LESSON PLAN

Considering Neuroplasticity and Coding

Title	Considering Neuroplasticity and Coding
Course	Courses in Computer Science and Engineering
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Time duration	The assignment includes a video and set of questions to be completed outside of class time, followed by a 10-15 minute in-class discussion.
Overview	This activity is designed to explore how diversity can influence interactions and learning experiences. Without diversity, we make design decisions based on our own experiences and assumptions. The majority of new ideas are really combinations of existing ideas. This means the more people who come together from different backgrounds, with different experiences, the more likely it is that their ideas can result in a new idea.
Objective	• Develop awareness about the benefits of diversity • Identify tangible examples of how diversity can benefit strong teamwork
Materials	Student Handout (see last page/attachment) Online video and questions found in attachment. https://www.youtube.com/watch?v=LNHBMFCzznE
Procedures	Students watch a video and complete a set of questions outside of class time, followed by a 10-15 minute in-class discussion.

Discussion Guide

Start the discussion by reviewing the premise of the assignment:

The majority of new ideas are really combinations of existing ideas. Meaning, the more people who come together from different backgrounds, with different experiences, the more likely it is that their ideas can result in a new idea!

The students watched a video about how neuroplasticity can shape the brain and help one's learning. They were asked what they found most interesting and/or surprising about the information in the video.

1. Ask the students to discuss their answers to the above question with their peers (allow 1-2 minutes)
2. Ask the class for volunteers to share what they learned from the video and what they found surprising.

Students were also asked if what they learned from this assignment will impact how they interact with other engineering students and approach team-based engineering design projects.

1. Ask students to discuss their responses to the above question with peers (allow 1-2 minutes)
2. Ask the class for volunteers to share what they discussed.

Students were then asked if they had the opportunity to select their teams for an engineering design project would they select a team of peers very similar to them or different from them.

1. Ask students to discuss their responses to the above question with peers (allow 1-2 minutes)
2. Ask the class for volunteers to share their responses
3. Highlight the importance of diversity in teams and how working with people very different from you will likely bring new ideas to the team and result in a more innovative and better design.

Modifications

This activity can be modified and adapted to fit different curricular needs. For example, it may help to bring in your own personal examples of how diversity resulted in a better product or process, or you may follow up the in-class discussion with further reflection questions.

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Online Activity

Considering Neuroplasticity and Coding

Watch the following video: https://www.youtube.com/watch?v=LNHBMFCzznE and then please respond to the following questions in eCampus.

1. How is the relationship between struggle and learning potentially both a positive and a negative one? Be sure to describe your reasoning.
2. Describe a time that something didn't come easily to you, but you practiced, and you were able to become proficient. This could be a hobby, academic topic, etc.
3. What specific suggestions did the speaker have for improving your brain's neuroplasticity? How can you apply the speaker's suggestions within the context of your engineering courses?
4. You are likely going to experience lots of frustration as you learn to code. How does process of writing and debugging code connect to the ideas the speaker mentioned about neuroplasticity? How can you be sure to learn from the process of debugging?
5. You are going to be working in teams where people have different strengths. What are your strengths as it applies to writing and debugging code? What are some strengths you would like your team members to bring to the project that would complement your strengths or weaknesses? How can you apply the concepts of neuroplasticity being an effective team member?

Common Reflection Questions for All Activities

1. Will what you learned from this activity affect the way you work in teams for future engineering projects? Please Explain why or why not.
2. What did you learn from this activity?
3. What did you like about this activity?
4. What would you suggest to improve this activity?