Teaching Management Students How to Decide

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We present an experiential learning method to improve the core decision making skills of management students. First, we provide a framework that instructors can utilize to take a more systematic approach to teaching decision making skills. Second, we demonstrate how to apply our framework to teach case studies with decision making dilemmas. Third, we present an exploratory research study measuring decision making effectiveness before and after a teaching intervention using our framework. The subjects for the research study were MBA and Masters of Bio-technology (MBT) students. The intervention demonstrates the effectiveness of the framework for teaching decision making to management students.

INTRODUCTION

In light of the economic crisis of 2008, the value of management education has come under scrutiny (Wallace, 2010; HBR Debate, 2010). In particular, Podolny (2009) argues that business schools are not teaching students critical thinking skills and this contributed to shortsighted decisions that led to the financial crisis. Kachra and Schnietz (2008) further add that students are not aware of how internal biases and the process of strategic decision making can result in suboptimal decisions. They state that management students are not learning effective decision making because it is an experiential skill that is difficult to teach using the traditional lecture approach.

As a result, new experiential methods are being developed to teach students effective decision making. For example, the Backwoods Brewing Company is an experiential exercise to teach students how to make decisions in the face of ambiguity (Cooper, McCrea & Backhaus, 2005). In this exercise, students are exposed to an ambiguous business situation that requires creativity to solve. TradeSmith is another experiential exercise used to demonstrate cognitive biases in a resource allocation decision application (Martz, Neil & Biscaccianti, 2003). A more novel tool is the use of interactive drama to teach the complexities of decision making (Holtom, Mickel & Boggs, 2003). In this case, instructors work with actors to create interactive scenes based on a decision making dilemma. Then, students work with the actors to enact recommendations to the dilemma.

In this paper, we present another experiential learning method to improve core decision making skills of management students. Our approach contributes to teaching current experiential methods in three ways. First, we provide a framework that instructors can use to take a more systematic approach to teaching decision making. The framework illustrates the different components that contribute to effective decision making including opportunity costs, the social construction of reality, cognitive heuristics or

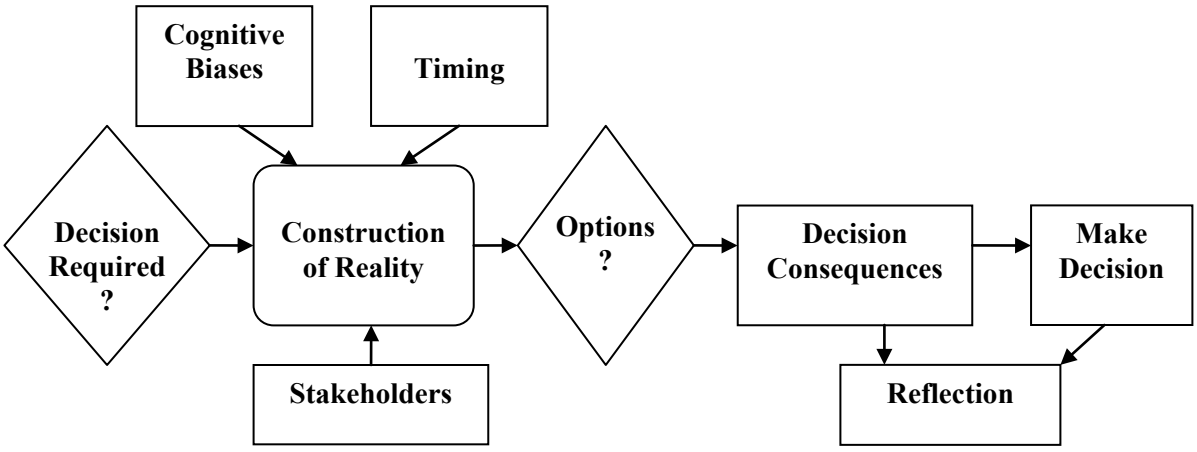
biases, stakeholder participation, time constraints, generating alternatives, predicting consequences and reflective thinking. The framework can be applied to case studies in any area or discipline where there is a decision making dilemma. Second, we demonstrate how to apply our framework to teach a case study. Our application demonstrates how instructors can systematically work through a case to teach the different components of effective decision making. Third, we designed and conducted an exploratory research study measuring decision making effectiveness before and after a teaching intervention. The intervention consisted of providing in-class instruction on cognitive biases and systematically processing through the decision making framework using the San Jose State University (SJSU) blood drive ban case study. The subjects for the study were SJSU MBA students and Masters of Bio-technology (MBT) students.

Our paper is comprised of the following five sections. First, we present our decision making framework and its various components. Second, we outline the two research methods we used to test our framework through empirical inquiry. Third, we apply the framework to the SJSU blood ban case study. Fourth, we present and evaluate the results from the research study. Finally, fifth, we discuss the implications of our study to management education.

