BISOCIATION IN-CLASS ACTIVITY #1

A Chance to Practice

Instructor Notes on Lesson

Expected Time: 20 minutes

When to Implement: Bisociation, being an ideation methodology, should be introduced as a way to come up with possible design solutions (after painstorming is covered, if it is). The Bisociation video should be shown first and this would be an appropriate in-class activity to immediately follow.

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

Materials Needed:

- A classroom projector to project the stimulus photo presented later in this packet
- Scrap paper for students
- White board or chart paper for tracking class ideas

Learning Outcomes:

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

- Create and apply a “stimulus list” to a design problem
- Describe the connections that occurred from stimulus to ultimate idea presented

Instructor Guide:

After watching the Bisociation video, put the class in teams of 4 asking students to get out their own note sheet:

INTRODUCTORY DIALOGUE:

Explain to the class that you are going to practice what you saw in the video by bisociating using a random, unrelated stimulus. Remind them of the example shown in the video where the shark photo led to the design of special sterile medical instruments and algae-resistant coating on boats. You never know where a photo will lead!

Part 1. Pose the Problem to be Solved [1 minute]

- The instructor can choose any problem definition that they would like. An example of one that can be used is: "We want to think of a game-changing new product or service related to enjoying an outdoor swimming pool."

Part 2. Reveal the Stimulus and Create the Stimulus List [5+ minutes]

- Project the Powerpoint slide onto the screen that shows the random, unrelated stimulus. The included image is a lifesize Bigfoot statue, but can be modified to the instructor's preferences. The "odder" the stimulus, often the more fun and interesting the ultimate design ideas.

- Allow students a minute or two to list independently the things that they observe, notice, feel, and think about when they look at the stimulus. Then share these (either teams can compile their own list, or a class discussion can occur where all ideas are written on the whiteboard).

Part 3. Ideate and Share [5+ minutes]

- The instructor can determine how much emphasis they want to place on the actual ideation process. For a quick activity, teams can be given 3 minutes to think up as many ideas as they can about solving the original problem (relating to the swimming pool) while looking at/thinking about the stimulus list (things that were noticed and thought of when looking at Bigfoot). These ideas can then be reported out to the class, with the instructor asking additional questions about what led to that idea (helping all students see the connections between the original problem and the stimulus list in reaching the ultimate design idea. The instructor may also wish to spend more time than this, using post-it note brainstorming or other more in-depth ideation techniques.

  As a fun ending, the class could vote on the most interesting idea of all of the ones generated.

Part 4. Assignment and Discussion

To wrap up this activity, instructors may wish to do one of the following:

- Have students individually, in pairs, or in teams complete the short in-class wrap-up handout. [5 minutes] follow this up with brief discussion relating to the questions on the handout. From the instructor's perspective try to get the class to see the value of each approach and when (within the class context and in future engineering contexts) they might use each one. [5 minutes]

OR

- Have students individually complete the accompanying Bisociation Homework 1 assignment packet. After the assignment is complete, debrief the assignment with the class at the start of a future class session.

BISOCIATION IN-CLASS ACTIVITY #1

A Chance to Practice

STIMULUS TO ACCOMPANY ACTIVITY

"Life-size Yeti (Big Foot) Statue"

Image from: https://www.thegreenhead.com/imgs/xl/lifesize-abominable-snowman-yeti-statue-xl.jpg

Created by: Kim Bigelow, PhD; University of Dayton for KEEN Topical Grant

Name: _____

BISOCIATION IN-CLASS ACTIVITY #1

A Chance to Practice

WRAP-UP

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

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

3. When in the engineering design process is bisociation an appropriate method to use?

4. If in our next class you were told that you were tasked with coming up with a new product, service, or process that would make family car travel more enjoyable:

a. How likely would you be to (without receiving any additional instruction or practice) use bisociation?

