Title

Share and show: Cultivating sensemaking capability in the management classroom

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Abstract

Collective sensemaking is an important activity in organizational life and its facilitation commonly falls to those in management roles. This paper describes an educational experience for delivery in the post-graduate classroom that enables students to build awareness and capabilities related to collective sensemaking. The class employs the project-space model, a visual tool derived from recent practice-based research, to teach the facilitation of collective sensemaking. During this interactive conference session attendees will actively participate in key elements of the educational experience, and be provided with a brief explanation for its design.

Keywords

Collective sensemaking, management education, experiential learning

Introduction

Sensemaking, the process of taking relevant stimuli or cues and mapping these into a framework to better understand an issue or situation (van der Steen, 2017), has been recognized as an important aspect of managerial work (Ancona, 2012; Barge, 2018; Gnanlet & Khanin, 2015). Managers must take stock of multiple factors, draw upon shared knowledge and experience, and build a metaphoric map of a situation to make decisions. Accordingly, there is a growing stream of literature regarding collective sensemaking in organizations (see, for example, Islam, 2019 (in press); Merkus et al., 2017; Mikkelsen & Wåhlin, 2019 (in press); van der Steen, 2017) and this raises questions about whether and how sensemaking capabilities can be developed for management practice. A potential avenue is to craft educational experiences that draw on contemporary evidence-based management tools and models. Saksida and Jelley (2018) and Tkachenko, Hahn, and Peterson (2016) discuss how the dissemination of information relating to new evidence-based tools and the opportunity to apply them can be a bridge between theory, practice, and education.

This paper responds to this growing need to develop managers' sensemaking abilities by describing an educational experience that has been successfully facilitated with post-graduate project management students. Quantitative and qualitative feedback elicited through surveys found the experience increased the students' awareness and capability to facilitate collective sensemaking. In the next section we introduce the drivers for this educational experience and explain Merrill's Principles that guided its design. We then detail the educational experience, including a brief explanation of the project-space model, a contemporary sensemaking tool (see, van der Hoorn, 2016a, 2016b; van der Hoorn & Whitty, 2017) central to the educational experience. The paper concludes with a description of the

interactive format to be used for sharing the educational experience with conference attendees.

Theoretical Foundation / Teaching Implications

Weick, Sutcliffe, and Obstfeld (2005, p. 410) conceptualize sensemaking as the process by which we determine "what's the story?" from our unfolding experience. It is the process by which "meanings materialize" (Weick et al., 2005, pp. 409, 410). Today's manager operates in an environment that is ambiguous, complex, and often includes competing viewpoints (Gnanlet & Khanin, 2015). As such, the ability of managers to make sense of the influx of raw cues and build a shared understanding is increasingly important (Ancona, 2012).

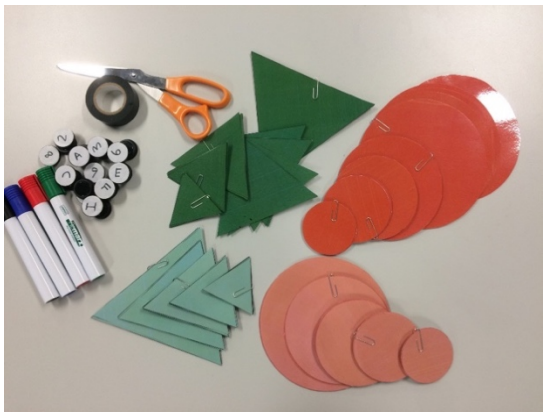
Sensemaking has been acknowledged as important in a range of management activities such as strategy planning and implementation (Sajasalo, Auvinen, Takala, Järvenpää, & Sintonen, 2016; van der Steen, 2017), innovation (Kunda, 2016), and organizational learning (Peruffo, Marchegiani, & Vicentini, 2018). Ancona (2012) proposes that sensemaking supports leaders in tasks such as relating, visioning, inventing, and improving team function. Sensemaking is established as highly relevant in project work (Atkinson, Crawford, & Ward, 2006; Clegg, Killen, Biesenthal, & Sankaran, 2018; Martinsuo & Killen, 2014; Thiry, 2001, 2002) and studies have been undertaken to develop and assess artefacts and models to support this process (see, for example, Papadimitriou & Pellegrin, 2007; van der Hoorn & Whitty, 2017).

