**Title:**

Teaching Creativity, Innovation, and Teamwork in a Virtual Environment Using Design Thinking

**Abstract:**

Design Thinking has been successfully used in traditional classroom and other settings to teach creativity and innovation. The Design Thinking approach is typically very interactive and hands-on which presented a challenge when converting this process to a virtual classroom environment. This session will share ideas how the session leaders have successfully utilized Design Thinking in a virtual classroom environment, facilitated using the digital collaborative visual workspace tool, MURAL. Session participants will have the opportunity to participate in interactive exercises using MURAL.

**Keywords:** creativity, design-thinking, teamwork

**Introduction**

The Design Thinking method of problem-solving and product development has been embraced across industries as the tool of choice for innovation. It utilizes practices and values that are highly respected in higher-ed: empathy, research, interdisciplinary co-creation, critical thinking, and a healthy respect for alternative perspectives.  This session has been crafted to provide participants with a high-level understanding of the principles of Design Thinking as well as a feel for how it can be implemented in a virtual classroom environment, at both the undergraduate and graduate levels. This will be an interactive learning experience in which all participants will work in teams to solve a simple challenge using the Design Thinking model, facilitated by the technology tool MURAL, during the session. MURAL us a digital workspace for visual collaboration.

One of the presenters has converted a Design Thinking, end of the semester in-person classroom project (see Appendix A) to a virtual learning environment for an undergraduate course in teaming.

**Theoretical Foundation:**

Design Thinking is an interdisciplinary method for solving “wicked” problems, which are problems that are multifaceted and often derive from higher-level challenges. Because of the complex nature of wicked problems, the Design Thinking process is non-linear. It follows a cyclic pattern of research, ideation and prototyping, testing, and iterating until a refined solution is achieved. Due to its iterative nature, this methodology leaves room for different perspectives from a diverse group of problem-solvers. The Design Thinking methodology seeks to bridge the gap between the sciences and the traditional arts in a true liberal arts process and discipline. This process cannot be categorized under a single discipline’s attributes. The Design Thinker instead must be adaptable to other disciplines, take a specific set of circumstances or a context, and invent a solution, the only bounds being the limitation of their imagination. See Appendix B for an example Design Thinking process. See Appendix C for an example of how a collaborative exercise looks in MURAL.

Resources to be provided to participants to help them implement Design Thinking in their own courses include:

[**HBR: Design Thinking Comes of Age**](https://hbr.org/2015/09/design-thinking-comes-of-age)

**https://hbr.org/2015/09/design-thinking-comes-of-age**

[**YouTube Video: What is Design Thinking? An Overview (2020)**](https://www.youtube.com/watch?v=gHGN6hs2gZY&feature=youtu.be)

**https://www.youtube.com/watch?v=gHGN6hs2gZY&feature=youtu.be**

[**IDEO Shopping Cart Project Deep Dive - Nightline**](https://www.youtube.com/watch?v=izjhx17NuSE&t=6s)

**https://www.youtube.com/watch?v=izjhx17NuSE&t=90s**

# [**Listen to students? Yes! A practical, student-inspired guide to improving online education at the college level**](https://medium.com/%40kharpp/listen-to-students-26f29657367)

**https://medium.com/@kharpp/listen-to-students-26f29657367**

**Learning Objectives:**

* Gain a greater understanding of how Design thinking can be used in courses to foster innovation and creativity.
* Learn how technology can be utilized to facilitate Design Thinking in your courses.
* Understand how Design Thinking can help educate students to be better problem solvers and collaborators.
* Experience how to bring a better sense of connectedness and productivity to virtual learning and teamwork.
* Understand how Design Thinking can help educate students to be better problem solvers and collaborators.
* Gain awareness of the technology tool MURAL.
* Become acclimated with the Design Thinking process to gain confidence and go on to teach students