1. Extremely unlikely
2. Unlikely
3. Neutral
4. Likely
5. Extremely likely

b. If you were told you had to use bisociation, how confident would you be that you could do so effectively (without receiving any additional instruction or practice) use bisociation?

1. Not at all confident
2. Not very confident
3. Somewhat confident
4. Confident
5. Extremely confident

BISOCIATION IN-CLASS ACTIVITY #2

A Deeper Dive

Instructor Notes on Lesson

Expected Time: 40 minutes

When to Implement: Bisociation, being an ideation methodology, should be introduced as a way to come up with possible design solutions (after painstorming is covered, if it is). The Bisociation video should be shown first and this would be an appropriate in-class activity to immediately follow. If the other provided bisociation activities are being used, this should be used after "Bisociation In-Class Activity #1" as this builds upon the activity done there.

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

Materials Needed:

- A classroom projector to project the stimulus photos presented later in this packet
- A student handout has been created and can be distributed to help structure the activity worktime, though scrap paper can also be used.

Learning Outcomes:

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

- Create and apply a "stimulus list"
- Compare and contrast the solutions generated from three different "levels" of brainstorming/bisociation

Instructor Guide:

After watching the Bisociation video, put the class in teams of 4 and provide them the guided handout (attached at the end of this packet). They will be doing some tasks individually, some with a partner, and some as the team of four.

INTRODUCTORY DIALOGUE:

Instructors should explain to the class the process and usefulness of bisociation as an ideation technique. Instructors should remind the class that as mentioned in the video bisociation has added benefit over traditional brainstorming because it is a strategy that helps you think beyond those ideas you already have in mind. Therefore when it is used it should result in more ideas – and especially more unique or "game changing" ideas. Bisociation can be done with related stimulus – products that are already similar to what you will now be designing (for example in the video, the related medical devices). It is better, however, to do bisociation by using an unrelated, random stimulus (such as the shark in the video) and including diverse perspectives throughout the process. This activity will be a chance to practice these different ways of coming up with ideas so you can judge how effective each one is.

Part 1. Pose the Problem to be Solved [1 minute]

- The instructor can choose any problem definition that they would like. An example of one that can be used is: "You recently became the CEO of Kitchen Goods R' Us and you have tasked your company with coming up with a game-changing new product or service related to the kitchen."

Part 2. Allow Individuals to Traditionally Brainstorm [3+ minutes]

- Give students approximately 3 minutes to individually brainstorm new product ideas using traditional methods (e.g. listing what comes to mind). A structured handout is provided and can be used for tracking ideas. At the end of the traditional brainstorming time, students should review their list, counting and recording the total number of ideas at the top of the page and circling their best idea from the list.

Part 3. Utilize a Related Stimulus [7+ minutes]

- Project the Powerpoint slide that shows the related stimulus onto the screen. For instructors using the prompt above, several related images that can be used are included with this packet. Any one of them may be used.

- The instructor should introduce the guided notesheet that should be used to create the stimulus list. This is more formally structured to help students as they begin to make stimulus lists. Note that there are other categories that could be included if an instructor desires.

- Have students first individually create the stimulus list. After approximately two minutes, allow them to work with a partner, listing as much as they can.

- Move on to letting students, working in pairs, begin to come up with possible design ideas that are inspired by this stimulus list. A notesheet is included in this packet to help with this.

- Students should review the list of ideas they made using related stimulus, counting and recording at the top of the page and circling their best idea.

Part 4. Utilize a Unrelated Stimulus [10 minutes]

- Project the Powerpoint slide that shows the unrelated stimulus onto the screen. For instructors using the prompt above, several unrelated images that can be used are included with this packet. Any one of them may be used.

- The instructor should remind students that they will use the guided notesheet to help them create the stimulus list.

- Have students first individually create the stimulus list. After approximately two minutes, allow them to work as a team, listing as much as they can on the handout.

- Move on to letting students in teams of 4 begin to come up with possible design ideas that are inspired by this stimulus list. A notesheet is included in this packet to help with this.