The project-space model is an interactive, white-board-based tool (refer Figure 1) that has been shown to support collective sensemaking in project work (van der Hoorn, 2016b; van der Hoorn & Whitty, 2017). The model uses repositionable elements which visually represent the enablers and constraints, both current and potential, to the progress of an initiative (van der Hoorn, 2016a, 2016b). Use of the model encourages project stakeholders

to share their perspectives on the reasons for a project's current status, promote relevant discussion and then show the outcomes of this collective sensemaking on the model. Figure 1a is a photograph of the project-space model white-board kit. Figure 1b is a photograph of a project-space model created by students. Description of the visual language of the project-space model is provided in Appendix A and the kit contents in Appendix B.

Figure 1: The project-space model

(a) Components of the project-space model whiteboard kit



(b) Whiteboard version of the project-space model

(completed project-space model by a team participating in the educational experience)

Weick (2007) emphasizes the value of sensemaking to management educators and highlights the need to shift focus from decision making toward the dynamic practice of sensemaking. While sensemaking is discussed in the literature on education for general management and leadership, only a few studies explore specific ways to develop managers' facilitation of collective sensemaking. The most relevant examples to our educational experience are the studies by Gebauer (2012) and Ancona (2012). Gebauer (2012) explains a workplace-based experiential educational approach using the concept of "staff rides". Staff rides are a reconstruction of an incident, such as an accident or near miss, with the aim of

building a shared understanding of the organizational conditions that led to the incident. In a classroom setting, Ancona (2012) describes how sensemaking is taught as part of a leadership course. After being introduced to the concept of sensemaking, students are asked to reflect on their own experiences, learn by listening to other leaders, and undertake a case situation either through imagining themselves in a different role or a small project. Ancona's (2012) study provides insight on how sensemaking education can be conducted; however, it does not provide sufficient detail from which other educators could replicate the educational experience.

To summarize, while the literature indicates that there is interest in educating managers about sensemaking, it is not matched by sufficiently detailed examples to guide classroom-based education on collective sensemaking.

Learning Objectives

The learning objectives of the educational experience described in this paper are to:

1. increase students' awareness of the need for sensemaking in managerial settings; and
2. cultivate management students' capability to facilitate collective sensemaking.

We aim to meet these objectives through an enjoyable experience intended to best engage students and encourage learning through participation. (see, for example, Dalrymple, Sears, & Evangelou, 2011; Killen, 2015).

Exercise Overview

The educational experience was designed with reference to Merrill's (2002) "First Principles of Instruction". These Principles propose four distinct phases centering on a real-world problem: activation of prior experience, demonstration of skills, application of skills, and integration of skills into real-world activities (Merrill, 2009). This set of Principles is drawn from a variety of educational design theories and has diverse use. For example, the

Principles have been used as a framework for guiding the development of educational experiences and courses (Collis & Margaryan, 2005; Lo, Lie, & Hew, 2018), and several authorities argue that educational experiences or classes which align with the Principles result in enhanced learning outcomes (for example, Frick, Chadha, Watson, Wang, & Green, 2009; Lee & Koszalka, 2016; Tu & Snyder, 2017). Figure 2 relates these phases to the components of the educational experience. It is recommended that this post-graduate educational experience is conducted in two 90-minute sessions. As per Table 1, the first 90-minute session can be divided into two 45-minute sessions.

Figure 2: Structure of the educational experience aligned to Merrill's Principles

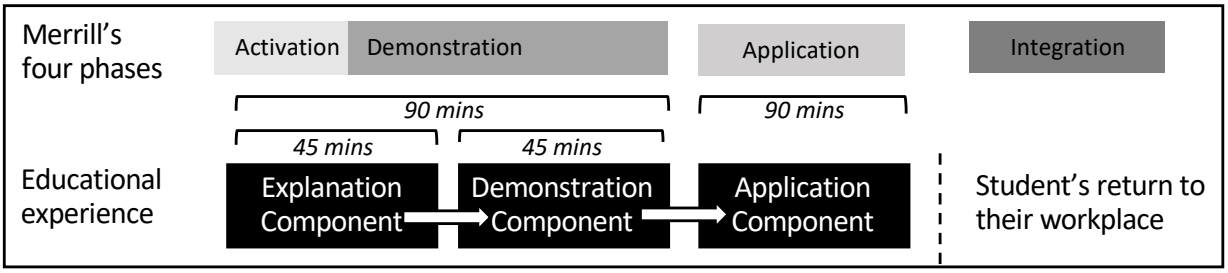


Table 1: Summary of educational experience logistics by component

Component name	Component descriptions	Duration	Resources	Room configuration
Explanation	*Explanation – part 1:* Introduce the need for collective sensemaking and value of visuals (educator-led) *Explanation – part 2:* Explain the project-space model and its visual language (educator-led)	45 mins	• Cash register activity (or similar) hand-outs • 1 x Project-Space Model kit • 1 x Whiteboard	Lecture style where all students can easily see the whiteboard and projection screen
Demonstration	Demonstrate the use of project-space model to facilitate collective sensemaking with a whole-of-class case study (educator-led)	45 mins	• 1 x Project-Space Model kit • 1 x Whiteboard • Whole-of-class case study hand-outs	Lecture style where all students can easily see the whiteboard
Application	Create a project-space model for team project or team case study (student-led)	90 mins	• Project-Space Model kit per team • Whiteboard per team • (Team case studies if teams do not have their own project)	Teams sitting/standing around their team whiteboard

