

Mapping Management: A Method for Collaborative Theory Mapping

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**Abstract**

Research suggests that learning comes with doing. This paper presents an online methodology that allows students to organize class concepts and personal reflections into a theory map. Using Google Drawings and a recently developed method for theory mapping, students are able to create maps on their own or collaboratively with others. These maps help students to make sense of how different concepts relate to one another, how their own personal experiences fit these concepts, and to identify conceptual gaps in knowledge. The document will provide an introduction to creating maps and different ideas for individual and group activities.

**Keywords:** concept map, collaborative tool, active learning

## **Introduction**

Courses typically cover a wide range of topics and concepts. While students might grasp these topics/concepts individually, it is not always obvious how they all relate to one another in the bigger management picture. Theory mapping is a method that promises to address this issue, while serving other learning functions as well. The present theory mapping exercise has three primary goals: (1) To give students the opportunity to actively *do something* with course concepts and personal experiences; (2) To allow students to make sense of how different course topics and concepts and personal experiences relate to one another; and (3) to allow students to test conceptual frameworks from class against their own personal experiences so that they can identify consistencies and make sense of discrepancies, deepening personal reflection and meaningfulness of course material.

This exercise offers a general framework that can be adapted to any management content, but particularly conceptual content that is interrelated. It is also an effective vehicle for integrating reflections on personal experience with course concepts. The exercise can be used in undergraduate and graduate courses of any level, as an individual or group exercise (though it is recommended that this be done as a group exercise the first few times it is done), and for in-person or online courses. It is recommended that the exercise be done multiple times throughout a course, giving students the opportunity to become more familiar with the methodology.

## **Theoretical Foundation and Teaching Implications**

Much learning research highlights the importance of actively engaging with course material in order to learn and understand it on a deeper level (see, e.g., Fiorella & Mayer, 2015; Freeman et al., 2014) The guided mapping exercise gives students the opportunity to actively engage with and manipulate a wide range of topics. Most instructors would agree with the value

of teaching students how different concepts relate to one another (conceptual understanding) yet there are few activities that directly develop this in students. The proposed exercise uses a new method for theory mapping (Gray, 2017; see also [www.theorymaps.org](http://www.theorymaps.org)) that is ideal for developing conceptual understanding. In fact, it has been shown that the process/art of theory building (i.e., creating new conceptual frameworks) is of particular value in management research (e.g., Colquitt & Zapata-Phelan, 2007). Thus, this exercise also serves to teach students how to map management theories that they themselves develop.

### **Learning Objectives**

1. Students will be able to depict conceptual relationships in map form.
2. Students will have a better understanding of how different course concepts relate to one another.
3. Students will be more aware of the extent to which course content is consistent or at odds with personal experience.

### **Exercise Overview**

In this exercise, students in a group work together to generate a theory map that describes the relationships between different concepts. Students can either share a device or collaboratively edit the theory map from multiple devices. The exercise uses the free Google Drawing application that only requires a free Google account. This exercise works well in classes of any size – all that would change is the number of groups working on maps. For in-person classes, it is ideal if students in a group can gather together so that they can easily discuss the map with one another and those without a device can share with another group member. The instructor can either walk around the classroom to give feedback or can view and comment on the maps electronically from their own computer while the maps are being developed (the latter

may be optimal for large classes). The instructor guides students in this map generation process by having students respond to different prompts that help students to identify and map different components.

**Timing.** The amount of time needed for this exercise is somewhat flexible, depending on the amount of time the instructor gives for each step. The speed with which students get through these different steps will also vary depending on students' familiarity with this process and content mastery. Longer amounts of time are preferable, ranging from 50 minutes to two hours (the exercise can be split in half and completed over multiple class meetings). It can also be completed in shorter periods of time (e.g., 20-30 minutes), in which case instructors should narrow the scope of material students are asked to map. If doing a shorter version of this exercise, I recommend that instructors have a map that they prepared themselves to share with the class at the end so that students can see a complete map (in case groups were unable to generate a complete map in the time allocated).

**Materials.** Using an online tool such as Google Drawings is ideal because it facilitates collaboration between students, makes it easier for instructors to track group progress, facilitates sharing of the map with the class as a whole, and it makes the maps easily stored and retrieved for future review or group work. In addition, objects in the map can easily be moved around in an electronic map, which facilitates experimentation with, and adjustments to, the different elements in the map and how they relate to one another. That said, the primary cognitive benefits of this activity come from the mapping process itself which can be done on any writing surface: I have had students create maps on blank pieces of paper or on a chalk board in the past. It will require a bit of erasing as the maps evolve, but this is a minor drawback.