- Students should review the list of ideas they made using related stimulus, counting and recording at the top of the page and circling their best idea.

Part 5. Report Out and Discussion [5 minutes]

- Have students give examples to the class of the “best” idea they reached at each level of brainstorming/bisociation. Use this as a chance to ask questions about what led to the design idea.

- Ask the class for a raise of hands for the number of students who found that they generated more ideas once they began to use bisociation. Were the ideas better, or just non-sense? Was it easier to use random stimulus or related stimulus?

Part 6. (Optional) Individual Wrap-Up

To wrap up this activity, instructors may wish to use the provided student wrap-up sheet.

BISOCIATION IN-CLASS ACTIVITY #2

A Deeper Dive

STIMULUS TO ACCOMPANY ACTIVITY – PART 3, RELATED STIMULUS

"Making School Lunches"

Image from:
https://www.healthyeating.org/Portals/0/Gallery/Album/Healthy%20Kids/mom_daughter_kitchen1%20(1).jpg

Created by: Kim Bigelow, PhD; University of Dayton for KEEN Topical Grant

BISOCIATION IN-CLASS ACTIVITY #2

A Deeper Dive

STIMULUS TO ACCOMPANY ACTIVITY – PART 3, RELATED STIMULUS

"Assorted Kitchen Tools"

Image from: http://cdn.foodbeast.com/content/uploads/2016/10/Essential-Kitchen-Tools.jpg

BISOCIATION IN-CLASS ACTIVITY #2

A Deeper Dive

STIMULUS TO ACCOMPANY ACTIVITY – PART 3, RELATED STIMULUS

"Making Pizza"

Image from: http://www.kuali.com/wp-content/uploads/2015/04/Pizza.jpg

BISOCIATION IN-CLASS ACTIVITY #2

A Deeper Dive

STIMULUS TO ACCOMPANY ACTIVITY – PART 4, UNRELATED STIMULUS

"Golf Course"

Image from: http://zeimg.com/uploads/wallpapers/3/Natureza/Paisagens/Beautiful-Golf-Course.jpg

Created by: Kim Bigelow, PhD; University of Dayton for KEEN Topical Grant

BISOCIATION IN-CLASS ACTIVITY #2

A Deeper Dive

STIMULUS TO ACCOMPANY ACTIVITY – PART 4, UNRELATED STIMULUS

"Van Gogh's Starry Night"

Image from: http://2.bp.blogspot.com/-Yw_LslxYx6M/TegDnRaiB3I/AAAAAAAAAdY/q0ZPDW6rK-Y/s1600/Van_Gogh-Starry_Night-Best-KensFavorites-com-CMP80.jpg

Created by: Kim Bigelow, PhD; University of Dayton for KEEN Topical Grant

BISOCIATION IN-CLASS ACTIVITY #2

A Deeper Dive

STIMULUS TO ACCOMPANY ACTIVITY – PART 4, UNRELATED STIMULUS

"Marching Band"

Image from: https://i.pinimg.com/736x/53/e7/4a/53e74adfe9d58c06d3e70177828b8fd9.jpg

Name: _____

BISOCIATION IN-CLASS ACTIVITY #2

A Deeper Dive

Part 2. Individual Brainstorming

You will be asked to use traditional brainstorming to think of as many ideas as possible. Keep track of your ideas here. If you run out of bullets, make a second column. Your instructor will eventually ask you to count up your ideas and write that number at the top of this sheet. You will also circle the idea you think is most worthwhile.

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Part 3. Stimulus List Created for Related Stimulus

You will be shown a related stimulus. Use this table to help you think through and create your stimulus list. Thinking about your stimulus, write as many things as you can in each column. When your instructor tells you to work with a partner, you will add to this list with things that they observed/thought of.