DECISION MAKING FRAMEWORK

Figure 1 provides the decision making framework developed from various literature streams on decision making and our own experience teaching decision making skills to graduate level students. The framework illustrates the major components of decision making and the sequence they can be considered when making important decisions. The first component addresses whether the decision really needs to be made in light of opportunity costs and the decision maker's area of responsibility. Because of resource constraints there are opportunity costs to every decision. The importance of opportunity costs is that it forces decision maker to consider a more expanded set of alternatives and prioritize based on the availability of limited resources (Keasey & Moon, 1994). However, prior research has found that the "pervasive nature of opportunity costs causes us to ignore, or at least underplay, its role" (Levinthal & Wu, 2010 – pg. 794). Northcraft & Neale (1986) also observed that opportunity costs are often ignored in

FIGURE 1
DECISION MAKING FRAMEWORK



decision making, and found that "decision aids which encourage or remind decision makers to consider opportunity costs in an explicit manner…produce higher quality decisions" (pg. 354). Therefore, we teach students to carefully prioritize and choose what issues they must focus on with regard to the extent of their responsibility and opportunity costs.

The second component is known in the literature as the social construction of reality (Berger & Luckmann, 1966; Searle, 1995; Weick; 1995; Hacking, 1999; Lynch, 2001). Its disciplinary roots are in the fields of social psychology and sociology. As a social theory, it asserts reality in organizational, political and social life is constructed by participants in their personal and institutional contexts. Weick (1995) views it as a process of sense-making in which people interpret and frame the subjective into something tangible. In particular, the concept of framing is seen as critical to the process of constructing meaning (Gameson, Croteau, Hoynes & Sasson, 1992). Gameson et al. (1992) define frame as "a central organizing principle that hold together and gives coherence and meaning to a diverse array of symbols" (pg. 384). With regard to decision making, we argue that construction of reality depends on three major inputs: cognitive biases, stakeholders and timing/ time constraints to make the decision. The combination of these inputs determines how the decision is framed, positioned, processed and eventually made.

The third component arises from the disciplines of cognitive psychology and behavioral decision theory. Researchers (Tversky & Kahneman, 1974) have identified specific cognitive heuristics or information simplification processes that influence how a decision is perceived and subsequently framed. The underlying reason for cognitive heuristics is the limitation of the human mind to absorb and process large amounts of information in complex, uncertain and highly charged situations. Therefore, the human mind resorts to using a variety of heuristics (rules of thumb) that simplify the information. It is this simplification process that can introduce systematic errors or cognitive biases in the decision making process that lead to poor decisions. Researchers identified the following six major types of cognitive biases which were found to affect adversely strategic decision making (Schwenk, 1984):

1. Reasoning by analogy (Steinbruner, 1974) – simple analogies that are not applicable are used to make sense out of complex problems.
2. Prior hypothesis bias (Levine, 1971) – decisions are based on strong prior beliefs about the relationship between two variables. Information that is consistent with the prior beliefs is used while disregarding information that contradicts these beliefs.
3. Escalating commitment (Staw, 1981) – prior decision to commit resources to a project is reinforced with even more resources even after observing the project is failing.
4. Representativeness (Tversky & Kahneman, 1974) – tendency to generalize from a small sample or a single anecdote to the entire population.
5. Illusion of control (Langer, 1975) – tendency to overestimate one's ability to control events and one's ability to address problems if they arise.
6. Availability error (Tversky & Kahneman, 1974) – estimate the probability of an outcome based on how easy the outcome is to imagine.

These cognitive biases determine how the decision is perceived and framed among the stakeholders in the decision making group.

The fourth component is the collective input of stakeholders which is integral to how a decision is positioned. Freeman (1984), a stakeholder theorist, defines stakeholders as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (pg. 46) such as employees, managers, suppliers, owners and customers. Stakeholders of public organizations include citizens, taxpayers, service users, government, unions, interest groups, political parties (Bryson, 1995). Who is and who is not included among the stakeholders as participants in the decision making can influence the final resolution (Gomes, Liddle & Gomes). A key responsibility of the decision maker is to ensure that the appropriate stakeholders with relevant expertise or experience necessary to analyze important facets of the decision and its ultimate consequences are adequately represented in the decision making group. Furthermore, the group context within which the decision is made determines whether cognitive biases will lead to groupthink (Schwenk, 1984). Groupthink occurs when there is consensus in the decision

making group without questioning the underlying assumptions (Janis, 1972). Prior research has found a link between poor decision procedures and groupthink (Esser, 1998).