### Exercise Instructions

*Note:* It is recommended, particularly if this is the first time using this process in class, that you create your own map of the content prior to class that you can show at the end of the exercise. I recommend against showing it to them at the beginning to avoid influencing how they create their own maps. A map of different course content (e.g., earlier course topics), however, could be shown at the beginning of the exercise to give students a better idea of what they are aiming for—this is recommended when possible.

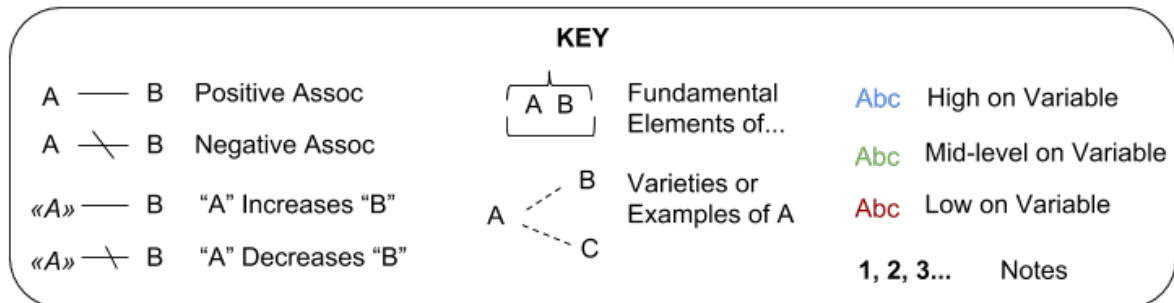
*Exercise Preparation:* Prepare a map template that you will email to students prior to the exercise. You can freely use or edit my template here: [http://bit.ly/theory\\_map](http://bit.ly/theory_map). Clicking on this template will make a duplicate map for the user. If sharing this link with students, they will need to share the map with their group members and you (the instructor) in the map's settings. In order to avoid the inevitable confusion that arises in sharing a map (despite its simplicity), what I typically do is to create one copy of the map for each group. I then copy the links for each of these maps and list them out by group number in an email I send to the class. Groups are instructed to click on the map that corresponds with their group number. This way, all group members can easily join the same map and you will be able to view the map yourself without the students needing to make any changes to who can access the map.

#### *Introduce the Mapping Process*

1. Introduce the mapping exercise (e.g., can talk about all the different concepts and theories that have been discussed so far in class, and how they beg the question of how these topics all relate to one another).

2. Explain how to create a map: If you have a sample map of a different topic, share that.

You can also share a map found on [www.theorymaps.org](http://www.theorymaps.org), explaining how to read it using the map key below (slightly adapted from [www.theorymaps.org](http://www.theorymaps.org)).



*Ask students the following questions, giving groups the time to respond to each number in their maps before you continue to the next prompt.*

### Part 1: Create the theory map

1. What factors/forces are important for understanding/predicting \_\_\_\_\_ (insert management topic)?
  - a) E.g., Organizational, psychological, social, environmental factors
2. How do these factors relate to one another?
  - a) Use lines to depict positive and negative relationships between factors.
  - b) Use brackets to depict factors that are core elements of another
    - i.e., the ongoing processes/forces that collectively give rise to some other process/factor; explain that this is distinct from factors that have positive or negative associations with each other but are not driving forces that give rise to the other.
    - Note that this is organized differently from the causal models used in path analysis, for example. The present mapping technique is

complementary to these causal models, but instead attempts to capture the different levels of granularity at which a collection of phenomena give rise to other phenomena (for more, see Gray, 2017 and [www.theorymaps.org](http://www.theorymaps.org)).

- c) What factors make elements in your map more or less likely to occur?
    - Represent these moderators with a line and brackets (see key). I describe moderators to students as factors that directly strengthen or weaken another factor (per Gray, 2017).
  - d) (Direct students to the theory map symbols key as a reminder; see Appendix A)
3. Add in some examples of the factors in your map using dotted lines.

