

Active Learning: A Team Sport



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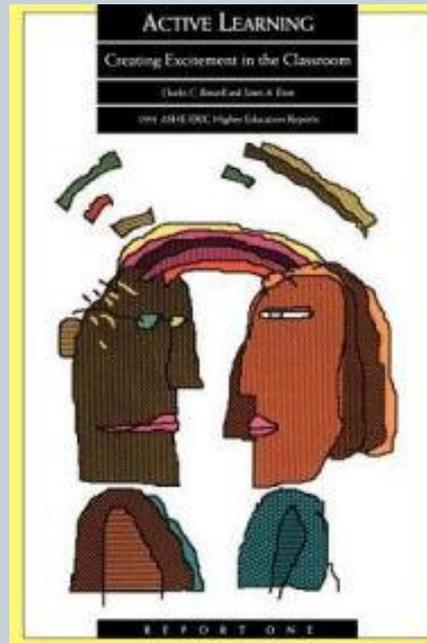
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Active Learning: The beginning...

Active Learning: Creating Excitement in the Classroom. 1991 ASHE-ERIC Higher Education Reports.



Active learning is a teaching method that strives to more directly involve students in the learning process.



*“ Bonwell (1991) ”states that in **active learning**, students participate in the process and students participate when they are doing something besides passively listening.”*

***Active learning** is "a method of learning in which students are actively or experientially involved in the learning process and where there are different levels of active learning, depending on student involvement.”*

Eric Mazur



<https://youtu.be/Z9orbxoRofI> (2:47 min)

In education he is widely known for his work on Peer Instruction, an interactive teaching method aimed at engaging students in the classroom and beyond.

I thought I was a good teacher until I discovered my students were just memorizing information rather than learning to understand the material

Lecture is the transfer of the notes of the lecturer to the notes of the student without passing through either.

Cognitive Tasks to Support Active Learning



- Read, write, discuss, and be engaged in solving problems (aka critical thinking/clinical reasoning).
- 3 learning domains: knowledge, skills and attitudes (KSA) to assure a taxonomy of learning behaviors (Bloom, 1956)
- Active learning engages students in two aspects – *doing things and thinking* about the things they are doing.
- Reflection: *on action, in action and for action*

CREATING

Putting information together in an innovative way

EVALUATING

Making judgements based on a set of guidelines

ANALYZING

Breaking the concept into parts and understand how each part is related to one another