The fifth component, the timing of the decision and time constraints influences the extent of information acquisition and support to make the decision (Souren, Saunders & Haseman, 2005). Prior research has found that time pressures limit search for alternative solutions, and typically only a single option arises (Mintzberg, Raisinghani & Theoret, 1976). Therefore, timing is important to ensure relevant stakeholders are included in the appropriate stage of the decision making process and a sufficient number of alternatives or options are considered before making the final decision.

The sixth component is considering different alternatives to a decision. Normative decision theory suggests generating a number of alternative courses of action will lead to a better decision (Schwenk, 1984). However, in addition to time pressure, Alexander (1979) found that cognitive biases tended to reduce the number alternatives considered, and often the more creative alternatives were dropped first. To mitigate this tendency, various analytical tools for generating alternatives are useful such as scenario analysis, cost/benefit analysis, payback analysis and feasibility studies. The practitioner and academic sources recommend using scenario analysis for complex decision making (Russo & Schoemaker, 1989; Hill & Jones, 2010). Schoemaker (1991) defines scenario "as a script-like characterization of a possible future presented in considerable detail, with special emphasis on causal connections, internal consistency and concreteness" (pg. 549-550). The value of scenario analysis is that various scenarios are generated that "are based on the possible consequences intended or unintended of events that might occur" (Wilburn & Wilburn, 2011, pg. 164).

The seventh component is the prediction of consequences of different alternatives. Interestingly, prior research has found that decision makers tend to choose alternatives with more certain consequences rather than alternatives with more uncertain consequences (Yates, Jagacinski & Faber, 1978). The remedy for this tendency again is in the application of tools such as scenario analysis because the future is inherently unpredictable in terms of probable consequences. Scenario analysis allows stakeholder participants to anticipate different future situations and to generate a range of options to accommodate these differing views of the future (Courtney, Kirkland, & Viguerie, 1997). Another aspect of consequences is differentiating between intended and unintended consequences of the final decision. Follow-up of the chosen alternative is necessary to determine if unintended consequences have occurred and what impact these are having on all affected groups.

Reflective thinking, the eighth component, enhances decision skills by allowing for deeper learning and insights from the decision making process and the subsequent consequences (Bowers, Byron-Chew & Bowers, 2010). Reflective thinking is defined as developing the ability of the students to "integrate new information, to contemplate its meaning and relevance in terms of past knowledge, and culminating in the decision of whether to modify existing beliefs and assumptions based on what was learned" (Peltier, Hay & Drago, 2005). Students learn reflective skills when they are taught to think more deeply about what they have learned, learn more about themselves, and engage in critical inquiry that can change their current beliefs and assumptions (Hedberg, 2009).

We attest that systematic consideration of the components in our decision making framework will lead to better decisions. We test our assertion in two ways. First, we apply the framework to the SJSU Blood Drive suspension incident to evaluate the decision making process and outcome. Then we conduct a research study to determine if systematically considering the various framework components can improve decision making. The next section on research methods discusses the design of both empirical applications.

RESEARCH METHODS

Two different types of research methods were used to test the framework through empirical inquiry: case study method and experiential study. In the case study method, we purposefully selected the SJSU Blood Drive case (Osland & Inamdar, 2009) where a sub-optimal decision was made in order to determine if the framework would be useful in identifying what components led to the erroneous decision.

In effect, we systematically applied the framework components to analyzing the case with regard to the content and process used to make the decision.

Our second method was a before-intervention-after experiential study to determine if students improved their decision making skills. The subjects for our study were San Jose State University MBA and MBT students. Therefore, the unit of analysis is the student. Our sample size consisted of 24 MBA students and 25 MBT students. The study utilized the SJSU Blood Drive case (Osland & Inamdar, 2009) and two questionnaires, along with an in-class intervention. Appendix A has our first questionnaire that consists of questions covering the effectiveness of the decision, stakeholder inclusion, construction of reality, decision timing and decision consequences. Students filled this out as they read the case at home. Appendix B provides the second questionnaire that has questions similar to the first one, but now has a rating scale that students completed in class before and after the intervention.

The intervention consisted of a reading on cognitive biases and then systematically processing through the blood ban case using the framework. The reading provided an overview of the major cognitive biases with a short explanation of each type (Hill & Jones, 2009). It consisted of three pages and could be read easily in twenty minutes. After students read the case, the Harvard case study teaching method was used to process through the blood ban case in a highly interactive manner. Students shared their answers to the questions with other students and discussed additional issues that came up. After the discussion, students again completed the same questionnaire and this time answered some reflective questions asking if anything assisted them in improving their decision making skills and what they learned about their own decision making ability. The entire time for the in-class intervention was two and half hours, and it consisted of the following activities:

- twenty minutes to answer and rate the questionnaire,
- twenty minutes to read the material on cognitive biases,
- one hour to systematically process through the case using the framework components,
- half an hour to answer and rate the questionnaire including the reflective questions that were not on the first questionnaire, and
- twenty minutes to discuss what they learned about their own decision making ability and how they can improve this skill.