### **Part 2: Test the map against your own experience**

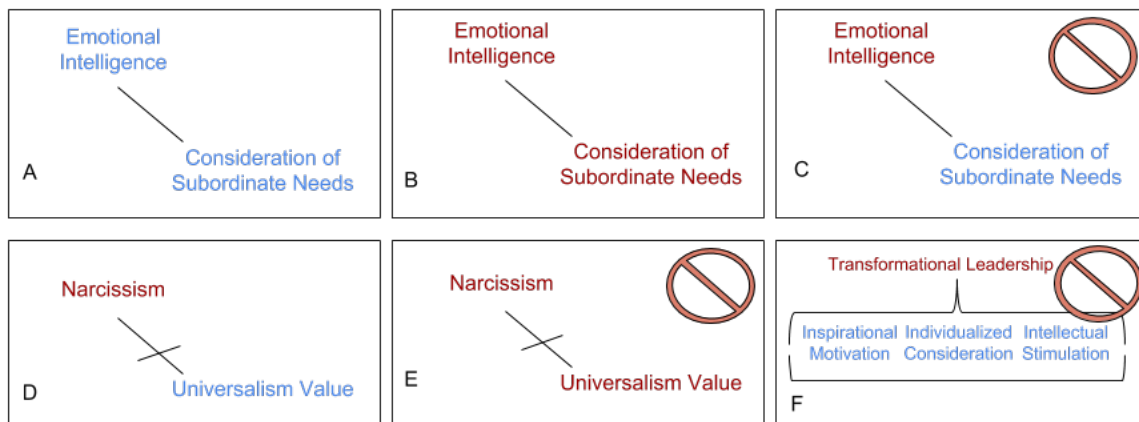
1. Think of some situation you've been in (if working in a group, ideally a situation that many group members have experienced) or seen in which you were able to observe many of the factors in your map.
2. Now go through each factor and reflect on whether it was high or low in this situation. If high, make the text one color; if low, make the text another color (can also use a third color to represent being in the middle). For non-electronic maps, can use upward or downward arrows to indicate high and low.
3. When done, determine whether there is internal consistency between the theory and your experience of a particular situation.
  - a) E.g., Positive relationships should be accompanied by linked concepts of the same color



b) E.g., Negative relationships should be accompanied by linked concepts of different colors

c) Identify internal inconsistencies

- In the examples below, A, B, and D are internally consistent, while C, E, and F are not.
- Determine whether internal inconsistencies are due to errors in the theory map itself (e.g., a positive association should be negative) or because this particular situation is an exception to what you would normally expect based on research and other personal experiences.
- If an exception, are there other factors/relationships that can be added to the map to account for this exception?



4. What concepts/processes/relationships are still missing from your theory map? Why?

### **Part 3: Reflection**

1. Reflection Questions
  - a) What does this map tell you?
  - b) So what? (Why does this matter?)
  - c) How does this help you?
  - d) Optional: How does this help you to help others?
2. Share with class
  - a) Groups individually share their maps while instructor puts each, in turn, on the class projector.
  - b) Groups should also share some of their insights from the reflection questions.
  - c) The class is invited to ask questions about conceptual relationships depicted in a map and to constructively challenge the conceptual accuracy of elements of the map.

### **Alternative Versions of Mapping Exercise**

1. **Pre/Post-Learning Maps:** Students are asked to create their own theory map of some management phenomenon before learning the related class content. Then, after learning the content, they are asked to identify discrepancies between their own map and that based on course content, and to improve their map accordingly (I encourage students to express and justify disagreement with course concepts when disagreements arise, asking them to offer more compelling alternatives).