Physical Characteristics	Uses of this Product	Makes Me Think Of	Makes Me Feel	Other

Part 3. Bisociation Using Related Stimulus List

Once you have completed your stimulus list, you will be asked to use bisociation to think of as many ideas as possible. Keep track of them here. If you run out of bullets, make a second column. Your instructor will eventually ask you to work with a partner. At the end of this part of the activity, you will be asked to count up your ideas and write that number at the top of this sheet. You will also circle the idea you think is most worthwhile.

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Part 4. Stimulus List Created for Unrelated Stimulus

You will be shown an unrelated stimulus. Use this table to help you think through and create your stimulus list. Thinking about your stimulus, write as many things as you can in each column. When your instructor tells you to work with your team, you will add to this list with things that they observed/thought of.

Physical Characteristics	Uses of this Product	Makes Me Think Of	Makes Me Feel	Other

Part 4. Bisociation Using Related Stimulus List

Once you have completed your stimulus list, you will be asked to use bisociation to think of as many ideas as possible. Keep track of them here. If you run out of bullets, make a second column. Your instructor will eventually ask you to work with as a team and you should add all of the team ideas to this paper. At the end of this part of the activity, you will be asked to count up your ideas and write that number at the top of this sheet. You will also circle the idea you think is most worthwhile.

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WRAP-UP

1. When is using bisociation an appropriate method in engineering design?

2. As an engineer you will encounter a number of different types of projects. What will you consider in deciding which level of brainstorming/bisociation you might use?

3. Throughout this activity you did some work individually and then were able to discuss in pairs or teams. Discuss what you noticed about the ideas you included in your list when you created the list by yourself versus with others. How did the ideas your teammates contributed to the unrelated stimulus list compare to the ones that you had come up with individually? Which category (column on the table) seemed to expand the most when you had your team contribute?

4. For each level of bisociation, you reported out the idea that you felt was most valuable to be solved. Which level of brainstorming (traditional; related stimulus; or unrelated stimulus) resulted in the idea that you think was the most valuable of three? What do you think helped make this idea so valuable?

5. If in our next class you were told that you were tasked with coming up with a new product, service, or process that would make family car travel more enjoyable:

a.How likely would you be to (without receiving any additional instruction or practice) use bisociation?

1. Extremely unlikely
2. Unlikely
3. Neutral
4. Likely
5. Extremely likely

b. If you were told you had to use bisociation, how confident would you be that you could do so effectively (without receiving any additional instruction or practice) use bisociation?

1. Not at all confident
2. Not very confident
3. Somewhat confident
4. Confident
5. Extremely confident

BISOCIATION IN-CLASS ACTIVITY #3

Using Stimulus While Developing a Company Identity

Instructor Notes on Lesson

Expected Time: 20 minutes (could be longer)

When to Implement: Bisociation, being an ideation methodology, should be introduced as a way to come up with possible design solutions (after painstorming is covered, if it is). The Bisociation video should be shown first and this would be an appropriate in-class activity to follow. If the other provided bisociation activities are being used, this should be used as the last activity.

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

Materials Needed:

- A bag of collected “random” items that students will be able to look at and touch
- A student handout has been created and can be distributed to help structure the activity worktime, though scrap paper can also be used.

Learning Outcomes:

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

- Use stimulus as used in bisociation for broader purposes
- Create a “stimulus list” and utilize it to inspire multiple design ideas
- Develop a company profile that can be used to frame design-related activities

INTRODUCTORY DIALOGUE:

Instructors should explain to students that stimulus can be used in a number of ways, and that here you will practice how stimulus can be used at several different time points in an engineering design activity. While bisociation is generally used specifically for generating design solution ideas, it is also possible to use the concepts associated with bisociation to think more creatively about all aspects of the problem.

Part 1. Identifying the Team Stimulus [3 minutes]

- The instructor should, without giving students any in-depth context or direction, instruct each team to go to the stimulus table and choose one item that is on the table and take it with them back to their team space. It may be helpful to assure the students that what they choose is not something that they will use for building, so the choice of the object does not have to be overly strategic.

- Back at their tables, students should talk for a few minutes about their team's stimulus. What does it remind them of? What materials is it made of? Who might use this product?

