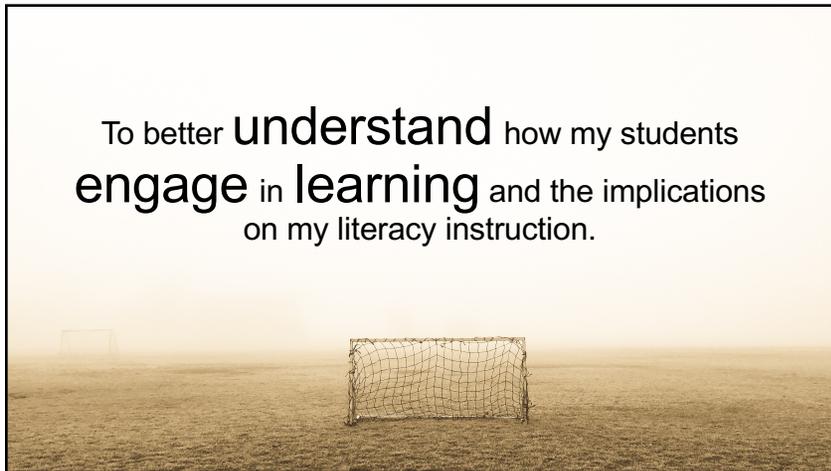


To better **understand** how my students **engage** in **learning** and the implications on my literacy instruction.



## Success Criteria



- I can explain key principles of how my students learn.
- I can recognize strategies that apply these principles to literacy learning in my classroom.
- I can create learning opportunities for my students that integrate these principles into my literacy instruction.

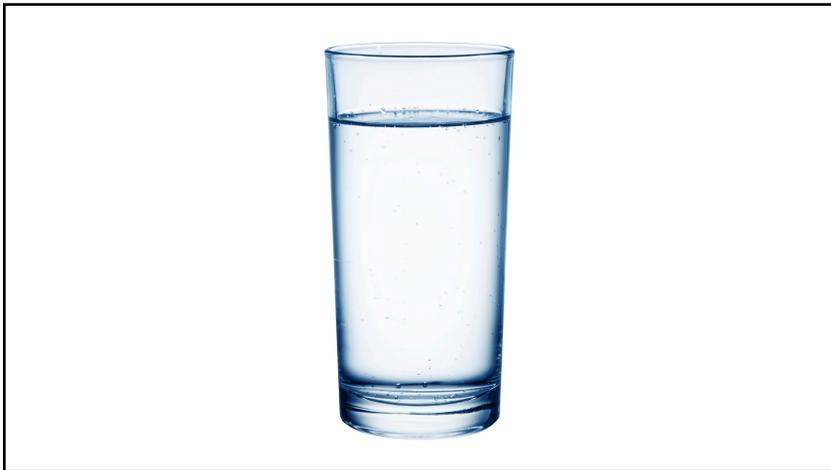


## Representation Patterns Emotion

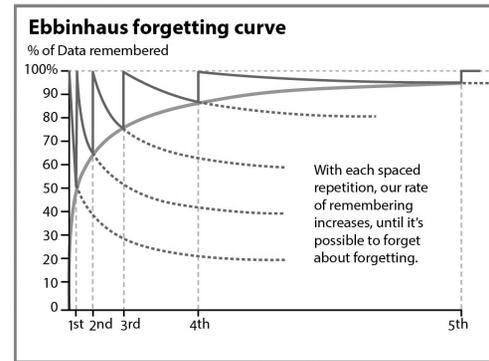
Medina, 2014

## Retrieval Practice/Testing Effect

1. Instead of repeated **restu**\_\_\_\_\_g, learners are far better off **tes**\_\_\_\_\_g themselves, both early and often (Roediger & Karpicke, 2006).
2. The act of **retr**\_\_\_\_\_l is a memory **modi**\_\_\_\_r. Whatever **infor**\_\_\_\_\_n is **retr**\_\_\_\_\_d becomes strengthened (Bjork, 1975).
3. With **fee**\_\_\_\_\_k, either by seeing the answers or **rev**\_\_\_\_\_g the information, the benefits of **tes**\_\_\_\_\_g become even more powerful (Hayes et al., 2010; Pashler et al., 2005).
4. For **mult**\_\_\_\_e – **ch**\_\_\_\_e questions, have students justify why a particular answer is **cor**\_\_\_\_\_t and why other answers are **incor**\_\_\_\_\_t (Chan et al., 2006; Little et al., 2012).
5. When material is studied over **sev**\_\_\_\_\_l **sess**\_\_\_\_\_s and tested in a new context, **var**\_\_\_\_\_g the contexts of study results in **be**\_\_\_\_\_r **perf**\_\_\_\_\_ce (Smith et al., 1978; Smith & Vela, 2001).



### The Spacing Effect



Carpenter et al., 2012; Cepeda et al., 2006; Dempster, 1988; Rohrer and Pashler, 2010

### Make Student Thinking Visible

1. Ask students to ob\_\_\_\_\_ and de\_\_\_\_\_ what they "see" in wor\_\_\_\_\_d ex\_\_\_\_\_s.
2. Build ex\_\_\_\_\_ and int\_\_\_\_\_ associated with their learning experiences.
3. Re\_\_\_\_\_ or support their inf\_\_\_\_\_es with ev\_\_\_\_\_.
4. Make co\_\_\_\_\_ to other contexts.
5. Consider different v\_\_\_\_\_ and pe\_\_\_\_\_.
6. Capture the big i\_\_\_\_\_ and form co\_\_\_\_\_.
7. Promote inquiry or the a\_\_\_\_\_ of more q\_\_\_\_\_.
8. Uncover the co\_\_\_\_\_ by going below the s\_\_\_\_\_.

Ritchhart, Church, and Morrison, 2011

#### Option #1: Blocking



#### Option #2: Interleaving



Birnbaum et al., 2013; Kang and Pashler, 2012; Kornell and Bjork, 2008; Rohrer, 2012; Taylor and Rohrer, 2010

### Desirable Difficulties

1. A study **st**\_\_\_\_\_ **y** which makes it appear that you are **le**\_\_\_\_\_ **g** quickly now will likely not support your **ab**\_\_\_\_\_ **y** to **rem**\_\_\_\_\_ **r** the information later (Yan, Clark, & Bjork, 2017).
2. The most robust techniques for **l**\_\_\_\_\_ **g** - **t**\_\_\_\_\_ **m** **le**\_\_\_\_\_ **g** are referred to as **de**\_\_\_\_\_ **e** **dif**\_\_\_\_\_ **s** (Bjork, 1994).
3. For the very same reason that these **str**\_\_\_\_\_ **s** are effective, learners and educators alike judge them to be **ine**\_\_\_\_\_ **e** and **inef**\_\_\_\_\_ **t** (Yan, Clark, and Bjork, 2017).
4. There is a difference between **perf**\_\_\_\_\_ **e** and **le**\_\_\_\_\_ **g**.
5. However, it is not the **st**\_\_\_\_\_ **y** that leads to **l**\_\_\_\_\_ **g** - **t**\_\_\_\_\_ **m** **le**\_\_\_\_\_ **g**, but rather the **cog**\_\_\_\_\_ **e** **pro**\_\_\_\_\_ **s** which are engaged by these strategies (Bjork & Bjork, 2014).