**Exercise Overview:**

Classroom style: Online Class

Course level: Undergraduate or graduate

This session is designed for people who desire to teach Design Thinking or other engaging, teamwork-oriented activities in an online environment at either the undergraduate or graduate level. During the session, participants will engage in two different interactive activities using MURAL to understand the types of activities they might conduct with students while teaching Design Thinking or while conducting other teamwork activities:

1. **“Working in Vagueness” Activity**

Throughout their education, students are often taught to check boxes and achieve a rubric of standards in order to excel in an academic environment. They rarely work in a completely open-ended, vague environment. Being comfortable in vague situations and uncertainty helps in the Design Thinking process and makes students better independent thinkers. In this activity, participants will learn the fundamentals of using the virtual whiteboard tool, MURAL. They will be sent off to work in teams with minimal to complete a set of tasks. There is no “right” or “wrong” way to complete the tasks, and each team will end up with something entirely different. The goal is to understand how to navigate through a vague activity and create something from it. This is a staple of the Design Thinking process.

1. **Brainstorm Session**

A tenet of the Design Thinking process is creativity and innovation, and one part of the Design Thinking process that best demonstrates this is ideation. The participants will take part in a brainstorming session with a team. They will ideate on a pre-determined challenge statement and use MURAL templates that help them think outside the box. This activity also teaches the participants how to create a safe, supportive creative space for innovation.

**Session Description:**

In order to make this an interactive session, we request a 90-minute time slot. We believe that participants will be more comfortable using the process and MURAL in the future if they have first experienced the exercises themselves. Therefore, we have designed the session to be as interactive as possible. Our session outline is:

 5 minutes - Introduction/Background & Learning Objectives

10 minutes - Design Thinking Background

How Design Thinking is used OB Courses to Teach Creativity and Innovation (for those that are unfamiliar)

Original Process/Assignment – See Appendix A

15 minutes - Overview/Introduction to Design Thinking using MURAL

30 minutes - Breakout – Participant Exercise - “Working through Vagueness”

Brief MURAL tutorial and description of activity

Exercise introduction and breakout (5 min)

Team Exercise (15 min)

Debrief & Discussion (10 minutes)

 20 minutes – Breakout – Participant Exercise #2

Brainstorm activity description (5 minutes)

Brainstorming activity (15 minutes)

10 minutes - Question and Answer session

 I Like/I Wish/I Learned Feedback

**Unique Contribution to OBTC:**

 We believe this session fits well within the conference theme of “Tradition Meets Technology: Finding Ways Forward” as it will help participants understand how they might utilize the Design Thinking process, a process typically done in groups in a traditional in-person environment, in the virtual classroom environment in which many of us are currently working. In doing so, the session will expose participants to new technology, MURAl, that they may not be familiar with which will enable them to foster creativity, innovation, connectedness, and teamwork in their own classrooms.

This material has not been previously presented at MOBTS or in other academic conference settings by the authors.

APPENDIX A. – Example of Traditional Classroom Design Thinking Assignment

**Guidelines for Innovation Experience Project**

**Purpose**

The purpose of this project is (a) to give you an opportunity to learn about creativity and innovation in a team context, (b) to apply an innovation process to a real-world problem, and in the process, (c) to give you an opportunity to analyze and reflect on the process of working in a team and develop suggestions for maximizing team effectiveness.

**Due Dates**

Tuesday, April 16th (beginning of class) – Initial Observation Notes (informal, individual)

Tuesday, April 16th (end of class) – Ideation Output on Opportunities (informal, team)

Thursday, April 18th (end of class) – Ideation Output on Solutions (informal, team)

Tuesday, April 23rd (beginning of class)–Turn in copy/show Prototype (informal, individual)

Tuesday and Thursday, April 30th & May 1st (during class) – Brief (10 minute) pitch presentation on final idea (team)

Wednesday, May 8th (by 4 pm) – Innovation Experience Paper (formal, team)

**Process**

For this project, your team can pursue a entreprenurial business idea of your own choosing. For example, you may have a business you are interested in pursing or a business you work for that currently needs new ideas. The team should decide what you would like to pursue and discuss the idea with me to make sure the scope of your idea is manageable for this project.

