# 21 WAYS TO STRUCTURE AN ONLINE DISCUSSION

Collated from a 5-part series published by Annie Prud'homme-Généreux in Faculty Focus
([Part 1](#), [Part 2](#), [Part 3](#), [Part 4](#), [Part 5](#))

# Introduction to this Guide

## Excerpts from Annie Prud'homme-Généreux's introduction to the series:

Discussion forums. Love them or hate them, they are an essential component of online learning. They give introverted learners a chance to articulate their thoughts. They enrich the learning environment by giving everyone an opportunity to share their experiences. And they are a space for the co-creation of knowledge and meaning.
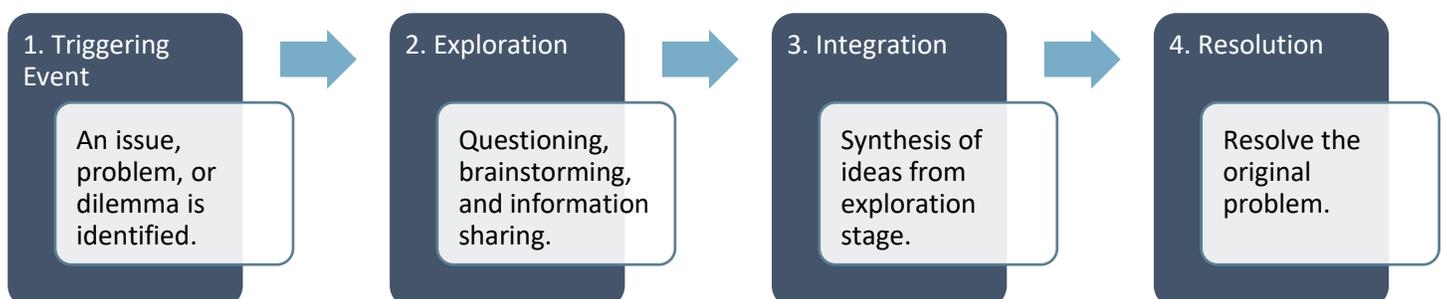
In their practitioner-oriented review article, Aloni and Harrington (2018) provide practical, evidence-based guidelines for designing, managing, and assessing effective online discussions. These guidelines should be combined with an understanding of when discussions should be used in a course. Discussions aren't appropriate when trying to meet purely metacognitive learning objectives (for reflections, use a blog or a journal), checking learners' ability to apply rules (if there is a right answer to a question, assign a problem set), or for co-creating a document (for that, use a wiki or shared document). In the words of 20-Minute Mentor Jean Mandernach (2020), "you assign a discussion when there is a conversation to be had."

What can we do to structure online discussions to ensure that every learner has something unique to say so they form a more supportive community, and how can we give learners options in how they participate? I also wanted to bear in mind what we can do to make posts and responses worth reading (Henshaw, June 25, 2020).

## Layering in the Practical Inquiry Model

Garrison et al. (2001) developed a Community of Inquiry framework for describing three types of presence (teaching, social, cognitive) for deep learning in an online environment. To foster cognitive presence, they developed the Practical Inquiry Model (PIM), which can be applied to discussions. Research shows that when students are given opportunity to engage in all four phases of the PIM, their cognitive presence increases. As a result, applicable phases of the PIM are tagged for each facilitation technique.

| 1. Triggering Event | 2. Exploration | 3. Integration | 4. Resolution |
|---|---|---|---|
| An issue, problem, or dilemma is identified. | Questioning, brainstorming, and information sharing. | Synthesis of ideas from exploration stage. | Resolve the original problem. |

# Table of Contents

# Learners Apply Concepts

## 1: #Hashtag that Photo Safari (Triggering Event, Exploration)

### Description:

Online learners are not together in one room. They are dispersed. While this is often perceived as a challenge to a discussion, it can also be an opportunity. In this activity, learners are asked to go on a field trip—to their kitchen, their backyard, their neighborhood, or their local mall—and to find examples of a concept they have studied in the course. They report their findings by posting a photo and an analysis of how their real-world example illustrates the concept. Learners typically find the posts engaging to review due to the uniqueness of each photo and because this allows learners to get to know one another and their worlds (i.e., to develop a greater sense of community). In response to original posts, peers propose a hashtag that summarizes the ethos of the example and its link to the theory. In doing so, learners must think about how the post captures the concept.

### Tips:

Be sure to go over privacy guidelines when photographing individuals. You may also want to point learners to websites or tools that reduce the size and resolution of an image prior to posting on the discussion forum. (Some proposed free tools: TinyPNG or Optimizilla)

### Example:

*(Chemistry course)* In your environment, find a situation where two or more substances with different densities are interacting. Share a picture and explain how you know that the two substances have different densities (be sure to note which has the highest and lowest density). What are the real-world consequences of this difference in density? One way to address this is to consider what might happen if the densities of the two substances were reversed.

### Variation:

If field trips are not possible, consider an imagined field trip.
**Example/Transfer**: This discussion structure requires learners to come up with an example rather than find one in their environment. Learners might find inspiration in their past experiences or imagine a fictitious one. Because learners must generate the example (rather than recognize one), it is more intellectually challenging.

### More Information:

Berry and Kowal (2019); Digital Society School (n.d.); Henshaw (June 25, 2020); Kowal and Berry (October 22, 2018); Mandernach (2020); Orlando (November 2, 2014)

## 2: Virtual Scavenger Hunt (Triggering Event, Exploration)

### Description:

Sometimes, it is not practical to send learners on a field trip, or the nature of the concept makes it unlikely that learners will find examples in their environment. That's when the internet can serve as a field trip site. In a virtual scavenger hunt discussion, learners peruse the internet and search for, recognize, collect, and share good examples of a concept. They then collaborate to infer the common elements across all good examples. In reviewing their peers' posts, learners enrich their understanding of the concept by evaluating the boundaries of the concept and its applications. In this way, learners "reverse-engineer" a definition of the concept. This lets learners discover, rather than being told, the definition of a concept. It fosters inductive learning.

## Tips:

The activity, as described, relies on learners having pre-existing knowledge of a concept. Sometimes that initial understanding doesn't exist. In these cases, the instructor can direct learners to specific websites that provide examples of the concept and ask learners to infer commonalities across examples to define the boundaries of the concept.

## Example:

(Journalism course). Read 20-30 news articles and share the one that you think has the best lede (introductory paragraph). In your post, provide the source of the article, copy its lede, and describe at least three reasons why you think the lede is effective. Read your peers' posts and collectively hone-in on 10 characteristics of a good lede.

## Variation:

Here is a suggestion when the goal is to connect learning with the region and events happening in the larger community.

**Current Events:** Here, the learners' search is restricted to news articles. Remind learners to search for written, audio (podcast/radio), and video news. The benefit of focusing the search on news is that it raises learners' awareness of how the concept studied in class is impacting the world. It may be possible to limit the investigation to local issues, helping learners make connections between their learning and their community.

## More Information:

ION Professional eLearning Programs (n.d.); Kelly (March 7, 2013)

## 3: Guessing Game (Exploration)

## Description:

This discussion structure can take on many forms, but all forms have in common that learners create a post where they describe a concept (or examples of a concept), and others use that information to guess the concept being described. It's a detective game, motivating peers to join in the conversation. Because learners must create examples, it is more intellectually demanding than *#Hashtag that Photo Safari* or *Virtual Scavenger Hunt*.

## Tips:

Consider concluding each discussion with a "reveal" where each learner posts the solution to their "riddle." They might also write a summary of the insights gained about the concept from reading the guesses of their peers (the unanticipated responses, whether a particular aspect of their post was too easy or too obscure and what that says about how people think about that concept, etc.).

## Example:

*(Literature course).* Write a short story or passage (three paragraphs) in the voice of one of the authors whose works we read in this course. Pay attention to their word usage, style, voice, narrative devices, and try to mimic the author's writing. Share your creation in a post. Then, attempt to identify the author imitated in the works of at least three of your peers. Post your best guest about the author and provide your rationale of the clues that allowed you to reach your conclusion.