We analyzed the data from both questionnaires to determine the difference between the before and after responses. We developed a large customized database summarizing the questionnaire responses and ratings before and after the intervention. The database format allowed for comparison among the before and after responses for each student, while also enabling systematic comparisons of each type of response among students. We analyzed the two groups of students separately and compared them in our results section. Since our sample size is small (i.e., n=24 for each group) we used the dependent t-test for paired samples to obtain p-values to determine if the differences in responses are statistically significant.

DECISION MAKING FRAMEWORK APPLICATION TO A CASE STUDY

> San Jose State University President Don Kassing sent a campus wide e-mail January 29, 2008 to inform students, staff and faculty that he has suspended all university blood drives. He wrote that the suspension was ordered on the grounds that the U.S. Federal Drug Administration's lifetime blood donor deferral affecting gay men violates our non-discrimination policy (Tsao, February 4, 2008, .Spartan Daily, January 30, 2008).

President Kassing's decision sparked controversy among students apparent in the following exchange of opinions:

> I can only wonder as to how many people are going to die as a result of Kassing's foolish crusade (Spartan Daily Blog, January 31, 2008, 4:31 p.m.).

> This is not "Kassing's foolish crusade," as you would think it is, this is a stand against the FDA's discriminatory stance against the gay community! (Spartan Daily Blog, January 31, 2008, 5:51 p.m.).
>
> The FDA policy banning gays from donating blood does not constitute a discriminatory action against the gay community; discrimination entails a positive loss on the part of those that are being discriminated against. The gay community is not losing anything tangible by being barred from donating blood. The FDA has a rational basis to bar gays from donating blood (patient safety). One thing that surprises me is that no one has thought that Kassing might be overstepping his jurisdiction. If this blood drive applied to student groups that wish to hold blood drives on campus, then he certainly is overstepping his jurisdiction. He is preventing students from organizing (Spartan Daily Blog, February 1, 2008, 11:55 a.m.).

The subsequent systematic application of the framework to the SJSU blood ban case study demonstrates how President Kassing and his leadership team reached the decision to ban blood drives from campus, which was later supported by the Academic Senate and many members of the community.

Does a Decision Need to be Made?

When considering the FDA ban on MSM blood donations, Kassing and his leadership team did not question whether the decision to ban blood drives was under their jurisdiction. Instead, we found that a gay employee of San José State University told the administration that he believed that the university was discriminating against gay men by allowing blood drives onto campus that would not take their blood. This was because of the federal government's Food and Drug Administration's (FDA) lifetime ban on receiving blood donations from MSM. So the gay employee filed the complaint that brought the issue to Kassing's attention. The president's office studied the matter and concluded that the gay employee was right – the FDA policy discriminated against MSM. Discrimination was defined broadly and not legally because there haven't been any court cases alleging legal discrimination because giving blood is a privilege and not a right. Therefore, Kassing's questionable jurisdiction suggests this decision did not need to be made.

Construction of Reality

Reality was constructed by Kassing, supporters on his staff, and the members of the Academic Senate from a civil rights sociological perspective, not a legal one since we found no court cases pending on this issue or decisions that support Kassing's view. Clues to socially constructed reality include the emphasis on diversity and the advocacy on behalf of gay men. However, the issue according to the FDA is focused on risk analysis and protecting patients' safety during any type of treatment that requires blood transfusion. Based on prior research studies, patient safety was the primary concern of the FDA – not active discrimination against MSM. The stringent policy was adopted in 1985 because some of the blood supply had been contaminated with HIV. The civil rights view shaped thinking to focus on perceived inequity rather than the real patient safety risk that exists from accepting blood donations from MSM. The difference between the FDA's and SJSU's construction of reality can be attributed to cognitive biases and stakeholders that were excluded from the decision making.

Cognitive Biases

The main cognitive biases that were present include reasoning by analogy and illusion of control. The reasoning by analogy bias motivated the leadership to support the ban on blood drives because they equated the FDA policy against MSM with the discrimination endured by other groups such as blacks. Though one can include gays in civil rights discussions because they too have suffered and continue to suffer discrimination, rejecting them as blood donors is because of the high incidence of STDs in the

MSM population. The illusion of control bias compelled Kassing to believe that the SJSU blood drive suspension would encourage the FDA revisit the ban. To date, the FDA has not changed its policy on banning MSM donations based on the SJSU ban.