APPLYING

Use the knowledge gained in new ways

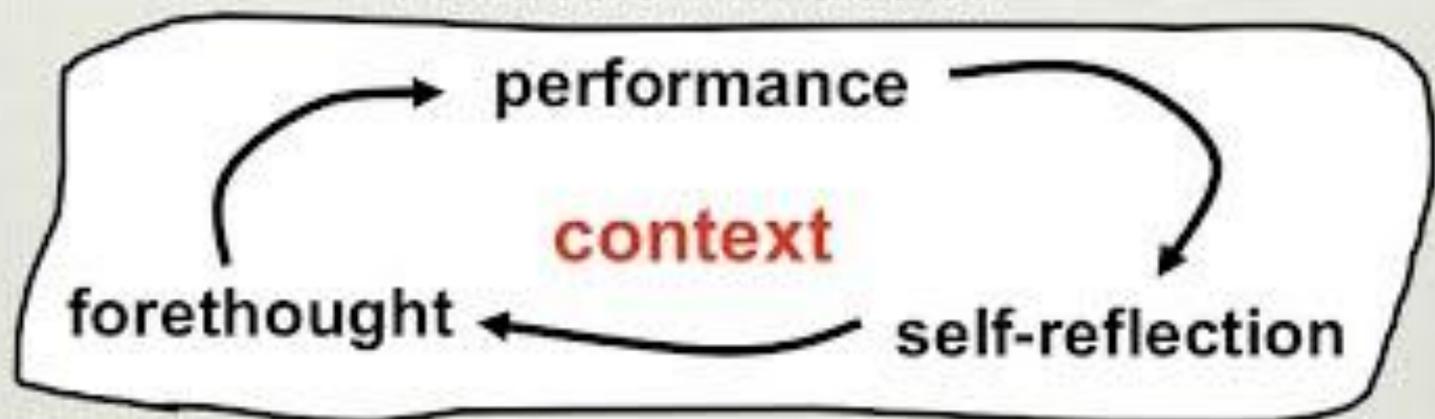
UNDERSTANDING

Making sense of the material you have learned

REMEMBERING

Recalling relevant knowledge from long term memory

knowledge for acting/doing
reflection in action



knowledge for planning actions
and imagination

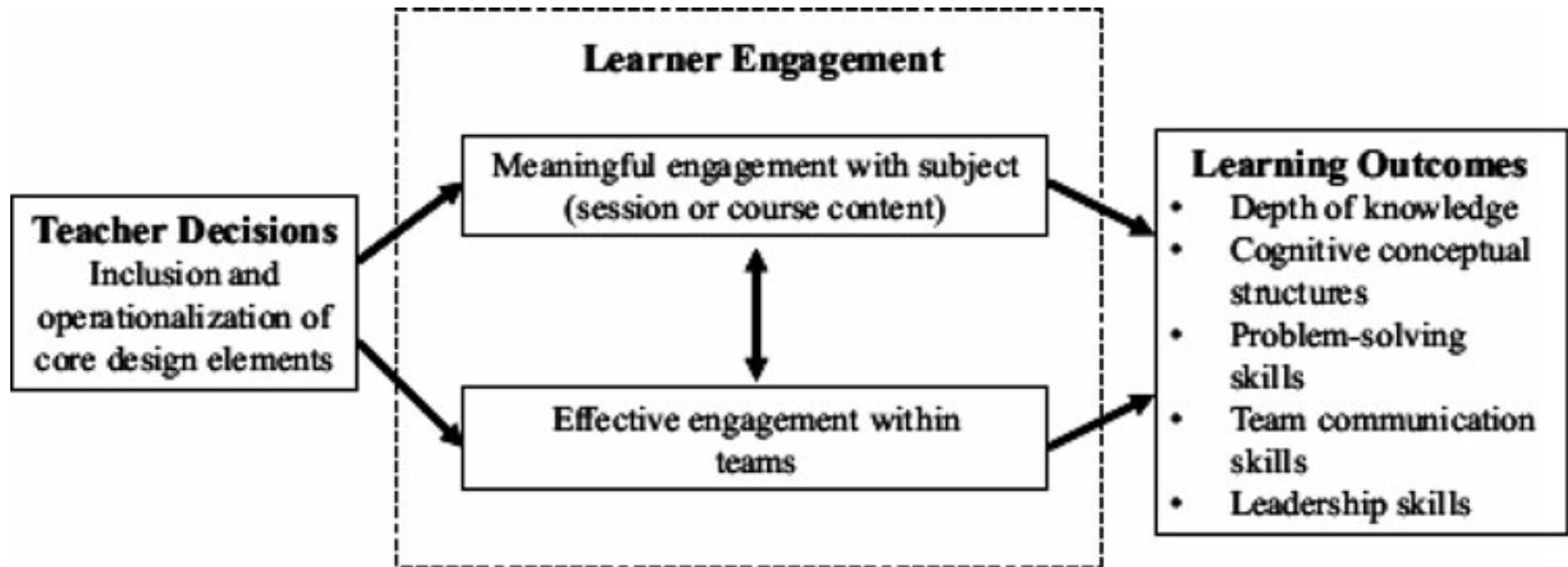
reflection for action

knowledge of self derived from doing

reflection on action

Norman Jackson
Higher Education Academy, U.K.

Effective use of collaborative learning methods in medical education



Haidet P, Levine RE, Parmelee DX, Crow S, Kennedy F, Kelly PA, et al. Perspective: Guidelines for reporting team-based learning activities in the medical and health sciences education literature. *Academic Medicine* 2012;87:292–9.





Collaborative Learning



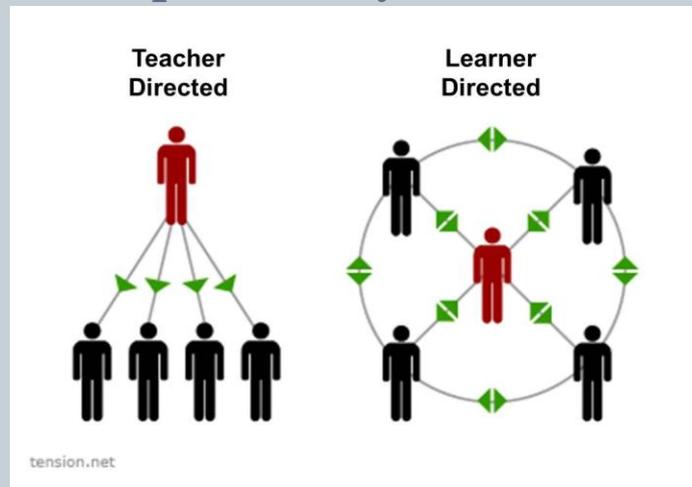
Collaborative learning a learning activity that includes the *coordinated engagement* of two or more learners for the purpose of completing tasks (e.g., solving cases) that lead to desired learning outcomes (e.g., developing deep content knowledge)



- ✓ purposeful engagement must also occur.
- ✓ substantial dialogue and co-construction of ideas.

