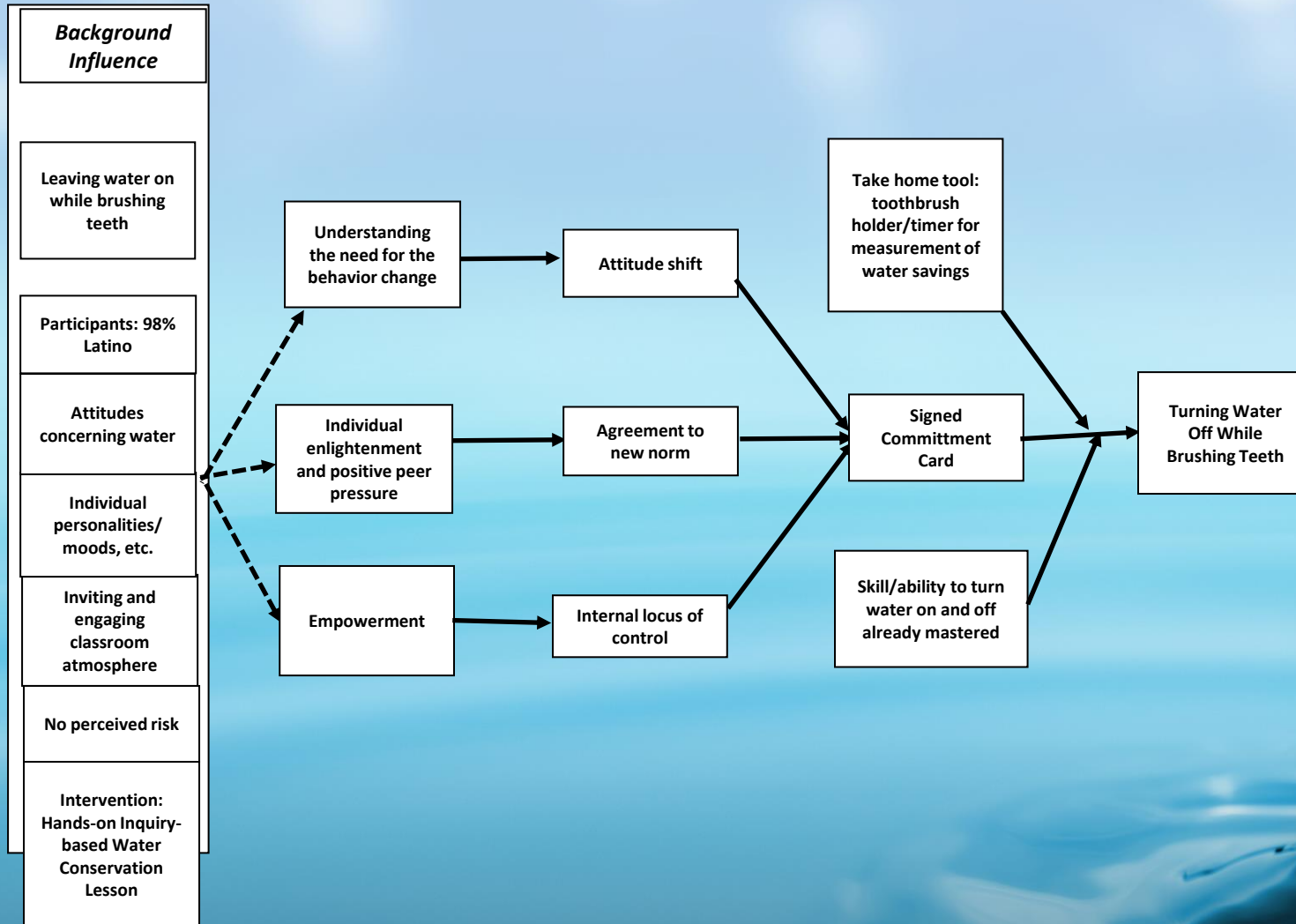
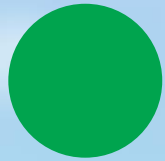


Figure 1B. Programmatic application of Fishbein's Integrative Model

# Desired Behavior

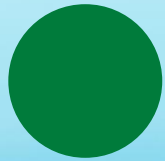


# Key Elements of Stage 2 & 3



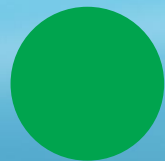
## **Empowerment**

Learning through hands-on, inquiry-based lesson as to why there is a need to save water.



## **Agreement to New Norm**

Whole class discussion on ways to conserve water

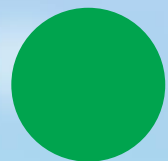


## **Locus of Control**

Final decision on what the individual can immediately control

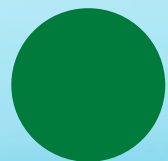


# Key Elements of Stage 4



## **Skill/Ability to Implement Change**

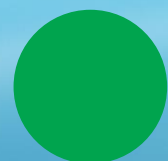
Already mastered by the time they enter elementary school



## **Signed Commitment Card**

Social marketing research tells us that if we sign are name to something it increases the likelihood that we will follow through on the commitment.