Stakeholders

Another key contributor to the civil rights view can be attributed to the stakeholders that were excluded from the decision making. Key stakeholders that were left out are the patients receiving blood transfusions, potential donors of blood and physicians and health care professionals who work in the blood industry. Also, Kassing and supporters did not refer to expert opinion cited in refereed blood industry publications. A review of the blood industry expert commentary revealed that no credible blood industry expert suggested that MSM be free to give blood. It is also important to note that the group context within which the decision was made led to groupthink. Kassing and his leadership team appeared to be locked into a "discriminatory" mind-set when making the decision to ban blood drives. Therefore, the selection of decision makers and groupthink affected the construction of reality on which the decision was based.

Time Constraints and Options

Kassing and his leadership team took nine months to make the decision from the time the complaint was filed. So, there appears to have been enough time to research and debate the issue. However, it is unclear if the time was used to gather the appropriate information to make the decision since there were no references made to the blood industry literature or to the legal literature regarding discrimination. Kassing didn't suggest less extreme options such as banning the drive from campus property, but allowing SJSU students to organize and hold the blood drive in another location, although this is what students did initially.

Consequences

It is not clear to what extent Kassing and his leadership team considered the short and long-term consequences of their decision. In the short-term, President Kassing received kudos from gay civil rights groups and local community groups that equated the FDA ban on donations from MSM as discriminatory. In the long-term SJSU blocked the potential donation of blood by students, staff and faculty who would have donated, but did not have the opportunity. Michele Hyndman, the Public Relations Director at the Stanford Blood Center, commented on the reduction of blood donations (September 3, 2008):

> Stanford Blood Center typically collected 300 donations each year at SJSU. The American Red Cross collected 500 each year. Currently, 20% of our blood collection comes from students in high school and college. Particularly with students, if donating is not convenient, most won't seek it out on their own. If we're on campus and it's convenient, they donate. The ban has kept students from donating.

People who would have donated were not able to, which in turn reduces the supply in blood banks available for patients requiring blood transfusions. In effect, there was the unintended consequence of reducing the amount of blood available for patients.

Reflection

To mitigate the effects of unintended consequences, reflection is important for questioning underlying assumptions and values when making the decision. The case suggests there was limited reflection based on the following actions that did not occur but often do in decision making processes in public institutions:

- Neither faculty nor administrators mentioned students in the decision making process.
- There were no public hearings where all faculty, employees and students were invited to opine about the proposed suspension.

- There were no white papers that cited established expert opinion from the blood industry.

External observers wondered how a university could take a decision based on advocacy as opposed to including a careful risk assessment. In sum, the systematic application of the framework to the blood ban case demonstrates that if the various components of the framework are not considered in the decision making process suboptimal decision will be made, even by seasoned senior level administrators.

RESULTS OF THE RESEARCH STUDY ON DECISION MAKING

The teaching intervention in our research study included an in-class reading on cognitive biases and the systematic application of the framework to the blood ban case as discussed in the previous section. Table 1 provides a descriptive summary of the two student groups. The first group consisted of MBA students with an equal number of males and females. The most prevalent age was 26-30 and the average number of years of work experience was 6.8 years. The second group consisted of MBT students. Again there were an equal number of males and females. The most prevalent age was 20-25 with an average of 3.2 years of work experience.

TABLE 1
DESCRIPTIVE SUMMARY OF STUDENT GROUPS

Student Group	Gender Distribution	Age Ranges	Average Work Experience in Years
MBA Capstone Course Students (n = 24)	Males (n = 12) Females (n = 12)	20-25 (n = 3) 26-30 (n = 15) 31-35 (n = 3) 36-40 (n = 2) 45+ (n = 1)	6.8 years
MBT Management Course Students (n = 24)	Males (n = 12) Females (n = 12)	20-25 (n = 18) 26-30 (n = 3) 31-35 (n = 1) 36-40 (n = 0) 45+ (n = 2)	3.2 years

Table 2 provides descriptive statistics for the ratings of the questions before and after the intervention by both the MBA and MBT student groups. The p-value indicates if the difference between the before and after rating was significant for each question.

TABLE 2
DESCRIPTIVE STATISTICS OF QUESTION RATINGS BY GROUP

Student Group	Descriptive Statistics	Question 2		Question 3		Question 4		Question 5		Question 6		Question 7		Question 8	
		Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
MBA	Average	2.7	1.9	2.4	1.8	2.4	1.9	3.5	3.5	2.3	2.0	2.2	1.9	3.8	4.3
(n=24)	Std Dev	1.2	0.9	1.1	0.7	1.0	0.9	1.1	1.1	1.2	1.1	1.3	1.2	0.9	0.8
	T-test (p-value)	**0.02**		**0.02**		**0.07**		**0.89**		**0.39**		**0.42**		**0.06**	
MBT	Average	2.4	2.4	2.5	1.7	2.6	1.9	3.3	3.6	2.4	2.0	2.6	2.3	3.9	4.4
(n=24)	Std Dev	0.8	1.4	0.8	1.0	1.1	1.2	1.1	0.8	0.9	1.2	0.9	1.2	0.8	0.9
	T-test (p-value)	**1.00**		**0.004**		**0.05**		**0.22**		**0.19**		**0.21**		**0.05**	

