From Classroom to Online Education

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MY STORY AS AN EDUCATOR IN 2020-21

- In the Spring of 2020 I was teaching face-to-face courses in computer science and mathematics at New York colleges
- At that time it was frowned upon to teach remotely
- Remote teaching was considered too much work for the faculty
- There was also a common opinion among most faculty that this model was not conducive to the students' learning and it was too vulnerable in respect to opportunities for cheating
- When the pandemic hit New York, these worries were soon irrelevant as we were scrambling to move to online teaching only — as fast as we could make it happen

All stages must be completed for effective learning to happen. The four learning styles - diverging, assimilating, converging, and accommodating are a product of the two continuums provided by the east-west axis for processing (how to approach a task) and the north-south axis for perception (emotional response to a task).

Diverging (feeling/watching) - tend to gather information by observing and use imagination to solve a task, prefer to have many viewpoints, like brainstorming and working in groups, open to listening, interested in people.

Assimilating (watching/thinking) - prefer a logical approach where ideas and concepts are important, less focused on people, like readings and lectures rather than practical input, want time to reflect.

Converging (thinking/doing) - like technical tasks, not so concerned about people and interaction, good at finding practical uses for ideas and theories.

Accommodating (doing/feeling) - rely on intuition rather than logic, like hands-on tasks and rely on others for the analytical effort. This style is the most common in the general population.

Visual - prefers visual representations, pictures, diagrams, and flow charts.

A learning style model introduced by Kolb [Mc2017] in 1984 is shown in figure 1. This model focusing on the learner's internal cognitive processes defines a learning cycle with four stages - concrete experience, observation and reflection on the experience, formation of abstract concepts, and testing in a future scenario.

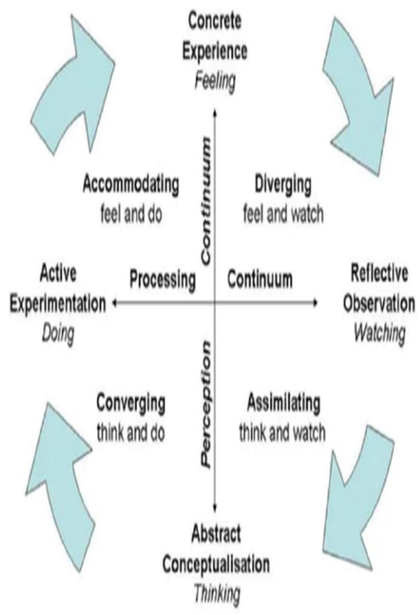


Figure 1: Kolb's Learning Styles

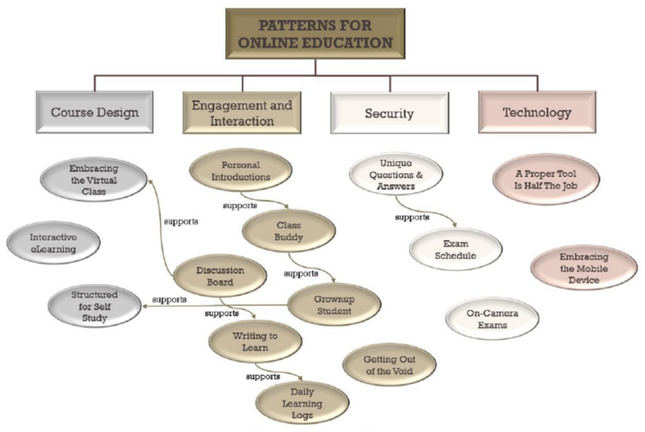


Figure 2: Patterns Map

Learning Styles vs. Teaching Models

- Active
- Global
- Intuitive
- Reflective
- Sequential
- Sensing
- Verbal
- Visual

Teaching Models

- Asynchronous
- Synchronous
- Hybrid/Blended
- Flipped
- Hyflex

Student ↔ Faculty

A few examples of the interaction between the student and the faculty include:

- providing feedback on assignments, learning journals, or other reflective activities
- participating in discussion forums or chats
- sending frequent announcements to summarize the previous week or describe the next week
- providing online or telephone office hours
- mentoring individual learners
- working with small groups of students assigned to help teach portions of the course (peer teaching)

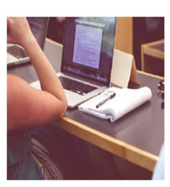
Student<->Student

Interaction between students can include formal course-related collaboration and interaction as well as more informal social interaction, which can increase students' comfort with each other and with the online environment. Student↔student interaction-based activities include but are not limited to:

- group projects
- group case studies
- peer instruction
- role playing
- synchronous or asynchronous discussions or debates
- collaborative brainstorming
- peer review of selected work

Student<->Content

This interaction includes students' concrete interactions with the course materials and their more abstract interactions with the concepts and ideas they present. It is more than just reading a book or watching a video. It includes but is not limited to:



- tutorials (using text, still images, audio, and/ or video)
- quizzes (if the feedback is useful and usable)
- web quests (Links to an external site)
- reading/video discussion or reflections (explicitly requiring students to reflect on the reading and providing directed prompts for that reflection improves the interaction)
- simulations

EDUCATIONAL CONCEPTS, DEFINITIONS, AND MODELS

- As for classroom education, online education needs to be built on a shared understanding of educational principles and consider the people involved - educators as well as students
- There are a variety of teaching models and colleges are not always applying the terminology consistently
- So, to make sure that the contents are clear to the readers of this paper it is necessary to define some concepts and explain the models for remote education as applied in my work