

# **PS Permian Basin Educational Video Design, Assessment and Dissemination\***

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## **Abstract**

The Permian Basin is increasingly important to Texas and US economy. However, many geoscience students know little about the basic geology of Permian Basin, maybe reflecting the lack of information about it in most sedimentology, stratigraphy, and tectonics textbooks. To help remedy this problem, we made a hybrid video/ animation about the Permian Basin and assessed it in university Geosciences classes. Identifying and quantifying “best practices” for producing geoscientific videos and animations is the second leg of this work by assessing these in the classroom. We are disseminating this work via “UTD Geoscience Studios” website and YouTube channel, Facebook group “Geosciences Animations and Videos”, and REDDIT account. For dissemination, we found that notifying geoscientific on- line communities (such as GSA, AGU, and Sigma Xi) about the existence of the video was effective. The Permian Basin video is about 6 minutes long and presents basic geological, geographic information about the Permian Basin; it can be viewed at <https://youtu.be/zksQ89aPigE>. To optimize the pedagogical content of the video, we applied selective attention theory and cognitive load theory in the video production. Assessment involved giving the same 10 question multiple choice quiz before and after students watched the video/animation to upper division undergraduate classes at UT Dallas (19 students) and TCU (4 students), and graduate class at UT Arlington (13 students). For UT Arlington and TCU students, we also asked them to report their confidence level (unsure/low confidence/high confidence) on each answer. Significant improvement in student understanding is revealed by comparing exam scores. Overall, students from three classes show a great improvement, average score increased from 50 to 75. Moreover, the result shows that, all students get big improvement in memorizing facts about Permian Basin. However, regarding understanding overall geology of the Permian Basin, graduate students get better improvement than upper division undergraduate students do. These results will inform our future efforts to create and assess geoscience educational videos, see <https://utdgss2016.wixsite.com/utdgss>.

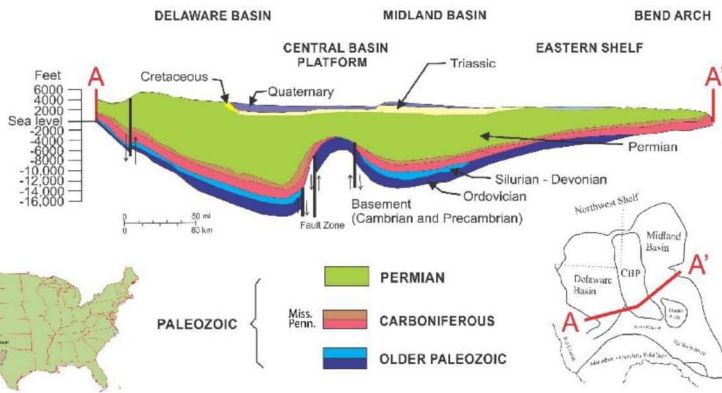
# PERMIAN BASIN EDUCATIONAL VIDEO DESIGN, ASSESSMENT AND DISSEMINATION



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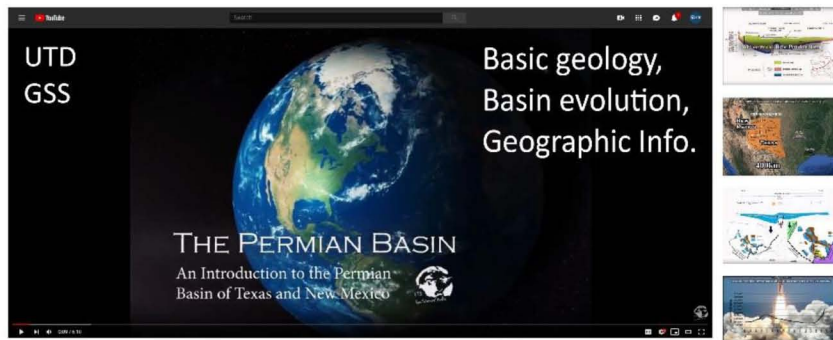


Many geoscience students get little training about the **basic geology of Permian Basin**. One potential solution is to use high quality, scientifically accurate **animations and videos made by geoscientists** on the topic of Permian Basin.



(Revised from Hill et al., 2003)

A hybrid **geoscientific video and animation** introducing the Permian Basin of Texas and New Mexico,



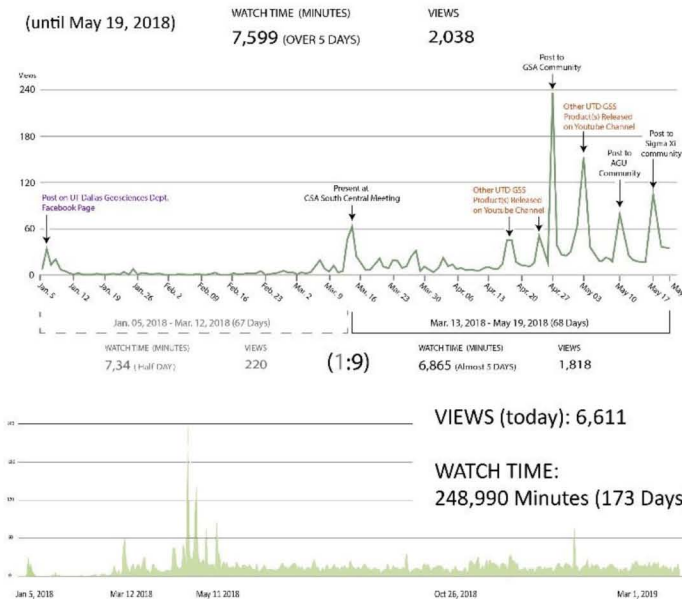
## Video Assessment

Pre-test Knowledge	Location of Permian Basin	Size of Permian Basin	Age of sedimentation	Tectonic evolution	
Question Number	Q1 ★	Q2 ★	Q3 ★	Q4 ★	Q5 ★
Sediment thickness	Subbasins	Industry history	Dominant sediment lithology	Evaporite timing	
Q6 ★	Q7 ★	Q8 ★	Q9 ★	Q10 ★	

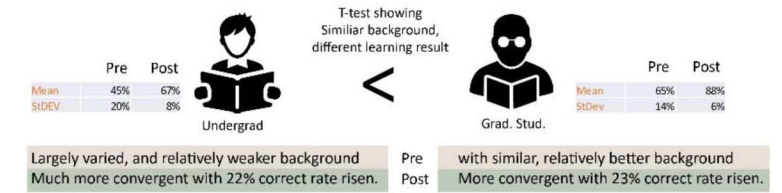
★ Facts Memorize Question    ★ Geology Summary Question

## Video Dissemination:

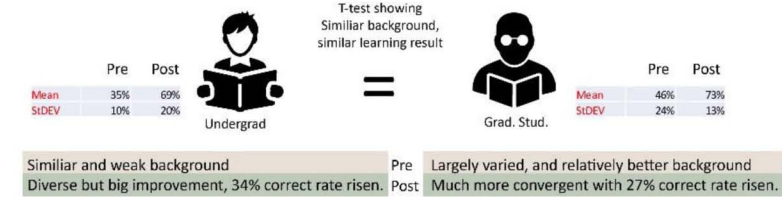
### Market Your Video at Geologic Professional Organizations



## Facts Memorize Question



## Geology Summary Question



## HISTOGRAM OF WHOLE SCORE DISTRIBUTION (UTD & UTA & TCU)