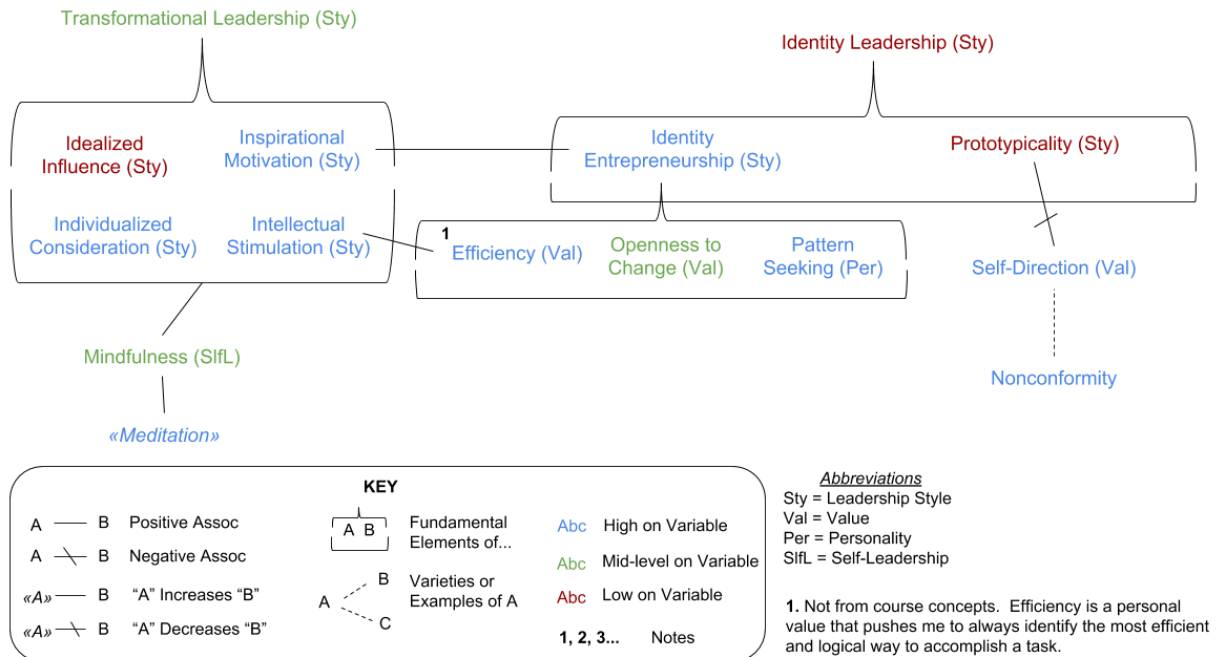
2. **Reflective Theory of You as a Leader/Manager:** Students are asked to create a theory of who they are as a \_\_\_\_\_ (leader, manager, or whatever else is relevant for the course), depicting the different factors/forces that drive who they are in that role (e.g., personality, values, leadership/management style, situational factors). The map should be consistent with course concepts (e.g., saying that their narcissistic tendencies drive them to be caring towards others wouldn't make conceptual sense) unless students are explicitly trying to challenge course concepts in the process (in which case they must provide a compelling rationale), but the main focus is on reflective insights that arise regarding how these different factors shape them personally (e.g., how personality variables and personal values drive their management style). I have used this exercise as part of a culminating self-reflection paper at the end of a leadership course in which students created a map based on both self-assessment data and personal leadership experiences. Students were required to also provide a write-up explaining their map. See Appendix A for my sample map and explanation for this assignment.

## References

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## Sample Theory Map

*Note: This is a sample map that I provide students with for a reflective assignment. Students are asked to depict the core factors that drive their personal leadership and how those factors relate to one another to create a theory of who they are as a leader. Students are then told to include a written explanation of the map and their rationale for the different conceptual relationships. When referring to a factor from the map itself, they are instructed to put it in CAPITAL LETTERS.*



## Map Explanation

The above theory map captures the core variables that make up my “Theory of Me as a Leader.” At the root of my leadership are EFFICIENCY, OPENNESS TO CHANGE, and PATTERN SEEKING. EFFICIENCY is a personal value that pushes me to always identify the most efficient and logical way to accomplish a given task. PATTERN SEEKING is a personality tendency I have to seek an understanding of how things relate to one another to form a pattern. It’s this personality tendency that helps me to identify when I or others are doing something inefficiently. And finally, my OPENNESS TO CHANGE (primarily stimulation and self-direction) is a set of values that allows me to pursue more efficient ways of doing things when necessary, though there are times when I prefer stability and consistency, hence my

mid-level on this variable. These three variables are fundamental elements of a tendency I have of trying to shape my group's identity via IDENTITY ENTREPRENEURSHIP - specifically, I try to shape the group to do see and do things differently and more efficiently. A problem, however, is that due to a strong SELF-DIRECTION value, I often don't conform to the behaviors of others (NONCONFORMITY), making myself low on in-group PROTOTYPICALITY. I think this low prototypicality ultimately hurts my IDENTITY LEADERSHIP, making me less effective at shaping the group identity because other group members are not confident that I'm acting in the group's best interests.

The left side of the map shows that I also have a tendency to engage in three of the four different components of TRANSFORMATIONAL LEADERSHIP. My EFFICIENCY value also translates to frequently pushing group members to challenge assumptions and find better ways of doing things (INTELLECTUAL STIMULATION) and to provide individuals with feedback and training as necessary for them to be as efficient as they possibly can (INDIVIDUALIZED CONSIDERATION). My INSPIRATIONAL MOTIVATION is positively associated with my IDENTITY ENTREPRENEURSHIP tendencies in the sense that I try to motivate the group to constantly improve and evolve. But just as my PROTOTYPICALITY is low, so too is the extent to which I'm viewed by group members as a role model (IDEALIZED INFLUENCE). This ultimately makes me a bit less effective at TRANSFORMATIONAL LEADERSHIP, hence my being in the middle on transformational leadership. I do a better job at each of the different components of TRANSFORMATIONAL LEADERSHIP when I am mindful (MINDFULNESS), and I am more mindful when regularly meditating. I haven't fully reaped these leadership rewards from mindfulness since it's easy for me to lose a hold on my mindfulness when interacting with a group of people (hence the mid-level on mindfulness), but this is a goal I continuously strive for.