(See Appendix B for the questionnaire)

Question 2 asks if the decision was effective. The MBA group significantly ($p<0.02$) changed their rating from being acceptable to disagreeing with the decision. Students attributed the change in their ratings to learning about and understanding the cognitive biases that were present in the decision making process:

> *"After the discussion I realized that there were cognitive biases on the part of the President and his staff during their decision-making process."*
> *"Facts and cognitive biases such as groupthink, illusion of control, reasoning by analogy, prior hypothesis and representativeness show that it was a weak decision and many stakeholders were not considered."*

Interestingly, the MBT group did not change their ratings of disagreeing with the effectiveness of the decision. As biological science majors, they noted that the decision did not take into account scientific data; perhaps they were more conscious of the risks than sensitive to perceived discrimination as stated in the comments listed below under question 4.

Question 3 asks if the right people were included in the decision making process. Both groups of students significantly ($p<0.02$ and $P<0.004$) changed their ratings towards disagreeing that the right people were included in the decision making. During the class discussion of the case, as students listed the individuals affected by the decision, they realized some key stakeholders were not included in the decision making process. Students also realized the inclusion of stakeholders such as blood science industry experts may have changed how the underlying reality was constructed during the decision making.

Question 4 asks if the civil rights perspective is an effective basis for this decision. In this case, although both groups changed their rating towards disagreeing with the perspective, the MBT level of significance ($p<0.05$) was higher than the MBA group ($p<0.07$). Some reasons for the change are the following:

> *"The public health perspective should have been included as well."*
> *"Civil rights is an effective perspective, it is not the only one. The patient safety perspective outweighs the civil rights."*

Interestingly, although the public health studies on MSM blood were provided in the case reading, students only acknowledged the importance of patient safety after understanding the cognitive biases and limited stakeholder involvement that went into positioning this decision from a civil rights view.

Question 5 asks if there was enough time to make the decision, the before and after ratings did not change significantly for both groups. Based on the case reading, students estimated there was about 6 to 9 months to make the decision. Most felt there was enough time. However some questioned whether the time was used wisely.

Questions 6 and 7 ask about short and long-term consequences, again the before and after ratings did not change significantly. During the class discussion, both groups felt the short-term and the long-term consequences may not have been adequately considered by the president and his leadership committee or the Academic Senate.

Question 8 asks if a better decision could have been made. Both groups significantly changed their ratings towards agreeing a better decision could have been made. Some reasons given by students for the change are the following:

> *"After considering the biases and groupthink, a better decision could have been made."*
> *"Now knowing the decision making process, I think if they consulted more people and went through the steps with more perspectives, they may have reached a better decision".*
> *"They should have considered medical safety of people to be of a higher precedence than civil rights privileges."*
> *"The entire point of the blood drive suspension was to change the FDA policies. Since, the desired result was not obtained, this decision was not effective."*
> *"Without a broader perspective and scenario planning they did not make the best decision."*

Towards the end of the case discussion, students realized the leadership could have explored several "alternatives" or scenarios when making the decision. For example, they felt SJSU could have sponsored a debate with the FDA, rather than banning the blood drive altogether.

Improving the Decision Making Process

After the intervention, the follow-up questionnaire asked students to rank four items that assisted with improving their decision making from 1 being most important to 4 being least important. Table 3 provides the results. Students in both classes ranked the four items in the same order. Understanding cognitive biases was given the highest ranking, primarily because students were not even aware they had these biases prior to the class. Similarly, construction of reality received the next highest ranking because students had not considered that reality is constructed and it can impact decision making. Students also found it helpful to process through the case using the different components of the framework. Students found the interaction helpful in learning about how others made decisions even though they gave listening and learning from peers the lowest rank,

TABLE 3
FACTORS THAT CONTRIBUTE TO IMPROVING DECISION MAKING

Student Group	Understanding Cognitive Biases	Understanding Construction of Reality	Processing through the case (framework)	Listening and Learning from Peers
MBA (n=24)	1 (average = 1.9)	2 (average = 2.1)	3 (average = 2.8)	4 (average = 3.3)
MBT (n=24)	1 (average = 1.7)	2 (average = 2.5)	3 (average = 2.8)	4 (average = 3.0)