Part 2. Team Stimulus as Inspiration [3 minutes]

- Teams should now list as many companies, services, or occupations that this object reminds them of. Try to get them to think out of the box. Giving an example may help such as "For this chip clip I might list: Grocery Store because they stock chips; Advertising Firm because they always market chips before football games; Snack Bar because I buy chips at my local pool; School cafeteria; etc."

- Teams should now look at their list and identify the "persona" that they want to take on for the rest of the activity. They can return the stimulus to the stimulus table at this point.

Part 3. Develop a Company Profile [7 minutes]

- Now that students have identified what "persona" they want to take on, have them develop a company profile. A guided handout to help with this is attached. Specifically each team will determine their: 1. Company Name, 2. Primary products or services, 3. Primary target market(s), 4. Materials that the company likely has readily available, and 5. Skills and techniques that the company likely excels at. You may need to give examples, e.g. "If I were a cardboard company I would likely have access to all sizes of cardboard and I would likely have expertise and tools in precision cutting." Encourage students to think broadly and creatively.

- Have students share their personas with the class. Likely many different companies will emerge.

Part 4. Pose a Design Challenge [15+ minutes]

- Now tell students that their company is competing for a $250,000 award, given for a new product that will help busy moms with young children. While this has never been the primary focus of their company, in the last three years their company has seen a surge in the number of employees who have become parents. With this level of expertise in the company, the CEO thinks it would be easy to leverage their experience, and the resources and skills they have available, to change directions a bit as a company and develop a product that is worthy of winning the competition. You will want to remind students that often a company will look for new opportunities and seek to break into new markets, but that this is normally done within the scope of expertise of the company (thus the importance of the company profile they just created).

- Depending on the instructor's preferences, the activity can then become as in-depth as they wish. Ideally, students will spend some time painstorming first, thinking about and/or observing pains that busy moms with young children might experience. (This is an interesting prompt since most students will not have this experience firsthand, requiring that they really immerse themselves in understanding the problem through other means.) Students should then move on to ideation, ideally using bisociation. Students should return to the "stimulus table" and choose a new stimulus object and use this to motivate their an ideation session. (See Bisociation Activity #2 for a guided handout that can be used to form the stimulus list). If time permits, students could mock up or even prototype their favorite design idea.

Part 5. Report Out and Discussion [5 minutes]

- Have students remind the class what stimulus object they started with, the highlights of their company profile, and the design idea that they have identified as most worthwhile to pursue (or alternatively demonstrate their mock-up or prototype). The instructor can ask questions, especially trying to draw out connections between the random object that the student started with and the ultimate design idea they came up with.

Part 6. (Optional) Individual Wrap-Up

To wrap up this activity, instructors may wish to use the provided student wrap-up sheet.

Names:_____

BISOCIATION IN-CLASS ACTIVITY #3

Using Stimulus While Developing a Company Identity

TEAM HANDOUT TO ACCOMPANY ACTIVITY

Original Stimulus:_____

1. Company Name

2. Primary Products of Services of your Company:

3. Primary Target Market(s) of your Company:

4. Materials that the Company likely has Readily Available:

5. Skills and Techniques that Your Company Likely Excels At:

WRAP-UP

1. Reflect on the role and importance of “making connections” when you use stimulus in the engineering design process. Why does this work well (or not well)? Give an example of the connections you made while you went through this in-class activity.

2. List at least one question you have after completing this in-class activity.

3. If in our next class you were told that you were tasked with coming up with a new product, service, or process that would make family car travel more enjoyable:

a.How likely would you be to (without receiving any additional instruction or practice) use bisociation?

1. Extremely unlikely
2. Unlikely
3. Neutral
4. Likely
5. Extremely likely

b. If you were told you had to use bisociation, how confident would you be that you could do so effectively (without receiving any additional instruction or practice) use bisociation?