## Variation:

In her excellent presentation, Henshaw (June 25, 2020) describes numerous ways to vary such discussion. Here are some spins on it:

**WordCloud:** Learners select a concept and from it, create either a word cloud or a concept map. They post their graphic to the discussion forum and others try to guess the original concept and explain the reasoning for their answer. (Suggested Tool: WordClouds, Jason Davies's WordCloud, or mind mapping software such as Bubbl.us, Coggle, Creately, Diagrams.net, GitMind, Wisemapping, GroupMap, Milanote, Mindly, Mindmeister, Mindomo, MindMup, Sketchboard, or Wisemapping)

**Guess the Character:** Learners create a text message exchange between two characters that represent concepts (or influential figures) studied in class. The concepts they embody (or the name of the people featured) are not revealed. Other learners read the text message exchange and infer the nature of the two concepts engaged in a conversation. (Suggested Tool: Free fake text message web tools such as iFake Text Message or Fake iPhone Text Messages)

**Realtor Tour:** This variation is appropriate when learners study different environments or locations (e.g., ecology, geology, urban planning, etc.). Each learner develops a short description of the features of the location as though they were a realtor presenting a property. They can do this in words, images, or videos. Others try to guess the location based on its described features.

**The Price is Right:** In a course where learners are expected to learn to assign numerical values to concepts, each learner could showcase an example and take "bids" from others trying to estimate how much the item is worth.

## More Information:

Henshaw (June 25, 2020); Ho (February 19, 2020)

## 4: Forced Analogy (Integration)

## Description:

Comparing a concept to a well-known object or system can help learners wrap their head around that concept, its components, their function, and relationships. There are two ways to go about asking learners to make this comparison. In the first, the instructor provides the object to which the concept must be compared and each learner provides their interpretation. For example, in a business class an instructor may ask learners how the typical members of an executive team are like the systems of a car. Learners provide their interpretation of which member is like the steering system, the engine, etc. In the second version, the learners must propose the object to which the concept is compared and describe how that concept is a valid analogy. This version is more challenging for learners because they must think of objects that could be used to showcase the component parts of a concept. It is also more interesting to read because the creative aspect makes each post unique. It may also be more helpful in peer learning, since a learner who is struggling to understand a concept now has several analogies to help him understand it.

## Tips:

Reassure learners that all comparisons are valid, whether physical or otherwise, as long as they draw out accurate elements of the concept.

## Example:

*(Business Course)* Think of the parts of a typical business we discussed in class (i.e., HR, Finance, IT, Executive, Board, etc.). Select an object or system that is unrelated (e.g., an animal, a car, a biological cell) and

draw analogies between the function of each component of an organization and the component parts of your chosen system. Provide a description that explains your comparison.

## Variation:
**In My Room:** Provide a list of 4-5 concepts studied in class. Ask learners to explore their immediate environment and to select an object that evokes one of these concepts. Each learner posts either a description of that object or its photo but does not reveal which concept it evokes or why it does so. Each learner then selects one post made by a peer (i.e., one object) and writes a response that compares the object to one of the concepts, drawing out the ways in which they are similar. Finally, the person who originally selected the object reveals which concept they were thinking about when they selected the object and flesh out the analogy.

**Product Reviews:** In the once-trending Twitter hashtag #rateaspecies, zoos, aquaria, and museums (and later the public) posted tweets of animals as though they were Yelp or Amazon product reviews, to hilarious effects (e.g., platypus, turtle, sea otter, parrot). A similar discussion prompt could ask learners to describe class concepts as though they were Amazon product reviews (e.g., In a biochemistry course, post an Amazon product review for RNA polymerase, DNA polymerase, or the ribosome. Peers respond whether they would purchase the product or service based on the review and point out other flaws or advantages to the product/service.)

## More Information:
Marx (n.d.)

## 5: Flawed Design (Triggering Event, Exploration, Integration)
## Description:
Learners design an example that is purposefully "broken" and defies the concept learned in class. Then, peers look at the posts and play a game of "cat and mouse," trying to find as many flaws as possible. Being able to create a flawed example requires a high degree of understanding of the concept. What's great about this activity is that peers feel empowered to critique one another's work because it is part of the game. Sometimes, peers find unexpected flaws, which makes it a learning experience for all.

## Tips:
Do not ask learners to include a set number of flaws into their design. Doing so will limit the analysis of a post, because once that number of flaws are found, learners will stop inspecting the post. Leaving that number unknown provides incentive to keep looking for unnoticed flaws.

## Example:
*(Statistics course).* Develop a five-question survey, making sure that the survey is poorly constructed (or does not observe best practices) in at least two subtle ways. Post your flawed survey as your original post. Then, visit your peers' surveys and find the ways in which their surveys are flawed. Post your discoveries in response to their original post. At the end of the week, everyone should reveal their intentional flaws and acknowledge if there were unintended ones discovered by peers.

## Variation:
**Shark Tank:** Henshaw (June 25, 2020) proposes using a Shark Tank format where entrepreneurs present their design to a panel of potential investors. Each learner presents their design, which may or may not be flawed (each learner chooses whether to add a purposeful flaw) to their peers. Then the "investors" analyze the

design and write a product review, concluding in whether they would invest in it (whether the design is flawed or not).

**Two Truths and a Lie:** Another way to structure this discussion is to base it on the popular icebreaker game: "Two Truths and a Lie" or "Find the Fib." In the icebreaker version of this activity, each person makes three statements about themselves: two of them true and one a lie. Everyone then asks questions to try to guess which is false. In the discussion version, each learner comes up with three examples or applications of a concept, two of them accurate and one of them not an exemplar of the concept in subtle ways. Following the initial post, others respond by asking clarification questions or posting their guess as to which is the "lie" and explain why they believe it to be so. After a determined period (e.g., a week), each learner provides the solution. For example, in a Physics course, come up with two examples where Newton's Second Law of Thermodynamics is appropriately demonstrated and one where it is misapplied. In your post, list the three examples in random order.

## More Information:
Berry and Kowal (June 19, 2020); Gilbraith (n.d.); Henshaw (June 25, 2020); IAF Methods (n.d.)

# Learners Explore Concepts through Divergent Thinking
## 6: Sticky Note Party (Exploration, Integration, Resolution)
## Description:
Sometimes called affinity mapping, this favorite activity of design thinking practitioners is an effective way to harness a team's brainstorming capacity. This discussion requires the use of a virtual collaborative pinboard, something like Google's Jamboard, Padlet, Lino, Wakelet, Pinside, Scrumblr, or if your organization has access to it, Miro. The process starts with each learner independently brainstorming responses to a prompt. They write one idea per sticky note and pile them in one location on the collaborative board. Then, each learner presents one idea to the team in a live session. If anyone else has a similar idea, they place their sticky note on top of the speaker's note, in one pile. Once each person has had a turn, they present their second idea, and so on around the team until everyone's sticky notes have been presented. As a third step, the group looks at the ideas on the board and discusses whether they can categorize the piles of ideas. Sometimes, groups will choose to group similar ideas together into a concept map. Sometimes, they will choose to represent their ideas into a Venn diagram, a flowchart, a hierarchy, or some other way that captures the main ideas and their relationships. The group then summarizes and presents the results of their brainstorm, either visually or in a written format. There can be a gallery walk where teams investigate and comment on the outcome of other teams' efforts.

## Tips:
Unlike small group activities where smaller teams are better than larger ones, this activity can accommodate groups of up to 10 learners easily. Ideally, learners will be able to meet for a live discussion while having access to their pinboard. However, with a bit of adjustment, it is possible to do this activity asynchronously, where learners leave richer explanations of their ideas on sticky notes and teams propose the categories they see emerging from the sticky notes on a text-based discussion forum before they go ahead and move the sticky notes to form categories. In an asynchronous format, clear instructions are essential.

## Example:
*(Education course).* What can we do to make our classroom more equitable for all learners? In your group, brainstorm ideas and hone your collective wisdom into five concrete suggestions. Start by individually generating a minimum of five ideas on your team's pinboard (post one idea per sticky note). Then, meet as a group to discuss all the ideas and group them into categories. Write your team's top five suggestions on the

class's discussion board. Read the other team's posts and acknowledge your favorite idea that your team had not thought about (i.e., post a response to that team's post describing which idea caught your interest as the best idea and why you wish you had thought of it yourself by explaining why you think it will be effective).

## Variation:
**Build a Checklist:** In this activity, the group uses the power of brainstorming to create a checklist for doing a particular task (for example, they could create a checklist of the steps required to build a website for a client, or for DNA polymerase to replicate genetic material). A checklist is a useful exercise because it forces the team to bring to the surface and discuss each component of the larger task, their order, and their importance. First, each person brainstorms the steps of a process individually, capturing each step on a sticky note. Then the team uses the shared pinboard to create a linear flowchart of the process, discussing which ought to be the first step, the second, and so on, negotiating the sequence and even presence of each step. As a final step, the group may discuss the importance of each step, weighing each one with a score, and removing the ones deemed less important for a shorter checklist.