Connecting Active Learning to Self-Directed learning

- Self directed learning
 - Organizing teaching and learning so that learning is within the learners' control
 - A goal towards which learners strive so that they become able to accept responsibility for their own



- Self efficacy—roles for the teacher
 - Modeling/demonstration
 - Setting a clear goal or image of the desired outcome
 - Providing basic knowledge & foundational skills for the task
 - Providing guided practice with collaborative feedback
 - Giving students the opportunity to reflect

Theory 101



Situated Theory

- Knowledge, thinking, and learning are situated in experience.
- Experience comprises the participants, the culture, and the physical environment.

Self-Determination

- Defines intrinsic and varied extrinsic sources of motivation, and
- A description of the respective roles of intrinsic and types of extrinsic motivation in cognitive and social development and in individual differences.

Theory 101



Cognitive Load Theory

- Maintains that limitations of working memory capacity
- Places a severe limit on human cognitive processing
- 3 forms :
 - **intrinsic (problem difficulty)**
 - **germane (learning and development of schema)**
 - **extraneous (material that is irrelevant to the problem at hand)**

Constructivism

- Learners create their own understanding of the material through exploration, discussion, and questioning rather than lecturing.
- The educator probes learners to see whether they are constructing a correct mental model and if not, engages in dialog to help them self-correct their misunderstandings.

Traditional Learning



What Instructors Do

- Find content
- Organize content
- Edit content
- Respond to students



What Students Do

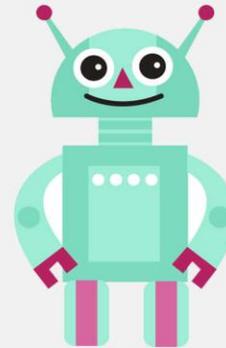
- Everyone gets the same content
- If you miss a concept you are left behind
- Everyone moves at the same pace

Adaptive Learning



What Instructors Do

- Decide what to teach
- Coach, manage and engage students



What Adaptive Tech Does

- Finds best content
- Links concepts to content
- Adjusts based on content and student success



What Students Do

- Get a learning plan just for them
- Skip concepts they know
- Get recommendations
- Master all concepts

Forces and factors in developing the master learner.