1. Not at all confident
2. Not very confident
3. Somewhat confident
4. Confident
5. Extremely confident

BISOCIATION HOMEWORK ASSIGNMENT #1

An Introduction to Bisociation

A Chance to Practice Describing Stimulus

Task 1. Examine the Stimulus photo below of the children playing soccer. In a Word document, create a "Stimulus Table" similar to the one we completed in-class. First decide on what headings you will use – include at least one that is different than what we used in class. Then fill in the table based on what you observe/think about when you look at the Stimulus photo.

Image From: http://www.camaspostrecord.com/news/2010/jul/20/palodichuk-inspires-young-soccer-players-camas/

Task 2. You do not have to use the bisociation to go through actual ideation, coming up with specific design ideas; however in your Word document under the table briefly discuss at least one connection you could make between one or more items on your stimulus list and each: 1. A cellular phone, 2. An apple orchard, and 3. A cowboy hat.

DELIVERABLES

Submit the (typed) Word document you prepared on Isidore

Grading for these deliverables is out of a total of 30 points and will be based on completion of the tasks, number and depth of items listed on your stimulus list, and overall quality and thoughtfulness of your deliverable. Individuals earning the highest grades on this assignment will have demonstrated an outstanding effort and thoughtfulness on this assignment, listing multiple stimulus categories as headings for their stimulus table, including a wide range of items in their stimulus list (especially those non-obvious), and including in-depth reflection on interesting and thoughtful connections they would make between the stimulus list and each of the items presented. Highest scoring papers will look and read professionally, being nicely organized and well edited.

BISOCIATION HOMEWORK ASSIGNMENT #2

An Introduction to Bisociation

Making Connections

You are an entrepreneurially minded engineer, trying to come up with a product or service that is going to reinvent the air travel industry.

Task 1. Identify one related stimulus (image/photo) and paste it into a Word document. (Make sure to label this as "Task 1" or "Related Stimulus". Underneath of the stimulus image, create a stimulus chart similar to what we had done in class but using any column headings that you wish to. In the chart, list all of the things that you observe or think about when you look at this particular stimulus,

Task 2. Underneath the stimulus chart, bullet point at least 10 design ideas that this stimulus table has inspired relative to coming up with an idea for the air travel industry. Next to the one design idea that seems to be the biggest jump from the stimulus to air travel, write a brief sentence or two about how the connection played out in your mind.

Task 3. Identify one unrelated stimulus (image/photo) and paste it into the Word document following Task 1 and 2. (Make sure to label this as "Task 3" or "Unrelated Stimulus". Underneath of the stimulus image, create a stimulus chart similar to what we had done in class but using any column headings that you wish to. In the chart, list all of the things that you observe or think about when you look at this particular stimulus,

Task 4. Underneath the stimulus chart, bullet point at least 10 design ideas that this stimulus table has inspired relative to coming up with an idea for the air travel industry. Next to the one design idea that seems to be the biggest jump from the stimulus to air travel, write a brief sentence or two about how the connection played out in your mind.

Task 5. Write a one paragraph reflection about which idea you think should be pursued and why. Specifically address whether this is an idea that came from related or unrelated stimulus, and which you think would be most helpful to use in the future.

DELIVERABLES

Submit the (typed) Word document you prepared on Isidore

Grading for these deliverables is out of a total of 60 points and will be based on completion of the tasks, number and depth of items listed on your stimulus list, and overall quality and thoughtfulness of your deliverable. Individuals earning the highest grades on this assignment will have demonstrated an outstanding effort and thoughtfulness on this assignment, listing multiple stimulus categories as headings for their stimulus table, including a wide range of items in their stimulus list (especially those non-obvious), and including in-depth reflection on interesting and thoughtful connections they had made between the stimulus list and each of the items presented. Highest scoring papers will look and read professionally, being nicely organized and well edited.