The explanation session commences with a short interactive activity to demonstrate the variety of possible interpretations of the same situation or event and *activate* student interest in sensemaking. Appendix C provides details of the activity used in our study (an adaptation of the Uncritical Inference Test from Haney (1973)); other activities that highlight variations in interpretation of a situation could equally be used.

After reinforcing the necessity of being able to reconcile and make collective sense of different viewpoints, the educator discusses the benefits of visual tools in supporting

cognitive function and the role of visuals in sensemaking. This includes an exercise drawn from Doolittle (2013) on working memory, in which students are asked to remember a series of words whilst being asked to perform various tasks (a mathematic problem, a kinesthetic task, and reciting the alphabet backwards). The educator explains the concepts of the phonological loop and visuospatial sketchpad within working memory and how they are receptive to storing different types of information.

During part 2 of the explanation component, the project-space model is introduced as a visual tool which can support a collective sensemaking process by facilitating conversations. The project-space model, a contemporary sensemaking tool (see, van der Hoorn and Whitty (2017)) introduced above and described in detail in Appendix A is central to the educational experience. During this section of the explanation component a PowerPoint presentation is used along with project-space model on the whiteboard to explain the visual language of the model. The session is largely led by the educator with questions from students as they arise. All facets of the project-space model (as per Appendix A) are explained to the students.

For the demonstration component, the students are asked to read a fictitious case situation. This case is used to demonstrate how to develop a project-space model. A case that describes the implementation of an electronic record-keeping system in a hospital was used by the authors and has been found useful (length was approximately four pages). However, a variety of cases could be written to align with the topic of the course being taught or the students' interests. Importantly, embedded within the case narrative are enablers, constraints, threats, and opportunities for students to identify as factors to be represented on the project-space model. The case should be written so that the enablers, constraints, opportunities, and threats have varying impact, timing and likelihood.

The educator acts as a facilitator to draw input from the students, prompting them to share and debate differences in their perspectives and to come to collective agreement on relevant factors and aspects (such as the degree of impact duration, or the probability and extent of impact) required to accurately represent the case situation on the project-space model. The educator then places an appropriately sized enabler, constraint, opportunity, or threat in the position agreed by the class on the whiteboard version of the project-space model. Progressively, the project-space model for the case is developed on the whiteboard to show the class's collective sensemaking. Throughout the demonstration component, the educator highlights differences in perspectives and ways to reconcile these perspectives.

The application component provides an opportunity for students to apply their knowledge of project-space model and facilitate collective sensemaking in a largely self-organized and independent manner. This component of the experience requires students to work in teams of approximately four to six participants. These teams may have already been working on a project prior to the sensemaking class and they can apply the project-space model to their team initiative. Alternatively, teams can use a pre-prepared scenario provided by the educator to undertake the application component.

During this application component students may ask the educator for clarification on the visual language of project-space model or to assist in reflecting on how their team is sensemaking. Towards the end of the 90 minutes the students are asked to conclude the collective sensemaking exercise and reflect on the process and its resulting project-space model. To conclude the class, each group is asked to spend a couple of minutes describing one or two aspects of their discussion with reference to elements on the project-space model. The educator helps the students reflect on the sensemaking process behind the creation of the model, emphasizing that the actual model is not as important as the sharing of viewpoints and sensemaking involved in its creation.

The integration component is experienced when students return to their workplace and encounter group discussions and decision-making processes. Educators can include a follow-up activity that prompts students to consider how their thinking about such situations has changed as a result of the educational experience. This process of reflection was enabled for our students through completion of an online survey approximately six weeks after the class. A more comprehensive approach, given the option of the students reconvening in a classroom setting, would be an interactive session where students contrast their experiences of sensemaking in the workplace following the class, and how any of their perceptions or practices have been changed.