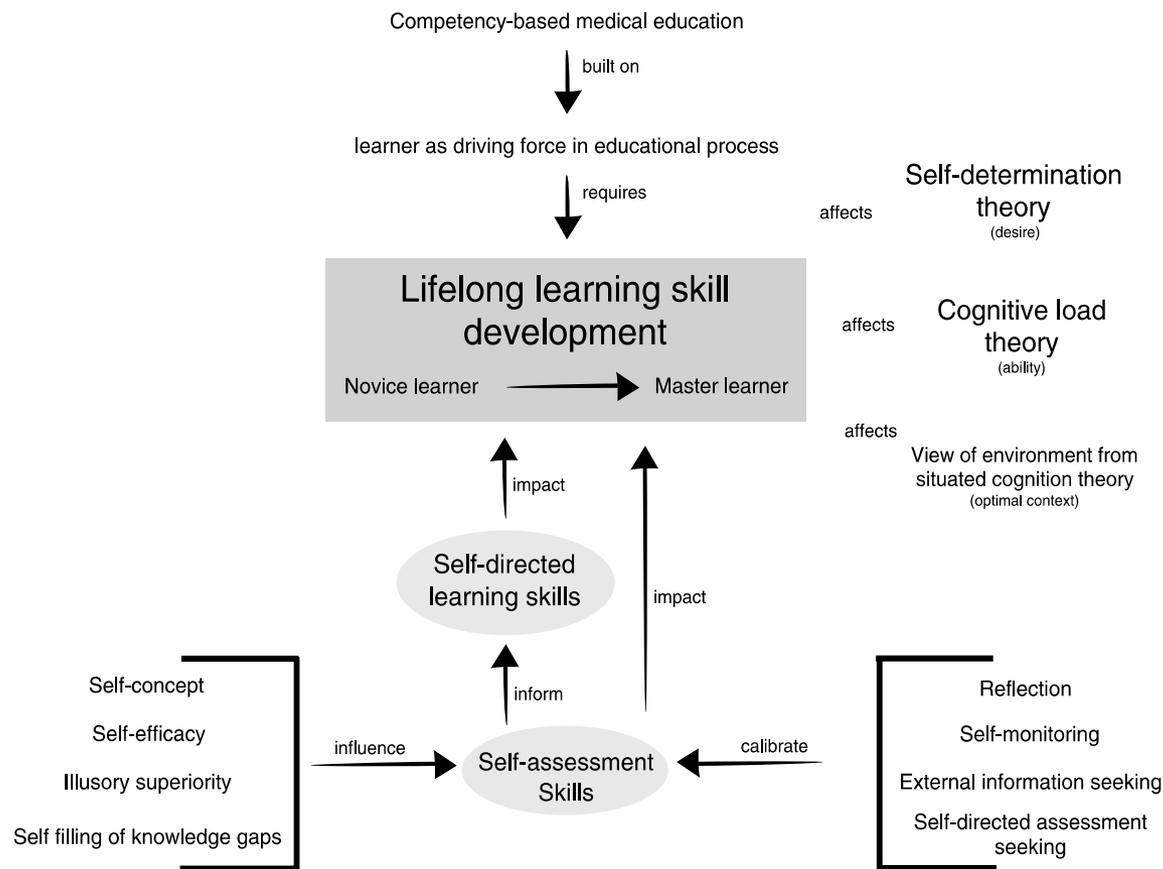


Figure 1 Forces and factors in developing the master learner.

Instructional frameworks considered to promote collaborative learning

Formalized, Highly Structured

- **Problem-Based Learning**
- **Team-Based Learning**
- **Just-in-Time Teaching**

Informal, Less Structured

- **Think-Pair-Share**
- **Case discussions**
- **Flipped Classroom**

Pluta WJ, Richards BF, Mutnick A. PBL and beyond: trends in collaborative learning. Teach Learn Med. 2013;25 Suppl 1:S9-16.



FIG. 1. Word cloud of phrases used to describe curricula at 128 U.S. and Canadian medical schools, 2010.

Pluta WJ, Richards BF, Mutnick A. PBL and beyond: trends in collaborative learning. *Teach Learn Med.* 2013;25 Suppl 1:S9-16.

Twelve tips for utilizing principles of learning to support medical education

1. Use the principle of spaced practice to plan study time and enhance learning
2. Use cumulative review strategies to promote long-term retention
3. Make effective use of the testing effect: To increase retention, provide frequent opportunities for self-assessment and cumulative testing with feedback provided
4. Organization effects: To promote integration, synthesis, and more effective learning, reorganize important content and transform it into a new format
5. Self-regulation: Students should be trained and encouraged to plan and monitor their own learning
6. Promote metacognition

Describe an educational strategy in your clinical world that can support each of these principles.

Maris F. Cutting & Norma Susswein Saks (2012) Twelve tips for utilizing principles of learning to support medical education, *Medical Teacher*, 34:1, 20-24,

Twelve tips for utilizing principles of learning to support medical education

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7. Exam expectations: Create a learning environment that includes cumulative and comprehensive examinations to promote long-term retention
8. Structure learning so students engage with material at a desirable level of difficulty
9. Explanation effect and deep questions: Asking deep, conceptually-based questions that generate explanations facilitates understanding and learning
10. Anchored learning: Provide relevant and meaningful contexts for learning
11. Promote cognitive flexibility by using patient-based problems and cases that vary in content and complexity
12. Provide instruction to foster implicit recognition and use of evidenced-based learning principles

Maris F. Cutting & Norma Susswein Saks (2012) Twelve tips for utilizing principles of learning to support medical education, *Medical Teacher*, 34:1, 20-24,

End Reflection

“Preserve the Passion”



- “Passion, hope doubt, fear, exhilaration, weariness, collegueship, loneliness, glorious defeats, hollow victories, and all of the above, the certainties of surprise and ambiguity-*how on earth can a single word or phrase begin to capture the multilayer complexity of what it feels like to teach?*”

(SD Brookfield-The Skillful Teacher)

- Add in the complexities and pressures of practicing medicine, simultaneously with teaching...

Thank You



- Questions?? Thoughts?? Comments??
- Alice Fornari, afornari@northwell.edu