**Force Field Analysis:** This type of brainstorm aims to identify the forces acting upon "something" to cause it to change. Teammates first brainstorm all the forces acting upon the object that cause change. Then they repeat the exercise brainstorming factors that are preventing change. On each of their sticky note, they add a value that represents the strength of that force, usually on a scale from 1 to 5. The pinboard is represented with the object in the middle and the forces for and against change on either side of it. The process proceeds as the activity described above (i.e., each person presents one sticky note, a discussion ensues, and after each person has presented their ideas, the team categorizes the group's responses). As an example, a prompt might ask learners to classify the forces acting on individuals in their decisions to get vaccinated.

**SWOT Analysis:** This well-known business tool asks the group to brainstorm ideas about the strengths (S) of an organization (or a concept), its weaknesses (W), opportunities (O) for its future, and threats (T) to its survival. Individuals first write each idea on one sticky note. Then the team pools everyone's ideas on a shared SWOT chart (on a collaborative virtual pinboard), first discussing each person's ideas for strengths identifying categories of ideas that emerge. The team then moves on to weaknesses, opportunities, and then threats. Other than a business course where this format could easily be applied, with a bit of imagination an activity like this could be adapted in other courses such as chemistry, where learners must do a SWOT analysis of a type of chemical bond, or in a biology course learners might analyze the case for placing an animal on the endangered species list.

**Fishbone Analysis:** Another way to structure the brainstorm and its resulting analysis is to use the well-known Fishbone Diagram (see the resources cited under More Information below for templates). In a Fishbone Analysis, teams brainstorm the causes of a situation or problem. They organize them into six main fishbones that stem off the fish's backbone. Each fishbone can be further developed into sub-causes which represent minor causes. This diagram helps people see causes and effects. It could be used, for example, when learners investigate what led to the development of a particular policy (its societal, political, financial, and other causes).

## More Information:
Barkley et al. (2005); Digital Society School (n.d.-a); Gamestorming (n.d.-a, n.d.-b, n.d.-c); IAF Methods (n.d.); IDEO.org (n.d.-b); MediaLAB Amsterdam (n.d.)

## 7: Wisdom of Crowds (Triggering Event, Exploration, Integration, Resolution)
## Description:
This type of discussion is helpful when a group wants to prioritize ideas generated by its members. This type of discussion starts like the Sticky Note Party, where each participant generates at least one idea in response to a

prompt. Then, each member of the team examines the range of responses and ranks them. The team then looks at the team-ranked responses and discusses the top ideas. Two variations on how to conduct this activity are described below. It can be done as a whole class or in smaller groups.

## Tips:
This discussion activity can be combined with others like <mark>Case Study, Role Play, or Debate</mark>.

## Example:
*(Biology course).* Should Monsanto be allowed to distribute the GMO Golden Rice to developing countries, free of charge? Golden rice is a genetically modified rice variety that produces vitamin A, a nutrient deficient in the diet of people living in many developing countries. One half of the class will be assigned to the Pro team, the other half to the Con team. Each person must research the topic and provide at least three arguments to support their team's position. The team should then discuss all brainstormed ideas, rank them, and select the top three. Write one post fleshing out your team's three chosen arguments.

## Variation:
**Dotmocracy:** When conducted in a face-to-face context, dotmocracy starts with each idea written on a sheet of paper posted on the walls around the room. Then, participants are given a set of colored sticker dots – red, yellow, and green. Participants go around the room, read the statement on each sheet of paper, and add a dot – green if they support the idea, yellow if they are lukewarm, red if they oppose the idea. Once everyone has added their dots, it is easy to see which idea is most supported, which idea is most controversial (has support and opposition) and which ones leave people indifferent. A discussion can follow from this visual summary of the class's input. In a virtual environment, there are several ways to conduct such an interactive "gallery walk." The first is to use a collaborative document such as Google Slides where each learner posts one idea on one slide. Then, learners review each slide and post a colored dot. The results trigger a conversation about the ideas, as they would in a face-to-face activity. The second way to proceed is to use a dedicated app, such as Dotstorming. Such app allows each person to post their ideas but have additional features to manage the voting, such as hiding the dots until everyone has voted to prevent "group-think," giving each learner a limited number of voting dots (e.g., asking everyone to choose their top three ideas), and sorting the ideas by the number of votes for ease of analysis.

**25/10 Crowd Sourcing:** This way of triggering conversation was suggested as part of the Liberating Structures toolset. In the face-to-face version, each participant writes a bold idea in response to a prompt on an index card. They mill around the room and exchange the card five times so that the authorship is lost. Then, they read the card in their hand and on the back rate the merit of the idea on a scale from 1-5. Participants repeat the steps outlined above four more times. At the end, the five ratings are summed, and each idea ranked. The top five ideas are further discussed. In an online environment, participants can each (anonymously) add one idea on a slide using Google Slides. Participants then go to Google's Random Number Generator to generate five random numbers – the number of the five slides they will review and rate (i.e., if the random number generator provides the number 6, then the learners should review the sixth slide of the Google Slides document). Each learner reads her assigned slide and leaves a rating, from 1 to 5, in the Speaker Notes at the bottom of the slide. At the end, the ratings of each slide are tallied, the ideas ranked, the results presented on the text-based discussion board where the discussion can continue.

## More Information:
Diceman (n.d.); Lipmanowicz and McCandless (2013)

## 8: Lotus Diagram (Exploration, Integration)
## Description:
A Lotus Diagram is a collaborative concept mapping activity. It is useful when the goal is to make evident all concepts related to a central one. A subset of learners is assigned to start the concept map, placing the concept under investigation in the middle and adding related concepts that "flower out" from the central one. Then, a second group of learners each take one of the secondary ideas and repeat the process, using those ideas as their central ones and fleshing them out by identifying and drawing their linked concepts. The resulting concept map will have three levels of concepts arising from the central one. For a fuller exploration, it is possible to repeat these steps another time, adding a fourth level of concepts. Optionally, another group of learners can be tasked with capturing relationships between concepts on the concept map, irrespective of their "level." There are a plethora of online tools that can be used for collaborative concept mapping from the presentation tool Prezi to the dedicated Bubbl.us, Coggle, Creately, Diagrams.net, GitMind, GroupMap, Milanote, Mindly, Mindmeister, Mindomo, MindMup, Sketchboard, and Wisemapping, to list just a few.

## Tips:
Learners need clear expectations in a concept mapping activity. For example, instructors may wish to specify that each learner must add a minimum of five concepts to the concept map. Note that concept mapping exercises are wonderful "pre- and post-" activities, where the concept map developed before a concept is studied captures the learners' existing knowledge and can serve as a springboard for the lesson. Learners fill in the concept map after the lesson to visualize (and gain awareness of) how their learning has grown.

## Example:
*(Research Methods course).* Develop a three-layered concept map of the concept of Quantitative Analysis that we studied in Module 4. Learners assigned to Group 1 should each add five related concepts to the central one of quantitative analysis. Learners in Group 2 should each select one secondary concept and flesh it out by adding five related concepts that stem from it. Once the map is complete, identify one concept you think is missing from this diagram (or that you think is erroneously present or is misplaced) and describe what it is and where it belongs. Submit your revised map, with your addition and a short description of your reasoning, on the discussion board.

## More Information:
Digital Society School (n.d.-b); Janse (2019); Miro.com (n.a.); State Library of Victoria (n.d.); Tarr (n.d.)

## 9: Mash-up (Triggering Event, Exploration, Integration, Resolution)
## Description:
This activity, also a favorite of design thinkers, is used for creative problem solving. It involves taking the insights and solutions developed in one context and adapting and adopting it in another context where a similar problem needs solving. One real-world success story of using this technique is an engineer who transformed the scary MRI scanner experience of children by making it similar to an amusement park ride on a pirate ship (IDEA.org, n.d.; Kelley & Kelley, 2014). To do a mash-up, teams start by defining the features of the problem they wish to address (e.g., how can we make an MRI scanner experience more enjoyable for children?). Then, the team brainstorms industries or contexts where this problem has been solved (e.g., an amusement park). For the top choice, the team brainstorms how the problem has been addressed (e.g., gamified environment, colorful theme-based design, sights and sounds that fit into a story or adventure, tasks

the kids must complete, reward for participating, etc.). Finally, the team discusses how some of these inspirations could be used to solve the initial problem (e.g., transform the MRI scanner into a pirate ship, provide a narrative of an adventure, and ask kids to count the number of times the pirates beat on a drum—to integrate the MRI's sounds as part of the play). All this can be done using Sticky Note Party methods and pinboards.