In your team cannot agree on a business idea of your own, your group will work for a fictional movie theater chain. The movie theater industry faces a number of challenges. As the quality of home theaters improves and the time to release of movies on DVD shortens, movie theaters are concerned about declining revenue. For more about challenges for the movie theater industry, see: <http://www.fastcompany.com/magazine/101/open_hollywood-better-business.html>. If you do not pursue your team’s own idea, your job is to develop ideas about how to help the movie theater chain increase their revenues despite changes in the movie industry. Your group will use the steps of the innovation process (including observation, ideation, and prototyping) to gather information and develop creative solutions to the problem. Your client wants truly innovation ideas, not incremental changes or ideas that have been tried by other movie theaters.

On Thursday, April 4th, I will fully describe the project in class. For class that day, we will watch a video that shows the innovation process used by IDEO, a design firm that has won a number of innovation and design awards. We will be using their innovation process as a basis for our work on this project.

The IDEO innovation process includes the following steps:



In class on Thursday, April 4th, you will meet your group for the project and make plans for the observation step. Each team member will conduct at least one observation over the next week and summarize their findings in written observation notes. Ideally, team members will observe different businesses or activities so that their observations yield unique information. Thus, you should coordinate who will observe what on April 4th, if not, your team should meet on Tuesday, April 9th to complete this step.

At the beginning of class on Tuesday, April 16th, each team member will turn in a copy of their observation notes to me. (These notes do not have to be typed or organized. Their purpose is to remind you of what you learned that you want to share with the group.) During class on April 16th, you will share your observations with your team members. Using this information, identify need areas/opportunities for innovation. Brainstorm and capture as many opportunities for innovation as possible. By the end of the class, you should have identified at least 20 need areas to guide your innovation. As a team, you will turn in your ideation output at the end of class.

On Thursday, April 18th, you will again meet in teams and brainstorm possible solutions to meet the needs that you identified in the last class. Again, you should capture as many ideas as possible, at least 30 and likely closer to 50 for this stage. (IDEO recommends numbering your ideas to improve ideation output.) After you have brainstormed (capturing every possible idea) for at least 45 minutes, make decisions about the ideas that the team likes the best. (The IDEO video shows one possible way to do this – voting with Post-It Notes.) Turn in your ideation output at the end of class. Additionally each team member should leave with a list of ideas that the team wants to focus on.

Between Thursday, April 18th and Tuesday, April 23rd, each team member individually should combine some of the team’s best ideas into a rough prototype for a final concept. Remember, that initial prototypes are not polished. They are an opportunity to visualize ideas and make refinements. Each team member will turn in a copy of their rough prototype at the beginning of class on Tuesday, April 23rd (or you may show me what you are working on if turning something in is not logistically feasible).

During class on Tuesday, April 23rd, you will share prototypes with your team, combine and revise your ideas, and determine your final recommendations for your client. You will also have Thursday, April 25th to work on this phase of the project. Each team member should leave class on Thursday, April 265h with a clear understanding of the innovative recommendations.

On Tuesday, April 30th and Thursday, May 2rd, each group will have no more than 15 minutes to tell the class about their ideas. The class will vote for the team with the most innovative solutions.

On Wednesday, May 8th by 4 pm you will turn in your team Innovation Experience Paper (more detail on this below) by dropping it off in my mailbox in the Management and Quantitative Methods department. I will also have you upload a copy to assignments for backup purposes. You are welcome to turn the paper in earlier if you would prefer.

**Innovation Experience Paper**

Each team will write a reflection paper based on the innovation experience. **This is a team assignment** about your personal experience and observations working with your team on this project. The paper should be approximately 3-4 single-spaced pages in length. The primary purpose of the paper is to analyze your team’s effectiveness and being innovative/creative and provide suggestions for improvement.

