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| a definition of *learning* |
| a process not a result |
| a change in how information taken in |
| students do it to themselves; it is not done to them |

From How Learning Works: “Why can’t students apply what they have learned? Why do they cling so tightly to misconceptions? Why are they not more engaged by material I find so interesting? Why do they claim to know so much more than they actually know? Why do they continue to employ the same ineffective study strategies?”

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| 7 Principals |   | if used | if not uses |
| Prior knowledge  |   | growth mindset |  fixed mindset |
| organization |   | structure new info into old like a puzzle | random independent jumble |
|   |   | crystalize |  |
| motivation |   | have desire | distracted |
|   |   | expect success | feel weight of previous failures |
|   |   | feel support |  |
| mastery not memorization |   | striving to learn and retain | just memorizing for the test |
| goal directed |   | good mix of quantity on basic skills and quality in synthesis. Student internalizes and applies timely feedback | unbalanced practice too heavy on either rote practice or deeper conceptualizing but not enough of either. Student feels lost/insufficient to the task |
| classroom envir. |   | energy of class (teacher and/or fellow students) is: Lets do this! | energy of the class is: If we must. |
| metacognition |   | student reflect and changes study skills to optimize learning | Students do not think about how they are thinking, instead try to just get assignment done as fast as possible. |

“the principles resonate across disciplines, institution types, and cultures, from Latin America to Asia. In our experience, these principles provide instructors with an understanding of student learning that can help them (a) see why certain teaching approaches are or are not supporting students’ learning, (b) generate or refine teaching approaches and strategies that more effectively foster student learning in specific contexts, and (c) transfer and apply these principles to new courses.”