

PAINSTORMING IN-CLASS ACTIVITY #1

Extending the Video: From Mr. Coffee to Keurig

Instructor Notes on Lesson

Expected Time: 25 minutes

When to Implement: Painstorming, being an opportunity recognition methodology, should be introduced earliest in the semester as a way to identify problems worth solving. The Painstorming video should be shown first and this would be an appropriate short in-class activity to immediately follow. If multiple in-class activities that have been provided will be used, this is recommended as the first one since it is most directly related to the Painstorming video.

Class Set-Up: Teams of approximately 4 where individuals will be able to work individually and as a team throughout the activity.

Materials Needed:

- Minimally, the instructor will need a computer connected to a classroom projector, however it may be beneficial for all students to have their own laptop for working with the materials at their own pace.
- A student handout has been created and can be distributed to help structure the activity worktime, though scrap paper can also be used.

Learning Outcomes:

At the completion of this activity, students will be able to:

- Establish a list of pains observed while watching a user interact with a product
- Consider a newer technology and identify which pains have been reduced/eliminated by this technology and evaluate/prioritize the remaining pains that still need to be solved

Instructor Guide:

After watching the Painstorming video, put the class in teams of 4, and hand out copies of the student worksheet (located at the end of this packet) or ask students to get out their own note sheet.

INTRODUCTORY DIALOGUE:

Explain to the class that as mentioned in the video, during painstorming the person you are observing interacting with the product, service, or environment is not normally talking to you. In this video, though the person was talking through the process of making coffee using a Mr. Coffee maker, he does not explicitly list all of the pains, annoyances, and frustrations he is experiencing while he does it. In order for painstorming to be a valuable and useful tool for an engineer, it is important to be able to observe and list as many pains as possible that you notice. Some pains will be very obvious, but you also want to look for those less noticeable pains or even extrapolate to pains that someone else with different characteristics might have.

Part 1. Listing Explicit Pains of the Mr. Coffee [10 minutes, could be shortened]

Return to the video and advance to 0:52 in the video where the person begins to talk about how he loves coffee and begins to walk through the process of making his coffee in the Mr. Coffee maker. Before playing the video, turn off the volume, and instruct the class to watch carefully and individually list as many pains, annoyances, frustrations, and workarounds as they can based on what they observe. A student handout is provided to help structure their responses. The instructor should then play the video until the Mr. Coffee process is complete (2:19) and students should individually record all of their identified pains during this time and in a quiet time that follows. It may be helpful to play this a second time or to let students watch on their personal computers.

Let students then discuss as a team and/or lead a class discussion to share what pains they have written down. It may be worthwhile to recognize/incentivize in some small way (e.g. extra participation points) the least obvious/most interesting pains that were noticed and shared by students to reward and encourage those who did not just have the obvious and most explicit pains listed.

Students should then compile all of the pains from all members of the team (combining repeats and redundancies) onto the team handout so that they have one master list to work from for the rest of the activity.

Part 2. Pains Eliminated by New Technology [10 minutes]

Return to the video and now show 2:19 – 3:01 where the person talks about the development of the Keurig and demonstrates the process of making one cup of coffee using it. It may be helpful to have students then watch this as a team on an individual laptop where they can discuss as they watch.

On the team handout, they should now identify and record which pains have been solved by the Keurig and how (what features of the device) have enabled that pain to be reduced/eliminated. This may take watching the video multiple times and team discussion.

A follow-up included on the team handout that the team should take several minutes to discuss and document if there are any new pains, annoyances, or frustrations that the new device introduces (that were not an issue with the previous technology).

As an instructor, you may want to share responses and discuss as a class for several minutes.

Part 3. Advancing Technology into the Future [5 minutes]

Now through a class discussion or by continuing to have students work as a team using the team handout, pose the challenge: **“The Keurig has been incredibly successful as a more user-friendly and versatile product than the Mr. Coffee – developed in large part by systematically eliminating many of the pains and annoyances that Mr. Coffee posed. Your engineering team is part of a new start-up company that has identified the home coffee-making business as one that you want to and believe you can now transform. If you want the Keurig to become as irrelevant as the Mr. Coffee coffee maker now is, making your new product the transformative way to make coffee.....what one or two pains should you focus your efforts on eliminating in a new design/technology and Why?”** Instructors may need to remind the class that they should not be coming up with new designs, only concentrating on the pains to be solved.

This can conclude with a class discussion and any desired wrap-up by the instructor.

Part 4. (Optional) Reflection [5 minutes + follow-up]

A wrap-up student handout has been prepared and is attached in this packet for students to help reflect on what they have learned and for instructors to receive feedback on student learning and questions. It is recommended that if this is used the instructor should follow-up by clarifying any misconceptions and answering any questions raised.

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Names: _____

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TEAM WORKSHEET TO ACCOMPANY IN-CLASS ACTIVITIES

In this column, list each pain/annoyance associated with the Mr. Coffee process that your team came up with	In this column, checkmark those pains that Keurig eliminated/reduced	In this column, list how (e.g. what features or improvements) the Keurig eliminated/reduced these pains

As a team, list any new pains that the Keurig has introduced that were not associated with the Mr. Coffee coffee making process.

Once instructed by your professor write your team's response to the following challenge: *"The Keurig has been incredibly successful as a more user-friendly and versatile product than the Mr. Coffee – developed in large part by systematically eliminating many of the pains and annoyances that Mr. Coffee posed. Your engineering team is part of a new start-up company that has identified the home coffee-making business as one that you want to and believe you can now transform. If you want the Keurig to become as irrelevant as the Mr. Coffee coffee maker now is, making your new product the transformative way to make coffee.....what one or two pains should you focus your efforts on eliminating in a new design/technology (choose from the table above) and Why?"*

Name: _____

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Extending the Video: Pains of Kitchen Gadgets

INDIVIDUAL WRAP-UP

1. Describe, in your own words, what painstorming is and how it is used.

2. List at least one question you have about painstorming that you would like answered by the instructor. If you have more than one questions, list all of those here.

3. If in our next class you were told that you were tasked with coming up with a new product, service, or process that would make family car travel more enjoyable:
 - a. How likely would you be to (without receiving any additional instruction or practice) use painstorming?
 1. Extremely unlikely
 2. Unlikely
 3. Neutral
 4. Likely
 5. Extremely likely
 - b. If you were told you had to use painstorming, how confident would you be that you could do so effectively (without receiving any additional instruction or practice) use painstorming?
 1. Not at all confident
 2. Not very confident
 3. Somewhat confident
 4. Confident

5. Extremely confident