The paper should have four primary components:

1. **Definition of the problem** – As we have been doing all semester, you will want to begin your paper by clearly defining the problem.
2. **Analysis of the team process** (this is similar to your evidence section on your prior case write ups) – Using concepts from class, analyze how team member composition, team member skills, team processes, and team context influenced your team’s effectiveness. In reflecting on your team’s experience, discuss any changes that occurred over the course of the team’s interactions. Approach this part of the assignment as if you were a consultant who was hired to analyze the team. Essentially, for this project, your team members and their success (or lack of) on the innovation project become the case analysis. Be precise and complete in your descriptions.
3. **Description and evaluation of the outcome** (similar to you solution section) – Because I will have already seen your team’s recommendations during the in-class presenations, just briefly describe your team’s recommendations. Evaluate these recommendations as if you were the owner of the movie theater chain who hired your team and are comparing your team’s recommendations to those of the other teams. How innovative are your team’s recommendations? Do you think that your team’s recommendations are among the most creative in the class? I will provide you with the class vote tallies which you can include in your analysis.
4. **Provide suggestions for improvement** – Based on your analysis of the team process and your evaluation of the outcome, provide suggestions for improvement. What would you recommend that the team do differently next time? How could team composition and characteristics, team processes, and the team context be improved? Remember, the goal is to enhance productivity. Even if your team was very effective, every team can improve!

**Evaluation**

**Innovation Project Participation & Presentation (10%):** Your team will be working on completing this project largely during class time. **Therefore, your attendance on certain days is required (see syllabus schedule).** There are three days during this time period (April 10, 12, and 26) where you team may or may not decide to meet during class because you will be making observations and completing prototypes. **Unexecused absences on required days will result in a 5% point penalty per absence to your innovation project participation grade. Only University-approved absences (documented illness, death in family, religious holiday, University sponsored events) will not result in a penalty. Appropriate documentation is required. Unexcused late arrivals and unexcused early departures will negatively impact your participation grade as well.**

Once your team completes the project, you will present your ideas on May 1st or 3rd. Your peers will vote for the ideas they feel were most innovative and these peer evaluations will be used to inform your grade. In addition, your team’s effort at working together as a team to complete the project will be evaluated. While, it is my expectation that the entire team will receive the same grade on this component of the project, there may be individual grade adjustments that are made if an individual does not fully participate (attend required days, turn in individual assigments, contribute to team brainstorming sessions).

**Team Paper Evaluation (15%)**

I will evaluate your team Innovation Experience Papers based on the following criteria:

1. Did you precisely and thoroughly analyze the factors that influenced the team’s effectiveness using class concepts?
2. Do the recommendations to your innovation idea (or to the movie theater chain) effectively address the problem and provide value? Are the recommendations significantly different from existing solutions? Are the recommendations feasible?
3. Did you effectively evaluate the recommendations provide by your team using your understanding of innovative outcomes?
4. Did you provide useful recommendations for improving your team’s effectiveness? Are these recommendations based on concepts we discussed in class this semester?
5. Is the paper written clearly and professionally?

APPENDIX B. – Example of Design Thinking Methodology

**DesignThinkers Group, USA Design Thinking Model**



DesignThinkers Group, USA created the double-diamond model that demonstrates the general flow of the Design Thinking process. The double-diamond diagram shows the separation between the research phase and the ideation phase. The lines creating the diamonds show diverging and converging thought processes, demonstrating where a team is mean to think differently and then come together and combine and refine their work. While this model looks linear, the process iterates, and the Design Thinker jumps between the different processes within the methodology as needed for a project.

Below each step in the iterative process, there are examples of tools that can be used to accomplish the goals of each step. There are many different tools that are not described in each step as well as variations on the tools that are detailed above. All of the tools under each step do not need to be completed in order to work on a Design Thinking challenge.

APPENDIX C. – Example of Design Thinking Being Facilitated using MURAL

**DesignThinkers Group, USA Example**