Session Description

The presentation of this educational experience at the 2020 Management and Organizational Behavior Teaching Society Conference will enable the attendees to experience the key components of the educational experience as described above. At the conclusion of the session, the attendees will have been introduced to a new sensemaking tool, the project-space model and have first-hand experience of how it can be used with students to explore collective sensemaking. In sections 2, 3, 4 and 5 of the session, the attendees will participate in the session as if they were students, with the presenter playing the role of the educator. In sections 1 and 6 additional logistical information that an educator would need to set-up and deliver the experience will be provided. To summarize, the content of the 90-minute session will include:

- [Sec. 1] 10 minutes: General overview of the rationale for the educational experience and key logistics;
- [Sec. 2] 10 minutes: Accelerated version of part 1 of the explanation component (includes abridged demonstration of cash register activity);

- [Sec. 3] 20 minutes: Full version of part 2 of the explanation component (includes explanation of the project-space model);
- [Sec. 4] 10 minutes: Reading of the case study in preparation for demonstration component;
- [Sec. 5] 30 minutes: An abridged version of the demonstration component (includes 'students' participating in collective sensemaking to develop the project-space model); and
- [Sec. 6] 10 mins: Highlighting of key considerations for the application component if educators were to use the experience in their own class.

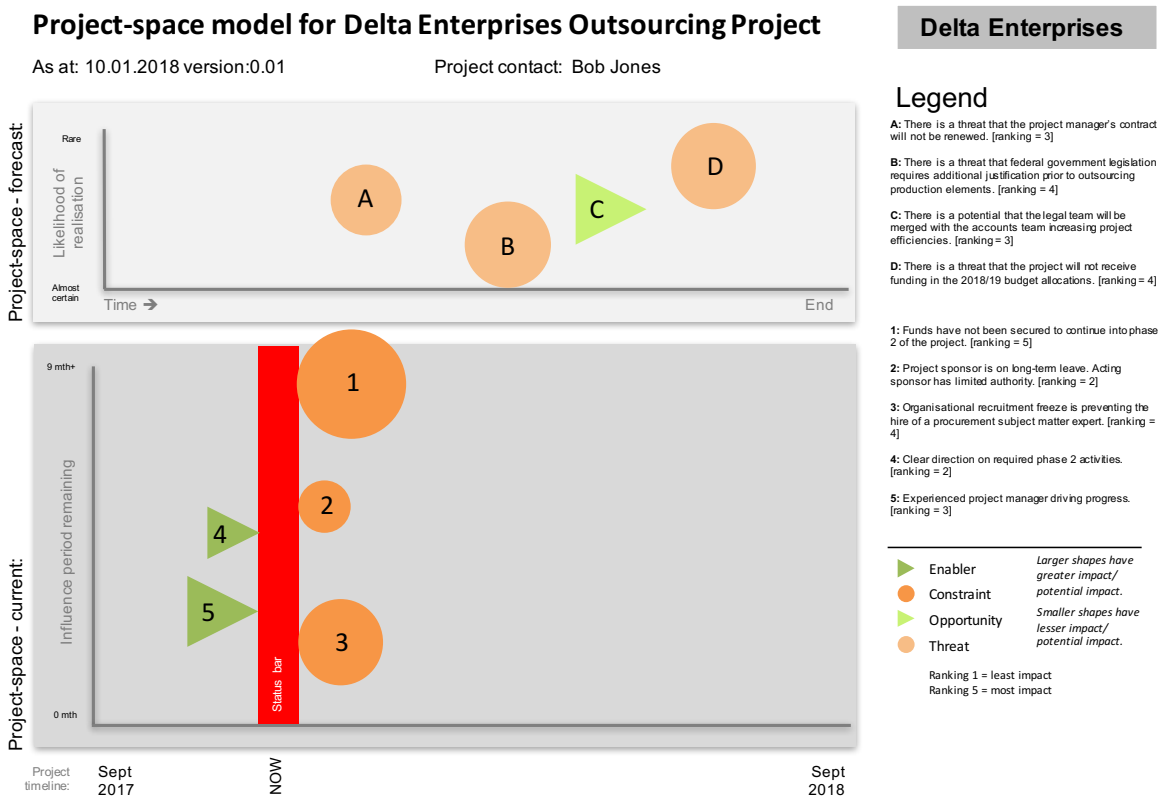
The session requires a room set-up with a projection screen and a lay-out allowing all participants to sit close enough to see the whiteboard where the project-space model is being built.

Appendix A: The visual language of the project-space model

Four primary elements are represented by the project-space model (refer Table below). Elements of a larger size have greater impact, and elements of a smaller size have relatively lower impact. For example, a larger orange circle indicates a major constraint to the project's progress, whereas a smaller orange circler is a constraint, but it may be more of an annoyance than a major barrier. The position of the elements also conveys meaning as described below.