My Water Promise



## **Take Home Tool**

Research tells us if we want to move learning beyond the classroom and into the home, the learner needs a “reminder” in the home (Duval & Zint, 2007)



# Intervention –

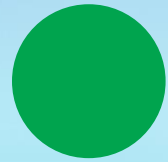
Certified Teacher Led, Hands-on, TEKS aligned,  
Inquiry-based Lessons



## **Kinder & 1**

K – Drip! Drop!  
Water Does Not  
Stop! (water  
quantity)

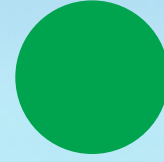
1<sup>st</sup> – Here I go  
'Round My  
Watershed'  
(availability)



## **2<sup>nd</sup> & 3<sup>rd</sup>**

2<sup>nd</sup> – Water All  
Around!  
(wastewater)

3<sup>rd</sup> – Name That  
Surface Water!  
(wetlands)



## **4<sup>th</sup> and 5<sup>th</sup>**

4<sup>th</sup> – Where is Our  
Water?  
(groundwater)

5<sup>th</sup> – People and  
Water? (Individual  
choices for  
use/conservation)



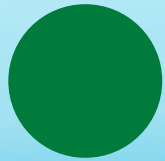


# So . . . Does it Work?



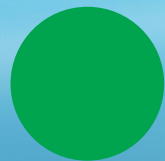
## **Comparison: Between Groups Study**

*Control:* Water data from Single Family Homes (SFH) of students in three elementary schools prior to receiving *Intervention:* students in all three schools received lessons (1,733)



## **Data Analysis**

Potentially confounding variables - population, number of SFH, income, price of water, irrigation ordinance, weather (temperature/rainfall), topography, marketing, demographics.

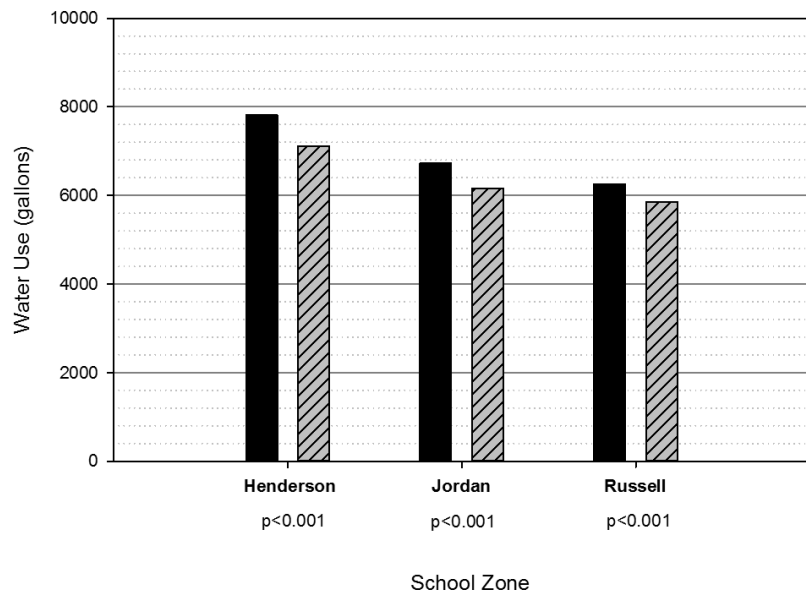


## **Results**

Statistically significant ( $p > .001$ ) reduction of water use amounting to a savings of 501 gallons per month per household.

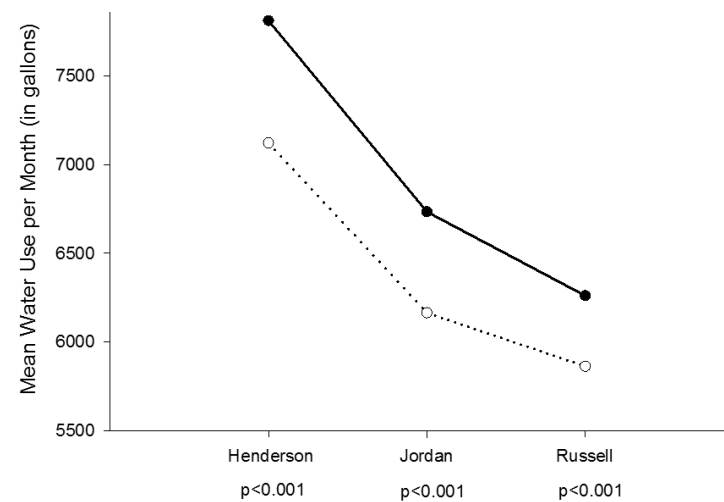


Pre and Post-Intervention Average Monthly Water Use (in gallons)  
per School Zone per School Year



**■** May 2011 - April 2012  
 Henderson (n = 5292 ; 441 Homes)  
 Jordan (n = 5040 ; 420 Homes)  
 Russell (n = 6456 ; 538 Homes)

**▨** May 2012 - April 2013  
 Henderson (n = 16788 ; 1,399 Homes)  
 Jordan (n = 8592 ; 716 Homes)  
 Russell (n = 19596 ; 1,633 Homes)



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Thank you! For more information, visit our site at  
[dallaseei.org](http://dallaseei.org)