COURSE DESIGN PROMPTS THAT CENTER ON THE USE OF BISOCIATION

The following prompts are those that an instructor wishing to have students utilize bisociation as a central focus of a course design project may wish to use. While bisociation is well suited for use as an ideation tool for ANY design project that requires ideation, the projects presented here try to truly play up the role of bisociation in a more substantial way. You can also utilize any of the prompts presented in painstorming that were envisioned as semester projects that began with painstorming but ideally moved on through the remainder of the design process (where bisociation could be included nicely during ideation).

1. You are a writer for your local small town newspaper. The paper, like much print media, is not doing very well. The paper is losing subscribers, local industries don't want to place ads, and you have seen your colleagues "let go" one by one. Your boss decides on an early retirement telling everyone to "get out while they can". However he is replaced by a new boss who you find exciting and engaging and just maybe the person who will save your job and the newspaper. The new boss seems to have a lot of energy, a lot of new ideas, and a good understanding of trends. He calls a meeting of all of the newspaper staff and announces "We are a newspaper. We need to remain a newspaper. But we have to figure out how to relate to our potential customers. And let me tell you, they don't want to read the newspaper, what they want is: 1. Taco Tuesdays, 2. Tiny Pets that Can be Carried Anywhere, and 3. A Personal Maid. We need to find a way to connect between what they want and what we can offer. Let's take each of these items that they want and one at a time bisociate, thinking about what each of things looks like, feels like, and represents to our potential users --- and see if that can help us come up with one or more ideas that will save our newspaper and makes it something everyone wants. We don't just want a new story idea….we want something game changing." (You will then take one of these ideas and move forward with the design process to design a functional, tested prototype (or alternatively a proof of concept demonstration).

2. You are the CEO of the leading manufacturer of firefighting apparel and gear, servicing the 48 continental United States. Your company has long prided itself on tradition, offering the same product lines with that "firefighter look" for years – tweaking most only for comfort and safety as new materials have come available. Recently your competitor revealed that they are redesigning their product lines based on lessons learned from other first responders including police and the military. These new innovations will surely raise their competition with you. You see that your competitior looked to related fields (other first responders) in inspiring their redesign. You believe you are at a point to truly revolutionize the firefighting industry. You begin to daydream, looking for inspiration. You first think about one of the most effective fire prevention initiatives: the Smokey the Bear Campaign. You then think about the one thing (incorrectly) always associated with firefighters: Cats stuck in trees. Finally you think about the photographs you took of the inside of your own home last week, for insurance claims in the case you ever had a fire in your own home. Take each of these items systematically and use them to bisociate radical new directions your company can go and new design ideas and products that have been inspired by the bisociation process. (You will then take one of these ideas and move forward with

the design process to design a functional, tested prototype (or alternatively a proof of concept demonstration).

3. You recently became a design engineer for a company that makes medical devices used for both regular medical care (e.g. stethoscopes, otoscopes, blood pressure cuffs) and specialized medical testing and needs (e.g. MRI/Catscan machines, IV stands, and external bracing). Like many medical devices, you are used to hearing complaints from pediatricians that your products terrify their young patients, making it more difficult for the doctor to interact with them in the way that they would like to. You have just been made the lead of a new division of the company that will focus on pediatric-friendly medical devices. You have a young niece so you call her for ideas. She doesn't have any ideas but she can't stop talking to you about the things that excite her most in her life right now: 1. Her new Daisy Girl Scout Troop, 2. The Happy Meal toy she got from McDonald's last week, 3. Her new baby brother and getting to help feed him his bottle, 4. Learning to read Dr. Seuss's Hop on Pop book yesterday, and 5. That her best friend from school learned to tie shoes last week using the "butterfly way". Your company doesn't just want to change the color or fabric of the products; they need to do away with their current look entirely – they really want to design the new product(s) in ways that will change the whole medical experience for the young patients and their doctors. Using all or some of the things that your niece told you are important to her, use them to bisociate transformative new product ideas. (You will then take one of these ideas and move forward with the design process to design a functional, tested prototype (or alternatively a proof of concept demonstration).