Element	**Representing…**	**Shape**	**Color**
Enablers	Positive forces that are *currently* driving the project forward	Triangle	Dark green
Constraints	Negative forces that are *currently* hindering the project	Circle	Dark orange
Opportunities	Positive forces that *could* (if realized) drive the project forward	Triangle	Light green
Threats	Negative forces that *could* (if realized) hinder the project	Circle	Light orange

The whiteboard for the project-space model is divided into two areas or grids for representing the "current" and "forecast" elements (see figure below). The main grid is the current grid, used for placing the enablers and constraints that impact the project now. The forecast grid is placed above the current grid and shows the opportunities and threats that *may* impact the project at some point in the future; lighter colors are used to visually reinforce that these future opportunities and threats are not certain.



Placement of enablers, constraints, opportunities, and threats in the horizontal and vertical axis on the two grids also creates meaning. A time element underpins the model, with the timeframe of concern (in this case the project timeframe) represented along the horizontal axis from left (beginning) to right (end). In the current grid, elements are placed horizontally so that they touch a vertical 'now' bar that is positioned horizontally along the axis to reflect the relative progress of the project. Enablers are placed on the left (visually pushing the bar forward to the right), and constraints on the right of the bar (visually blocking forward movement). Vertical placement in the current grid represents expected duration of impact; for example, the higher a factor is placed vertically the longer it is anticipated to impact the project if no further action is taken. Through these conventions, current factors with strong and enduring impact stand out through the larger, darker shapes positioned high on the 'now' bar.

Similar conventions apply to the forecast grid where the horizontal placement represents the anticipated realization date of opportunities and threats, while vertical placement indicates how likely an opportunity or threat is to occur. For example, a threat considered very likely to occur is shown vertically lower down (closer to the current grid that is directly below), and a less likely threat is shown towards the top.

Interpretation of the project-space model is aided by a legend created on the right side of the whiteboard. Each factor is labeled with a letter or number (via the magnet that holds the shape in place) which corresponds to a description of the factor in the legend.

Appendix B: Contents of project-space model whiteboard kit

Qty	Item	Notes
1	Large magnetic whiteboard (recommend at least 2 m W x 1.2 m H)	Must be magnetic and must be able to be written on
1	Carry case/storage for each kit	Optional: labeling for box
20	Small magnets	Approx. 2.5 cm across for alpha numeric labeling
20	Small white sticky dots	For marking the magnets with alpha numeric value (10 numbers: 1–10; 10 letters: A –J)
5	Whiteboard markers	1 each of: black, blue, red, green, orange For writing legend, axis naming and status bar
5	Sets of Amber Circles (Threats)	• 25 total (5 each of 5 sizes) • Print in color • Label back of each with number to correspond with size (1 – smallest; 5 – largest)
5	Sets of Orange Circles (Constraints)	• 25 total (5 each of 5 sizes) • Print in color • Label back of each with number to correspond with size (1 – smallest; 5 – largest)
5	Sets of Light Green Triangles (Opportunities)	• 25 total (5 each of 5 sizes) • Print in color • Label back of each with number to correspond with size (1 – smallest; 5 – largest)
5	Sets of Dark Green Triangles (Enablers)	• 25 total (5 each of 5 sizes) • Print in color • Label back of each with number to correspond with size (1 – smallest; 5 – largest)
5	Sandwich bags and/*or* A4 plastic pockets	For storing the 4 sets of shapes and magnets
1	Black electrical tape	For creating grid axes on whiteboard
1	Scissors	For cutting electrical tape

Appendix C: Cash Register Activity

Please note: this is an adaptation of the Uncritical Inference Test from Haney (1973).

Students are provided with a single-sided hand-out with a short paragraph about a scenario and then a series of statements below. The students are asked to individually read the short paragraph.

> A businessman had just turned off the lights in the store when a man appeared and demanded money. The owner opened a cash register. The contents of the cash register were scooped up, and the man sped away. A member of the police force was notified promptly.

Then students are required to individually note on the handout whether they felt a series of statements (for examples, refer below) were true, false or unsure.

> The robber was a man.
> The store owner scooped up the contents of the cash register and ran away.
> The robber demanded money from the owner.

The educator progresses through approximately six of the statements, asking students to indicate their response to a question through a show of hands. Although the situation seems relatively simple and everyone had the same information, students perceive the situation in different ways. The educator facilitates a small amount of discussion to explore why the students feel differently about the various statements. The experience illustrates the challenges involved in managing collective sensemaking, and to appreciate that this challenge is amplified for teams in complex, dynamic environments.

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