## Tips:

Since this activity can be quite open-ended, it is important for learners to be clear about the process. Instructors may wish to provide a worked example or demonstrate how to do it in class before letting learners do it in their teams.

## Example:

*(Nutrition course).* In your group, propose a healthy school lunch program. Brainstorm some of the problems with current lunch programs, then identify an industry that has solved your chosen problem and brainstorm the features of its programs. Finally, use these inspirations to propose solutions. For example, you might try to answer the question, "What might a farmer's market version of a cafeteria look like?" (idea inspired from IDEO.org (n.d.-c)). Describe your best innovative team solution in a post.

Since it may be difficult to see how this online discussion structure could be applied to disciplines that do not take place in the human realm, here is another example.

*(Molecular Biology course).* RNA translation of the genetic code could be written as a program code, with recursive steps (repeat steps 1 to X until Y) and logic decision trees (if X then Y otherwise Z). First, write the process of RNA translation as a program code. Don't worry about exact programming language—focus on the logical steps. Then look for inefficiencies in the code. How is the way in which it is done in nature different from the way in which you would program it from a purely programming perspective? Identify the ways in which the natural process is inefficient and propose ways in which it could be improved. Comment on two of your peer's responses by identifying what could be the implications of their proposed "process improvements" for the cell.

## More Information:

Ahlstrom and Hyper Island (n.d.); Digital Society School (n.d.-c); IDEO.org (n.d.-a, n.d.-c)

# Learners Explore Concepts through Convergent Thinking

## 10: Report on Live Discussion (Exploration, Integration)

## Description:

Sometimes, the best way to have a discussion is in a "live" format where peers can respond to one another in real time. This format addresses learner concerns about the challenges of reading emotion cues in a text-based discussion. It starts in small groups where learners meet virtually for a live discussion. This works well when each learner has something personal to share, for example, past experiences that might inform and enrich the discussion. It builds community with team members learning about and from one another. This live step is followed by each learner writing their take-away lesson from the conversation and posting it on the text-based discussion board. Learners can review the post of another person in their group and reflect on how their take-home message differs from their peer's, or they can be instructed to compare and contrast the themes explored by theirs and another group.

## Tips:

The benefit of this format is that learners can read one another's expressions in addressing the topic. It is what builds community. However, this is also the drawback of this format. Instructors should be mindful to select topics that are not too controversial or sensitive, because learners are not protected by the relative anonymity of the text-based discussion board.

## Example:

*(Project Management course).* Think of situations where you have experienced a project being managed effectively and one where the project was not so well managed. What were elements of communication that contributed to the project management being done well or not well? Discuss your experiences in your small group and write up a short, one-paragraph post where you capture the "lessons learned" about what is important to do in maintaining effective communication in a project management context. Review the posts of peers in other groups and find two additional characteristics of effective communication to add to your own take-away in a follow-up post.

## More Information:

Berry and Kowal (2019, June 19, 2020)

## 11: Give One, Take One (Triggering Event, Exploration, Integration)
### Description:

This format is helpful when the goal is for learners to explore their understanding of a topic or their values. The activity starts with a prompt. Each learner can be assigned three to five statements that could be a response to that prompt (representing different perspectives), or they may generate three to five of their own statements. The learner takes time to reflect on the degree to which they agree with each one. Then, learners pair up, expressing the degree to which they support each statement and why. Learners should then exchange one statement. The goal is for each learner to improve their hand, ending up with statements with which they strongly agree. The process is repeated three times. Then, learners get together in groups of four, share the statements they have accumulated, and agree on five statements that the whole team holds to be true. The team posts their response and reviews the conclusions reached by each team.

## Tips:

One way to keep the statements of each learner visible and exchangeable is to use a collaborative document such as a Google Slides or a Google Jamboard. Each "slide" or "pinboard" shows each learner's five statements. Learners can begin the process by composing five statements, or they may use Google's Random Number Generator to obtain five numbers which they match to a document where 40+ statements have been numbered and prepared by the instructor. Another (fun) way to randomly assign statements to each learner is to enter the statements in the free Wheel of Names website, and learners "spin the wheel" five times to obtain a randomly assigned set of five statements. Instructors will need to organize the paired workgroups, for example, numbering each learner and asking them to reach out to their pair to discuss and exchange their statements.

## Example:

*(Science 101 course).* What is science? Use Google's Random Number generator to obtain five numbers between 1 and 40. Then, go to the shared document "40 Statements on the Nature of Science" to collect the five statements that match your numbers. Copy and paste them to your assigned pinboard on Google Jamboard. Each learner will now have a different set of five statements on their pinboard. Evaluate your five statements. Which ones do you agree with? Which ones do not ring true? Why? On Day 2, reach out to your

paired teammate (look up the Wiki for your assigned teammate). Use the chat function of the LMS to discuss which of your five statements you might be willing to exchange. You must exchange one statement. The goal is to obtain five statements on your pinboard that you agree with. On Day 3, meet with your second paired teammate and repeat the process. On Day 4, repeat the process again with your third assigned paired teammate. Finally, on Days 5 and 6, meet with your Quad team, combine your 20 statements, and choose your team's top 5 statements. Write a post that describes your team's definition of science, based on your five statements. Review two other teams' definitions and post and respond to questions about their final definition (Activity inspired by Cobern and Loving (1998)).

## Variation:

What's powerful about this activity is that it forces learners to rank their beliefs and understanding about a concept. There are other ways to achieve this outcome.

**Card Sort:** In this activity, learners are given a list of statements, diagrams, names of concepts, problem sets, or questions (i.e., the "cards") and are asked to categorize them. They are not told the categories—they must define them. They may print each "card" and physically sort them into piles using an organizing framework of their choice. Or, they may do it digitally, moving sticky notes with "cards" on a pinboard. Once each learner has completed this task independently, they write a post where they share the categories they created to sort the statements and list each "card" that fell under each category. Learners then notice differences between their sorting strategy and/or categorization of specific "cards" and discuss the underlying rationale for their decision, furthering their understanding of the concepts.

One way to intuitively understand this activity (used by Kimberly Tanner in her workshops, personal communication) is to use cards with pictures of superheroes. People with no knowledge of superheroes may classify them based on superficial characteristics such as whether they have a cape or whether they are human- or animal-looking. Superhero aficionados, meanwhile, may use underlying knowledge of whether the superhero belongs in the Marvel or DC Comic Universe to classify the cards. Smith et al. (2013) used this activity to draw out learners' superficial or deep understanding of biological concepts by asking them to classify questions from problem sets extracted from textbooks. Novice learners used cues from the question wording to identify the strategy they should use to solve the problem; meanwhile, more expert learners used deeper understanding of the concepts underlying the problem to choose a strategy.

## More Information:

Cobern (1991); Cobern and Loving (2020); Cobern and Loving (1998); IDEO.org (n.d.); Ritchhart and Church (2020); Smith et al. (2013)

## 12: Role Play (Exploration, Integration, Resolution)

## Description:

Real-world scenarios are often complex and require analysis from multiple perspectives. That's when a role play can be effective. In this type of discussion, each learner is assigned, or proposes and then takes on, the role of a stakeholder in a scenario. Learners research the person's motives, values, goals, the impact of different choices, position, arguments, and respond to the prompt in that voice. Because the arguments advanced are those of the character and not the learner, learners may feel more comfortable exploring and debating controversial ideas in this format. Learners should "stay in role" when responding to their peers' posts to recreate a real-world scenario as much as possible.

## Tips:
Instructors must choose whether to assign roles or let learners choose their own. The advantage of assigning the roles is that it ensures each perspective that the instructor wants analyzed is covered and it also authorizes learners to argue more forcefully for that role's position without fear of judgement from their peer. The advantage of allowing learners to select their role is that it can lead to greater engagement and may introduce voices and perspectives the instructors had not thought to include.

## Example:
*(Politics course).* Do governments have a responsibility to safeguard the health of their population? Apply your view to the government's response to the obesity epidemic. Select someone who might have a say on this issue (e.g., an elected representative, a health care practitioner, a religious leader, a stock market analyst, a CEO of a company, an academic who is a constitutional expert, a lawyer, etc.), research their perspective, and craft a post that mirrors how this person would see the role of government in the health of populations. Be sure to state your position and make your arguments in support of that position clear. Also respond to two stakeholder's posts, in the voice of your chosen role.

## Variation:
**Debate:** A debate is a form of role play where there are two main roles: a group of individuals in favor of something and a group of individuals opposed to it.