Question 10 on the follow-up questionnaire asked students to comment on what they learned from the intervention with regard to their own decision making skills. The objective of the question was to encourage reflective thinking in the decision making process. The following are some of the responses:

> *"I've learned that I need to be more aware of these proven cognitive biases that all people have to a certain extent."*
> *"My decision making is easily influenced by others' points of view."*
> *"It is important to avoid biases, collect data and comprehensively analyze the situation from both a short and long term perspective."*
> *"I have many biases and it's easy to lean towards previous judgments to make hasty decisions but not necessarily the best."*
> *"Realizing different views of reality holds the most impact in decision making. Your reality may be different than the next person."*
> *"I learned I need to think about the consequences and consider several different alternatives before choosing one."*
> *"I jumped to conclusions without going through the steps discussed in class (framework). Although my peers agreed with me in some areas there were areas where my peers added good points I had not considered."*
> *"If I follow this decision making procedure (case discussion using the framework), I will make different and better decisions."*

In sum, our intervention using the decision making framework significantly changed student responses before and after the intervention. The ranking and reflective comments of the students suggest the concepts of cognitive biases and constructions of reality were relatively more important than the other components of the framework.

DISCUSSION

The results of our research study suggest that the application of our decision making framework to the SJSU blood drive suspension case provides a systematic way to teach students how to make better decisions. Russo and Schoemaker (1989) in their book, Decision Traps stress the importance of examining the process of decision making systematically in order to understand how each part of the process can result in decision errors. In the blood ban case, students learned that decision makers can make errors by choosing to make a decision not within their area of responsibility/authority, by constructing reality that is filled with cognitive biases, by only selecting like minded participants and excluding important stakeholders and finally by not realizing positive short-term consequences can come at the detriment of negative long-term consequences. In effect, the systematic approach allowed students to consider many aspects of decision-making that can "often lead to better decisions than hours of unorganized thinking or relying on intuitive judgment alone." (Russo & Schoemaker, 1989, pg. 3).

Our teaching intervention also required students to reflect and discuss how they can improve their decision making skills. Interestingly, during the reflection process, two additional reasons for the blood drive suspension were proposed. First, students made the following remarks on President Kassing receiving kudos and praise from civil right groups.

> *"The decision was effective for President Kassing, he received much honor for his decision."*
> *"Kassing wanted to be viewed in a positive light and win support, not to make the best decision."*
> *"Kassing did not look deeply into the situation and study the ill effects of his decision. I think he did it to receive accolades from his fellows and the Senate for being ethical."*

These comments suggest another reason affecting decision making could be the leader's desire to feel heroic and be remembered. Becker (1997), in his Pulitzer prize winning book The denial of death, discussed the importance of heroism in terms of immortality. Campbell (1949) also wrote about this in the popular The hero with a thousand faces. People are seldom faced with opportunities to do heroic things. They can be prudent and escape the limelight or they can be bold and enjoy the fifteen minutes of fame Andy Warhol said we'd all have in the future (Fifteen minutes of fame, n.d.). This could have been President Don Kassing's moment for 15 minutes of fame and he seized it. We aren't questioning his sincerity or implying that he sought media fame but that he chose to be bold in his leadership to make a difference.

Another reason affecting decision making was the role culture played in the decision making process. Though the local milieu is not discussed in the case, many students and most adults are aware of the liberal orientation of the Bay Area. San José is part of the Bay Area which is known for acceptance of diversity including gays. The Castro District of San Francisco has been a gay enclave for decades but gays live throughout the area without suffering overt discrimination in housing or employment. Interestingly, diversity trumped concern regarding tainted blood.

Schein (1985) speaks of organizational culture in terms of what an outside observer can see, the culture's professed values, and the basic assumptions that are implicit in the culture. Schein would likely use the implicit assumptions to explain the decision that the university adopted as opposed to a critical thinking approach that valued the risk analysis performed by experts in the blood industry. Using Schein's view of culture, understanding paradoxical organizational behaviors becomes more apparent. SJSU teaches critical thinking and emphasizes valuing diversity yet the president and those advising him seemed to overlook some critical risk factors in favor of diversity, adopting what appeared to be an advocacy model.

Another point that came up during class discussion was the role of intuition in decision making. Students wondered how their "gut feeling" contributed to effective decision making. Interestingly, Behling and Eckel (1991) find that: "intuition is gaining a new respectability in the corporate world…it is back in style and top managers take it quite seriously" (pg. 47). Myceck (2000) also finds "many companies including Dell, Motorola, Intel, DuPont and General Electric have launched training programs to develop intuitive abilities of their employees" (pg. 2) primarily to improve decision making. And a survey of Fortune 500 executives found that eleven percent said they "always" use their intuition in decision making; 53 percent they "often" use their intuition" (Mycek, 2000, pg. 4). Russo and Schoemaker (1989) state the reason intuition plays an important role in decision making is that it takes into account knowledge that cannot be put into words or processing of information by the mind that cannot be formalized as a decision rule.