**Six Thinking Hats:** Based on a well-known business book, the six thinking hats is a method of investigating a situation from different perspectives. In this discussion, learners are grouped in teams of six and are each person is assigned a "thinking hat." This is the persona or perspective they will take on in analyzing the scenario.

1. Blue Hat (Leader). This person is the leader of the group and must take into consideration all perspectives to come to a decision.
2. White Hat (Thinking).  This is the role of the person who is analyzing the problem from a rational or intellectual perspective. Think: "What would Spock, of Star trek, say or do?"
3. Red Hat (Feeling). This person must present the emotional perspective on the problem. What are some of the fears or passions that people are likely to experience in this situation?
4. Green Hat (Creativity). This person is tasked with coming up with innovative ways to tackle the situation.
5. Yellow Hat (Positivity). This person is a Pollyanna, always focusing on the benefits and merits of ideas suggested by others.
6. Black Hat (Cautious). The role of this person is to identify the potential drawbacks or challenges of proceeding with a course of action or decision.

**Hot Seat:** In this variation, learners take turns adopting the persona of a famous person studied in class and answering questions posted by their peers from that person's perspective. For example, in a literature class, three learners each week might be assigned to be the author of the book read in class and to answer peer questions about the book, its intentions, context, characters, and inspirations from the point of view of the author. These learners may need to research before answering questions. Learners rotate "in the hot seat" throughout a course.

**Superheroes:** Proposed by Noffs and Guerra-Martinez (April 10, 2020) in a Faculty Focus article, this method requires learners to take on the persona of a well known hero or villain and apply that lens in responding to the prompt (e.g., what would Iron Man think of this proposal and what sort of memo would he send to the Avengers?) This can lead to humorous, in-character responses that motivate learner engagement.

**Love Letters / Break Up letters:** A twist on the debate, this format asks learners to write a love letter to a concept they embrace or a break-up letter to a concept they oppose. Then, the group reads these letters and tries to find commonalities in the ways people respond to each concept.

## More Information:
Barkley et al. (2005); Berry and Kowal (2019); De Bono (1985); deNoyelles et al. (2014); Digital Society School (n.d.); Ho (February 19, 2020); ION Professional eLearning Programs (n.d.); Kelly (March 7, 2014); Noffs and Guerra-Martinez (April 10, 2020); Ritchhart and Church (2020); Zeiger (n.d.)

## 13: Jigsaw (Exploration, Integration, Resolution)
## Description:
A jigsaw is an effective way to structure teamwork because it gives each learner distinctive expertise that is needed by a team to solve a problem. The activity begins by assigning learners to groups that are tasked with becoming "experts" in a specific aspect of the problem. If the instructor wants to ensure that learners consider specific factors in their analysis of the problem, they may assign resources that tackle them and give learners guiding questions to help them consider, as a group, how these factors might affect the problem to be solved.

The second step is to form new teams that are composed of members of each of the expert teams formed in the first step of this activity. Each learner shares what they learned in the first group that might be pertinent to solving the problem, considers the tensions between the solutions proposed by each expert, and solves the problem. Since teams depend on each learner's expertise, peer pressure encourages learners to be accountable. This method works best for solving complex problems for which there is not a "right answer" and teams often select different solutions.

## Tips:
Instructors will want to consider which spheres of knowledge are important in solving the problem. This informs the creation of the first "expert" teams. Typically, four or five domains of knowledge are best, since this will form teams of four or five learners in the second teams to solve the problem—an optimal number for teamwork of this sort.

## Example:
*(Engineering course).* What would a lifetime cost/benefit analysis of gasoline-powered cars, compared to electric cars, reveal? Which car would you recommend to the public if they considered all the evidence? First, you will be assigned to a small expert group that must research one aspect of this question—one group will investigate the carbon footprint of manufacturing each model of car, the other group will investigate the carbon footprint of using these two car models over 10 years of operation, another group will investigate other environmental costs of manufacturing each model (e.g., mining, water resources), and the last group will investigate political, commercial, economic, and workforce implications and pressures affecting the manufacturing of each type of car. Each team should refer to the resources provided on the assignment sheet and work together to answer the guiding questions. Then, you will form new teams composed of one expert from each of the initial teams. Share what you learned in your expert group and together decide which type of car you would recommend and why. Write a short op ed piece for a newspaper and post to the discussion board. As a team, respond to one other team's op ed as a letter to the editor, commenting on the other team's decisions and why you agree or disagree with their analysis and conclusion.

## Variation:

**Library Roulette:** You may recall that one of the critiques that learners made of online discussion forums is that if each learner reads the same information, they are likely to come to the same conclusions in the discussion (Schultz et al., 2020). To breathe a bit of variety in the conversation, and to practice research literacy and critical thinking skills, learners can be tasked with finding resources to research a topic and then bring that information to the discussion (rather than assigning the same readings to everyone). This isn't a jigsaw per se, because the different expertise are not deliberately organized by the instructor, but it requires each learner to become informed from different sources, which will result in slightly different understandings and perspectives, and therefore different responses to the prompt.

## More Information:

Barkley et al. (2005); Schultz et al. (2020)

## 14: Case Study (Triggering Event, Exploration, Integration, Resolution)

## Description:

Case studies are narratives about challenges encountered in the real world that learners tackle and attempt to solve. A discussion board can be used for collaborative exchange of ideas and negotiation about how best to proceed or it can be used for small groups to post their chosen solution and discuss the rationale that led to each team proceeding in a different direction.

## Tips:

Instructors can write a case study using information from the community (for example, interviewing a local business or using a story from the local newspaper and linking it to concepts learned in class). There are also several free or open-sourced case databases for the use of educators. These include the National Center for Case Study Teaching in Science (over 700 science cases), The PBL Clearinghouse (with Problem-Based Learning cases in topics ranging from accounting to education to aviation science), MERLOT Business Cases, The MIT Management Sloan School Case Studies, The UBC Open Case Studies (growing collection with cases in topics ranging from social justice to civil engineering), Case It! (cases solved using a free virtual molecular biology laboratory), Health Care Case Studies, and World's Best Case Studies (video-based cases in topics including consumer goods, technology and services), to name but a few. Science instructors may also write a case study by providing a real-world scenario and tying the underlying phenomenon to an interactive simulation as a way for learners to play with the data, such as those available through PhET and The King's Centre for Visualization in Science.

## Example:

*(Environmental Sciences course).* More and more carbon-sequestration companies are popping up around the world. The goal of these companies is to capture the $CO_2$ released in the air by industrial processes. A Squamish, British Columbia start-up company has recently attracted a lot of attention for its way of doing it. In your group, investigate the technique that it uses, analyze its effectiveness and the scale of its impact on $CO_2$ in the air, compare it to the impact of other techniques that aim to have a similar effect, and study the unintended by-products or consequences of this techniques. Then, draft a memo that advises the BC Minister of the Environment on whether she should support tax-breaks for this and/other companies that claim to remove carbon from the air. How big should the tax-breaks be, if supported, and why? Be sure to provide the rationale in support of your position, since the Minister will have to defend the decision publicly, if she chooses to follow your recommendations. Finally, read the memo from two other teams and critique their arguments.

More Information:
Koehler et al. (2020); Seethamraju (2014)

## 15: Round Robin (Exploration)
### Description:
This is a collaborative activity to be done in small groups. Learners take turns moving the discussion along but never provide a complete response. Rather, each member of the group provides a part of the response, leaving the next learner to continue. It may work best for a prompt that involves problem solving or the design of a product. The unpredictability of a learner's response infuses an element of improvisation, flexibility, and reactivity into the activity.

### Tips:
Learners who post early in the discussion should have a reason to continue to monitor the forum. Perhaps they can critique the final solution or provide alternative directions in which the conversation could have gone.

### Example:
*(Education Course).* Using backwards design, create a course syllabus on designing effective online discussion prompts. The first learner should post the learning outcomes. The second learner should develop a set of assessments aligned with learning outcomes for the course proposed by the first learner. Finally, the third learner should propose activities aligned with the previous work. All learners should provide an evaluation of the final work, suggesting at least two improvements.