The actual role of intuition in decision making appears to depend on how it is conceptualized (Behling & Eckel, 1991). Behling and Eckel (1991) find that intuition is conceptualized in six separate ways in the literature, and each has different implications for its study, development and use in decision making. Therefore, they advise future research on intuition must be consistent in its conceptualization to be of value in understanding how it affects decision making. Naturalistic decision making (Klein, 2007) embraces the importance of intuition based on expert knowledge and experience, not amateurish gut feel sometimes associated with the term.

To conclude, we view the decision framework as a work in process with opportunity for future research to focus on further refinements and testing of robustness. One suggestion, from our class discussion, is to refine the framework to include the effects of heroism, culture and intuition in decision making. In order to test the robustness of the framework, it can be applied to teach cases from different areas and disciplines. Encouragingly, the systematic application of the framework, as it is now, appears to be a useful aid in teaching management students how to decide.

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APPENDIX A

Case Questions Completed at Home by Students

Campus Blood Drive Suspension Case Questions for Case Discussion

Name: _____

Class: _____ Date: _____

Read the case entitled, "Campus Blood Drive Suspension: Effective or Ineffective Organizational Decision Making?" Answer the following questions from the SJSU perspective.

1. What was the decision?
2. Was the decision effective? Explain why or why not.
3. Were the right people included in the decision making process?
4. Shared reality among decision makers was constructed from a civil rights perspective – is this an effective basis for the decision?
5. Was there enough time to make the decision?
6. Do the short-term consequences of leadership receiving kudos from gay civil rights groups and general population in support of human rights indicate effective decision making on the part of SJSU leadership?
7. What is one long-term consequence of this decision? Does this indicate effective decision making on the part of SJSU leadership?
8. Could a better decision have been made? Explain why or why not.

APPENDIX B

Case Questions Completed Before and After the Intervention
Campus Blood Drive Suspension Case Questionnaire for Case Discussion

Name: _____
Class: _____ Date: _____
Gender:
Male _____ Female _____
Age Range:
20 to 25 years _____
26 to 30 years _____
31 to 35 years _____
36 to 40 years _____
41 to 45 years _____
45 years + _____
Class level:
Graduate _____ Undergraduate _____
Years of work experience: _____
Instructions:

- Prepare the case entitled, "Campus Blood Drive Suspension: Effective or Ineffective Organizational Decision Making?"
- The questionnaire asks you to answer the questions two times on a scale 1 to 5.
  1. First, rate your answers in the first box before we go through the case discussion. Answer the questions only for SJSU – not for CSU North Bay.
  2. Hand in your answers to the Professor and obtain the two page strategic decision making reading on cognitive biases and read before the case discussion.
  3. Second, rate your answers in the second box after you have read the brief reading on strategic decision making and we go through the case discussion.
  4. If your rating has changed, please explain why.
  5. Answer the last two questions only after the case discussion.
  6. Hand-in your questionnaire to the Professor.

Campus Blood Drive Suspension Case Questionnaire for Case Discussion – Cont.

1. **What was the decision?**
2. **Was the decision effective? Explain change.**

Before the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

After the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

3. **Were the right people included in the decision making process? Explain change**.

Before the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

After the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

4. **Shared reality among decision makers was constructed from a civil rights perspective – is this an effective basis for the decision? Explain change.**

Before the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

After the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

Campus Blood Drive Suspension Case Questionnaire for Case Discussion – Cont.

5. **Was there enough time to make the decision? Explain change.**

Before the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

After the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

6. **Do the short-term consequences of leadership receiving kudos from gay civil rights groups and general population in support of human rights indicate effective decision making on the part of leadership? Explain change.**

Before the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

After the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

7. **What is one long-term consequence of this decision?**

Does this consequence indicate effective decision making on the part of leadership? Explain change.

Before the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

After the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

Campus Blood Drive Suspension Case Questionnaire for Case Discussion – Cont.

8. **Could a better decision have been made? Explain change.**

Before the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

After the Case:

Strongly Disagree	Disagree	Acceptable	Agree	Strongly Agree
1	2	3	4	5

9. **After working through the case in class, rank the following in terms of assisting you with improved decision making and list any additional items that were helpful. Rank by using 1,2,3…**

Understanding cognitive biases and how these impact decision making _____
Listening to your peers and their responses to the case questions _____
Systematically processing through the case in class _____
Learning and Understanding how different constructions of reality or point of view impact decision making (i.e. civil rights vs. something else) _____
Other_____
Other_____

10. **What did you learn about your own decision making skills?**