### More Information:
Barkley et al. (2005); Berry and Kowal (June 19, 2020); Ho (February 19, 2020)

## 16: 3CQ (Exploration, Integration)
### Description:
The 3CQ Model of discussion (Compliment-Connect-Comment-Question) was developed by Jennifer Stewart-Mitchell, a high school teacher who sought to train her students in effective communication in an online discussion forum. The model provides a structure by which learners may respond to peer posts. It consists of four parts to each response:
- **Compliment.** To acknowledge the contributions of others, Stewart-Mitchell encourages learners to start by praising a *specific* aspect of the post. A template might direct learners to begin their post with the phrase, "I like that your post…"
- **Connect.** This step is also about building community and connection. It's about relating, on a person level, with what the person said. For example, the learner might write, "I had the same thing happen to me when…" or "I read a similar story in X which…"
- **Comment.** The next step adds to what was said in the post by providing a response to it. It may be a statement of agreement or disagreement. The response may begin with, "What I would add to your post is that…" or "I might come to a different conclusion because…"
- **Question**. The last step is about keeping the conversation going by asking a specific question about the topic under discussion. Ways to state this is to write, "I wonder why…" or "What effect might X have on…"

## Tips:

This structure can train learners who are new to online discussions about ways to respond effectively. It lends itself to evaluation by means of a rubric and provides learners with clear expectations for their contributions. What it does not provide is a template for the initial post to each prompt—this model provides a template for the response to each original post.

## Example:

*(Statistics course).* Mark Twain famously wrote: "There are three kinds of lies: lies, damned lies, and statistics." Do you agree? Take a position and provide a concrete example to back up your position. Respond to two peers' posts using the 3CQ Model and be sure to respond (also using the 3CQ Model) to anyone who responds to your original post.

## More Information:

Forster (July 21, 2016); Stewart-Mitchell (n.d.)

## 17: Fishbowl (Exploration, Integration)

## Description:

In a fishbowl exercise, some learners are invited to participate in the discussion, and others are instructed to stand back and observe. Then, at the end of the activity, the people who observed provide commentaries on what took place. They summarize how the discussion unfolded and they can also provide observations about the way in which the group functioned in the discussion. For example, did they observe a particularly effective way to voice dissent that did not shut down the conversation? It's a great activity to practice active listening skills.

## Tips:

As it can be challenging for learners to critique their peers publicly, one strategy is to ask observers to share one insight gained from watching the discussion unfold and how they plan to use that insight to inform their own participation in a discussion going forward. This sharing of a "lesson learned" about how to participate effectively in a discussion will be of interest to other learners and is less "risky" for the observer to share than a critique (but just as effective).

## Example:

*(Anthropology course).* What are some of the ethical considerations when excavating a site for the purpose of understanding an extinct culture? How might these ethical considerations be mitigated? Do these mitigation strategies take care of all ethical obligations? Learners in Group 1 will spend the week discussing these issues. You must each make one original post and respond to at least three of your peers. Learners in Group 2 will not contribute to the discussion. Rather, they will follow it closely, paying attention to both its content and how the discussion unfolds. At the end of the week, Group 2 learners must post a one-paragraph summary of the main points in the discussion as well as one insight they gained from watching the discussion unfold. What strategy did you learn about participating in a discussion that you plan to apply to your own participation going forward?

## Variation:

Here are some ideas that play on the theme of active listening and reflective observations to structure the discussion.

**Spiderweb:** This visual mapping activity, developed by Shai Klima and shared by Minero (August 21, 2020), tasks a learner (or the instructor) to create a visual map of the participation and interactions in the discussion. In it, each learner's name is written around a circle, and the observer links two people whenever one person responds to another's posts. This creates a spiderweb that shows which learner helped which peer develop their ideas. Using this diagram, learners can reflect on "what they learned about who talked, who listened, and who built on the ideas of others" (Minero, August 21, 2020). This can help them acknowledge peers who contributed to forming their own thinking about a topic.

**Rant:** This variant takes place in pairs and helps learners develop the ability for deep and empathic listening. Learners begin in pairs, either live or in a private asynchronous discussion board. They are given a prompt to which learners are likely to have strong feelings, strong opinions, or a strong response. Each person is allowed the space to "rant" about it–to express their feelings, unfiltered. There is a time or word limit for the complaint, usually 60 seconds or one paragraph. The other learner must read or listen to the rant and infer what the person cares about, what is important to them, and what they value. They then report back what they heard in the form of "You care about…. And you value …" The ranter provides feedback and corrects any misinterpretation. Note that any negative comment has been abstracted out of the statement, yet the ranter will feel heard by the person who captured the essence of their rant. This can be followed by a whole group discussion (live or asynchronously) where each person introduces their paired learner by saying "This is … and she/he cares about …"

**Report on a Live Discussion:** Note that this way of structuring an online discussion, presented in Part Three of this series, could be modified to incorporate an element of metacognition, by asking learners to observe how the group's live interactions unfolded and to offer insights about that process.

## More Information:
Barkley et al. (2005); Berry and Kowal (2019); ION Professional eLearning Programs (n.d.); Marx (n.d.); Minero (August 21, 2020)

## 18: Role Swap (Exploration, Integration)
## Description:
In a typical online discussion, all learners play the same role. Why not spice things up by assigning distinct roles to each learner? By doing this, learners will take ownership of one aspect of the discussion's progress since it is uniquely assigned to them. Possible roles include **Facilitator** (someone who monitors each person's contribution to the discussion, encourages submissions, and moderates**), Fact Checker** (who comments on the accuracy or strengths of others' posts), **Skeptic** (who plays devil's advocate), **Runner** (the "go between" who reports on their small group discussion to the whole-class; or who finds links between the posts of different small groups; or finds relevant posts in previous discussion threads for the group to consider), or **Summarizer** (whose task is to write a summary of the discussion at the end, giving them an incentive to follow the discussion closely). Another way to do it is to follow the role assignment as described in the POGIL approach (POGIL Project, 2017).

## Tips:
Learners should have the opportunity to take on multiple roles during a course or semester. A reflective assignment at the end of this discussion, where each learner reflects on their contribution towards to team's overall progress, or where learners do peer assessment, can assist learners in improving their collaborative abilities.

## Example:

*(Psychology course).* In your group, discuss whether you think that psychologists should be analyzing intellectual abilities by socio-economic status, race, gender, culture, and other such demographic data. Assign one person to be the Facilitator to moderate the discussion and keep everyone engaged. One person will be the Innovator tasked with generating arguments for either side of the discussion. One person to be the Critic of any argument advanced, highlighting possible counterarguments and commenting on the strength of arguments. One person will serve as Cheerleader, backing up arguments advanced by the Innovator and adding evidence (e.g., research in the literature, case studies, etc.). At the end of the week, the Summarizer will write a one paragraph synopsis of your team's position and share it with the rest of the class.

## More Information:
Swayze and Jakeman (July 31, 2020)

## 19: Muddiest Points (Exploration, Integration)
## Description:

An online discussion generally starts with an instructor prompt. But, it could just as easily begin by asking learners to think about the content they learned and generate questions about issues that remain unclear ("muddiest points"). This sort of introspection is a lifelong learning skill, where learners assess what they know, what they need to know, and what is still to be learned to reach their goal. It's also an opportunity to open the conversation to learners' curiosity sparked by the class topic. The challenge for the instructor is how to hone the conversation once learners generate questions. How can we select those questions that are likely to generate the most engaging conversations?

Ritchhart and Church (2020) recommends doing a **Question Sort**, in which the class places each question on an X-Y plot. One scale (the X axis) assesses each question for its generativity–its potential to generate engagement, creative insights and possibilities, and deeper understanding. The other scale (the Y axis) is called genuineness and provides a quantitative rating of how much the group cares about investigating it. Each question's rating on each axis (i.e., its position on the graph) can be assessed in multiple ways. Learners may vote on each question, using such tools as Zoom Polling, Google Slides (where each question is written on a slide and learners vote in the *Speaker Notes* section below), or through the dotmocracy app called Dotstorming (a cloud-based tool where users vote for questions on sticky cards). Once the class has rated each question on the two axes, they are positioned on the graph, and those with the highest score on both measures are the ones tackled by the class in the discussion board.

Another method of tackling the pool of questions is inspired by the project management method **Kanban** (Wikipedia, n.d.). In this approach, a team writes all the tasks required to complete a project on a sticky note (one task per sticky note). Then, on a whiteboard, they draw a table with three columns: To Do, Doing, Done. The team starts by placing all the tasks (all the sticky notes) in the "To Do" column. Then, when a worker takes ownership for doing a task, she places the sticky note in the "Doing" column, and once it is completed, she moves it to the "Done" column. In this way, the team knows, in real-time, about the status of the project's progression. Here a similar approach is used with questions as "tasks." Each learner writes their question on one sticky note. Online, it is possible to use a virtual pinboard such as Google's Jamboard, Padlet, Lino, Wakelet, Pinside, or Scrumblr. Learners work in small teams to answer a subset of questions. Each team selects a question from the class's "To Do" column, moves it to the "Doing" column, and breaks out into their live breakout room or asynchronous discussion forum or virtual collaborative tool such as Google Doc to tackle the question. They should leave some evidence of their conclusion, so that learners in other groups have access to their response (e.g., leave a summary of how they answered that question on the

discussion forum). Once they are done, they move the question's sticky note from the "Doing" column to the "Done" column and move on to another question. If there are five learners per group, the team should repeat the process five times. In this way, all the class's questions will be answered. Considerations should be made for questions that a team could not answer, to be solved with the assistance of the instructor. The team should also monitor their posts and respond to follow up questions from their peers.

## Example:

*(Physics course).* As we wrap up this module on fluid dynamics, what remains unclear to you? Review your notes and post your most pressing question on a sticky note on the *Question Padlet*. Put your sticky note under the heading "To Do."  Once everyone has posted their question, agree on one with your team. Place the sticky note in the "Doing" column so that other groups know that a team is tackling it. Then try to respond to the question with your team. Once you have agreed on a response, post it to the discussion board (using the question as the thread name) and move your sticky note under the heading "Done." Repeat two more times for a total of three questions. Once all teams are finished, review the posted answer to your question. You can ask a follow up question if the answer is unclear. Also review the response to other questions and propose corrections, clarification, or additions to improve the responses of at least two questions.

## More Information:
Ritchhart and Church (2020); Wikipedia (n.d.); WonderCards (n.d.)

## 20: Karma Points (Triggering Event, Exploration)
## Description:
This idea was advanced by learners who were surveyed in the study of Schultz et al. (2020) on online discussion forums. Learners expressed the desire for flexible means of participation in a discussion, reproducing the options they experience in a live classroom discussion (e.g., showing support by cheering or nodding, raising a hand to add to a peer's comments, or being the first to comment on the prompt), depending on the extent to which a topic inspires them. In particular, learners in Schultz et al.'s study wanted the ability to award "kudos" to a peer, without the necessity of further commenting or advancing an idea. It would be the equivalent of "liking" a post to show support on social media. Whenever learners want to recognize an idea that is noteworthy for inspiring and advancing their thinking, they can award "Karma Points" to the learner who made that post. These Karma points are recognized in the grading of the learner earning them. Karma points can be integrated into a more flexible expectation of learner engagement in a discussion forum by providing one additional recognized means of participation.

## Tips:
Some LMS will make the collection and awarding of Karma Points easy to implement. Even traditional discussion boards can do this (if in a more clunky way), by having a learner respond to a peer's post with the comment: "I support this with a Karma Point."

## Example:
*(Syllabus instructions for the discussion forum component of a course).*  In this course, there are five discussion forums. You must accumulate 25 points over all of them. There are a few rules:
- An original post in response to a prompt is worth 5 points;
  - A response to a peer is worth 3 points;
  - Awarding a Karma Point to a peer is worth 1 point and you may award at most 5 such Karma points;
  - Receiving a Karma point is worth 1 point towards your total score for a maximum of 5 points;

- You must participate in any of the above methods (original post, response, or awarding Karma Points) in at least 3 different discussion forums.

## More Information:
Schultz et al. (2020)

## 21: Mood Board (Triggering Event, Exploration)
### Description:
Mood boards are commonly used in the creative arts but are underused in other fields. It consists of a collage of images, words and quotes, fonts, colors, textures, and visual metaphors, usually taken from clipping from magazines, that captures a person's emotional connection or feelings (i.e., "mood") about the topic. Chapman (n.d.) provides step by step instructions for creating an artistic mood board. Adapted to other disciplines, this sort of collage is a wonderful way for learners to review their learning, establish links between that content and their lives, and capture the unique meanings, interpretations, and emotional connection of the learner to that content. Each learner will have a unique mood board that will help learners get to know one another and foster a sense of community. While learners find it engaging to view others' mood board, it is important to direct them to specific analysis in this "poster walk," to ensure their responses advance the discussion.

### Tips:
In a face-to-face classroom, a mood board would likely limit itself to a physical poster, but online, learners can create multimedia mood boards (including sound and video to capture the mood) using a virtual pinboard such as Padlet, Prezi, Wakelet, or Canva.

### Example:
*(Field Trip to Rome course).* Review your learning about the history of Rome. Consider the theoretical aspects of this module as well as your hands-on experiences. Create a mood board that captures the essence of what you learned and how you will remember it (i.e., it can include your feelings about it). Think of it as a time capsule of this course. What would you want to remember about it, 10 years from now? Your board should include multimedia and each item should be appropriately cited in APA style. Be sure to include a minimum of the following: 10 images or videos that capture your learning (can be your own pictures, drawings or sketches, theory diagrams, or images from your textbook), five memorable quotes (from your readings, lectures, tour guides, or other learners), one audio file (can be music, spoken words, ambient sounds, or anything that you associate with Rome). Select colors, textures, and fonts that capture your feelings and memories about Rome. Make a post where you introduce your mood board and provide the link. Then view and respond to three of your peers' posts by commenting on how one specific element they chose to emphasize in their mood board was also a memorable element of your own experience in Rome as part of this course and explain why.

## More Information:
Canva (n.d.); Chapman (n.d.); Digital Society School (n.d.)

# References

Ahlstrom, M., & Hyper Island. (n.d.). Mash-Up Innovation. https://toolbox.hyperisland.com/mash-up-innovation

Aloni, M., & Harrington, C. (2018). Research based practices for improving the effectiveness of asynchronous online discussion boards. *Scholarship of Teaching and Learning in Psychology, 4*(4), 271.

Barkley, E. F., Cross, K. P., & Major, C. H. (2005). Collaborative Learning Techniques. Jossey-Bass.

Berry, L., & Kowal, K. (2019, May 1). Five new twists for online discussions. Instructional Design. https://ce.uwex.edu/five-new-twists-for-online-discussions/

Berry, L., & Kowal, K. (June 19, 2020). Part Deux: Discussion on the Rocks? Add a Twist of Fresh Alternatives! OLC Innovate 2020, Online. https://onlinelearningconsortium.org/olc-innovate-2020-session-page/?session=8131&kwds=discussion

Canva. (n.d.). *Create Inspiring Mood Boards Online with Canva*. https://www.canva.com/create/mood-boards/

Chapman, C. (n.d.). Use Your Inspiration: A Guide to Mood Boards. https://www.toptal.com/designers/visual-identity/guide-to-mood-boards

Cobern, W. W. (1991). Introducing teachers to the philosophy of science: The card exchange. Journal of Science Teacher Education, 2(2), 45-46.

Cobern, W. W., & Loving, C. (2020). The Nature of Science Card Exchange: Introducing the Philosophy of Science. In Nature of Science in Science Instruction (pp. 213-222). Springer.

Cobern, W. W., & Loving, C. C. (1998). The card exchange: Introducing the philosophy of science. In The nature of science in science education (pp. 73-82). Springer.

De Bono, E. (1985). Six thinking hats [Book]. Little, Brown. https://ezproxy.capilanou.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=cat02755a&AN=cul.b144128&site=eds-live&scope=site

deNoyelles, A., Mannheimer Zydney, J., & Chen, B. (2014). Strategies for Creating a Community of Inquiry through Online Asynchronous Discussions. Journal of Online Learning & Teaching, 10(1).

Diceman, J. (n.d.). *Dotmocracy – Dot voting tips and resources.* Retrieved February 3, 2021 from https://dotmocracy.org/

Digital Society School. (n.d.). *Break up / Love letter.* Amsterdam University of Applied Sciences. Retrieved January 30, 2021 from https://toolkits.dss.cloud/design/method-card/break-uplove-letter/

Digital Society School. (n.d.-a). *Fishbone Diagram.* Amsterdam University of Applied Sciences. Retrieved January 30, 2021 from https://toolkits.dss.cloud/design/method-card/fishbone-diagram-2/

Digital Society School. (n.d.-b). *Lotus Blossom.* Amsterdam University of Applied Sciences. Retrieved January 30, 2021 from https://toolkits.dss.cloud/design/method-card/lotus-blossom-2/

Digital Society School. (n.d.-c). *Mash-Up.* Amsterdam University of Applied Sciences. Retrieved January 30, 2021 from https://toolkits.dss.cloud/design/method-card/mash-up/

Digital Society School. (n.d.). *Moodboard*. Amsterdam University of Applied Sciences. Retrieved January 30, 2021 from https://toolkits.dss.cloud/design/method-card/moodboard-2/

Digital Society School. (n.d.). *Photo Safari*. Retrieved January 30, 2021 from https://toolkits.dss.cloud/design/method-card/photo-safari/

Forster, S. (July 21, 2016). How to shake up the discussion board in your online class. *Mediashift*. http://mediashift.org/2016/07/how-to-shake-discussion-board-online-class/

Gilbraith, M. (n.d.). *Just One Lie*. https://www.sessionlab.com/methods/just-one-lie

Gamestorming. (n.d.-a). Build a Checklist. Retrieved February 2, 2021 from https://www.sessionlab.com/methods/build-a-checklist

Gamestorming. (n.d.-b). Force Field Analysis. Retrieved February 2, 2021 from https://www.sessionlab.com/methods/force-field-analysis-pzx0xc

Gamestorming. (n.d.-c). SWOT Analysis. https://www.sessionlab.com/methods/swot-analysis

Henshaw, F. (June 25, 2020). *Are discussion forums really interactive? Ideas for purposeful asynchronous communication* International Association for Language Learning Technology (IALLT) Webinar,  https://fltmag.com/webinar-discussion-boards/

Ho, Y. (February 19, 2020). How to create engaging discussion forums. *eLearning Best Practices*. https://elearningindustry.com/how-create-engaging-online-discussion-forums

IAF Methods. (n.d.). *Everyone is a Liar (Two Truths and One Lie)*. https://www.sessionlab.com/methods/everyone-is-a-liar-two-truths-and-one-lie

IAF Methods. (n.d.). Fishbone Analysis. https://www.sessionlab.com/methods/fishbone-analysis

IDEA.org. (n.d., February 6, 2021). From Design Thinking to Creative Confidence. IDEO.org. https://www.ideou.com/blogs/inspiration/from-design-thinking-to-creative-confidence

IDEO.org. (n.d.-a). Analogous Inspiration. Retrieved February 2, 2021 from https://www.designkit.org/methods/6

IDEO.org. (n.d.). *Card Sort*. https://www.designkit.org/methods/card-sort

IDEO.org. (n.d.-b). Find Themes. Retrieved February 02, 2021 from https://www.designkit.org/methods/find-themes

IDEO.org. (n.d.-c). Mash-Ups. https://www.designkit.org/methods/mash-ups

ION Professional eLearning Programs. (n.d.). *Fishbowl*. University of Illinois Springfield. https://www.uis.edu/ion/resources/instructional-activities-index/fishbowl/

ION Professional eLearning Programs. (n.d.). *Role playing*. University of Illinois Springfield.

ION Professional eLearning Programs. (n.d.). *Scavenger hunt*. University of Illinois Springfield. https://www.uis.edu/ion/resources/instructional-activities-index/scavenger-hunt/

Janse, B. (2019). *Lotus diagram.* Retrieved February 6, 2021 from https://www.toolshero.com/creativity/lotus-diagram/

Kelley, T., & Kelley, D. (2014). *Creative confidence*. Williams Collins.

Kelly, R. (March 7, 2013). Three ways to change up your online discussion board prompts. *Faculty Focus*. https://www.facultyfocus.com/articles/online-education/online-student-engagement/three-ways-to-change-up-your-online-discussion-board-prompts/

Kelly, R. (March 7, 2014). Discussion board assignments: Alternatives to the question-and-answer format. *Faculty Focus*. https://www.facultyfocus.com/articles/online-education/online-student-engagement/discussion-board-assignments-alternatives-question-answer-format/

Kowal, K., & Berry, L. (October 22, 2018). *Five new twists for online discussions.*, The Teaching Professor. Magna Publications. https://www.teachingprofessor.com/topics/online-learning/teaching-strategies-techniques/five-new-twists-for-online-discussions/

Koehler, A. A., Cheng, Z., Fiock, H., Janakiraman, S., & Wang, H. (2020, 2020-12-01). Asynchronous Online Discussions During Case-Based Learning: A Problem-Solving Process [Asynchronous Online Discussions, Case-Based Learning, Problem Solving]. *2020, 24*(4). https://doi.org/10.24059/olj.v24i4.2332

Lipmanowicz, H., & McCandless, K. (2013). The Surprising Power of Liberating Structures. Liberating Structures Press. http://www.liberatingstructures.com/ls/

Mandernach, B. J. (2020). *How do I create questions that stimulate engaging conversations in online discussion boards?* , 20-Minute Mentor. Magna Publications. https://www.magnapubs.com/product/program/create-questions-stimulate-engaging-conversations-online-discussion-boards/?attribute_pa_purchase-options=on-demand

Marx, E. (n.d.). *Forced Analogy*. https://www.sessionlab.com/methods/forced-analogy

Marx, E. (n.d.). *Rant*. https://www.sessionlab.com/methods/rant

MediaLAB Amsterdam. (n.d.). Fishbone Diagram. Retrieved February 2, 2021 from https://www.sessionlab.com/methods/fishbone-diagram

Minero, E. (August 21, 2020). 8 Strategies to improve participation in your virtual classroom. *EduTopia*. https://www.edutopia.org/article/8-strategies-improve-participation-your-virtual-classroom

Miro.com. (n.a.). Lotus Diagram Template for Create Teams. Retrieved February 6, 2021 from https://miro.com/templates/lotus-diagram/

Noffs, D., & Guerra-Martinez, J. (April 10, 2020). How superheroes can bring your online discussion board to life. *Faculty Focus*. https://www.facultyfocus.com/articles/online-education/online-student-engagement/how-superheroes-can-bring-your-online-discussion-board-to-life/

Orlando, J. (November 2, 2014). Online discussion questions that work. *Faculty Focus*. https://www.facultyfocus.com/articles/online-education/online-discussion-questions-work/

POGIL Project. (2017). *POGIL Implementation Guide*. https://pogil.org/uploads/attachments/cjay281cc08qzw0x4ha9nt7wd-implementationguide.pdf

Ritchhart, R., & Church, M. (2020). *The Power of Making Thinking Visible*. Jossey-Bass.

Schultz, B., Nielsen, C., & Sandidge, C. (2020). *How to do discussion boards according to students.* OLC Accelerate, Online. https://onlinelearningconsortium.org/olc-accelerate-2020-session-page/?session=9088&kwds=discussion

Seethamraju, R. (2014, 2014/05/26). Effectiveness of Using Online Discussion Forum for Case Study Analysis. *Education Research International, 2014*, 589860. https://doi.org/10.1155/2014/589860

Smith, J. I., Combs, E. D., Nagami, P. H., Alto, V. M., Goh, H. G., Gourdet, M. A. A., Hough, C. M., Nickell, A. E., Peer, A. G., Coley, J. D., & Tanner, K. D. (2013). Development of the Biology Card Sorting Task to Measure Conceptual Expertise in Biology. *CBE—Life Sciences Education, 12*(4), 628-644. https://doi.org/10.1187/cbe.13-05-0096

State Library of Victoria. (n.d.). Generating Questions – Lotus Diagram. Retrieved February 6, 2021 from http://ergo.slv.vic.gov.au/teachers/generating-questions-lotus-diagram

Stewart-Mitchell, J. (n.d.). *Making quality comments following the "3C & Q" Model*. http://transliteratelibrarians.weebly.com/uploads/3/7/4/2/37427333/publishing_sharing_and_commenting2.pdf

Swayze, S., & Jakeman, R. (July 31, 2020). Enhancing online course discussion through conference roles and blogs. *Faculty Focus*. https://www.facultyfocus.com/articles/online-education/enhancing-online-course-discussions-through-conference-roles-and-blogs/

Tanner, K. D. (2012). Promoting student metacognition. *CBE – Life Sciences Education, 11*, 113-120. https://doi.org/10.1187/cbe.12-03-0033

Tarr, R. (n.d.). Lotus diagram templates for essay planning. Retrieved February 6, 2021 from https://www.classtools.net/blog/lotus-diagram-template-for-essay-planning/

Wikipedia. (n.d.). *Kanban (development)*. Wikipedia. Retrieved March 5, 2021 from https://en.wikipedia.org/wiki/Kanban_(development)

WonderCards. (n.d.). *Lean Coffee*. Retrieved January 30, 2021 from https://www.sessionlab.com/methods/lean-coffee

Zeiger, S. (n.d., February 12, 2021). Activities to Spark Discussion in the Classroom. *Busy Teacher*. https://busyteacher.org/25732-activities-to-spark-discussion-in-the-classroom.html