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Navigating Complex, Ethical Problems in Professional Life: a Guide to Teaching SMART Strategies for Decision-Making

Tristan McIntosh¹, Alison L. Antes¹, James M. DuBois¹

¹Bioethics Research Center, Division of General Medical Sciences, Department of Medicine, Washington University School of Medicine in St. Louis, St. Louis, MO, USA

Abstract

This article demonstrates how instructors of professionalism and ethics training programs can integrate a professional decision-making tool in training curricula. This tool can help trainees understand how to apply professional decision-making strategies to address the threats posed by a variety of psychological and environmental factors when they are faced with complex professional and ethical situations. We begin by highlighting key decision-making frameworks and discussing factors that may undermine the use of professional decision-making strategies. Then, drawing upon findings from past research, we present the “SMART” professional decision-making framework: seeking help, managing emotions, anticipating consequences, recognizing rules and context, and testing assumptions and motives. Next, we present a vignette that poses a complex ethical and professional challenge and illustrate how each professional decision-making strategy could or should be used by characters in the case. To conclude, we review a series of educational practices and pedagogical tools intended to help trainers facilitate trainee learning, retention, and application of “SMART” decision-making strategies.

Keywords

Biases; Constraints; Ethics; Professional decision-making

Our aim is to illustrate how to effectively educate professionals on ways to apply decision-making strategies when they are faced with complex professional and ethical issues. Appropriate and effective application of these strategies is a trainable skill that can be developed in individuals from a range of backgrounds, disciplines, and career stages. We first explore the complexities of professional decision-making in a research context and highlight an innovative compensatory strategy framework. Then, we present a case example of proper and improper application of these strategies when navigating complex professional and ethical situations. We then showcase pedagogical techniques intended to integrate these compensatory strategies into training activities and facilitate retention and application of these strategies. The term “trainees” is used throughout and refers to any individual, regardless of career stage, who learns from and takes part in training on professional decision-making strategies. In sum, the intent of the present effort is to describe how to

Tristan McIntosh, t.mcintosh@wustl.edu.

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provide trainees with strategy-based knowledge and skills needed for professional decision-making. These strategies ultimately serve to facilitate better ethical decision-making and professionalism.

Professional Decision-Making Frameworks

Professionals, including those who conduct research, regularly face complex circumstances that require professional decision-making skills. Although professionalism has been defined in multiple ways, for the purposes of the present effort, we define professionalism as integrating ethics and other relevant factors (e.g., competence, collegiality, institutional and departmental culture) needed to ensure public trust and achieve the goals of the profession (e.g., healing in medicine, generating new knowledge in research) (Stern and Papadakis 2006; Swick 2000; van Mook et al. 2009). Unfortunately, the nature of situations professionals encounter and unconscious self-serving biases all professionals have may undermine the effectiveness of professional decision-making. Therefore, professional decision-making necessitates careful navigation and includes weighing different options to address the issue at hand, forecasting likely implications of actions, and gathering more information from multiple reliable sources (Antes et al. 2010; Stenmark et al. 2011).

Two different frameworks of professional decision-making can be useful when professionals are confronted with these challenging circumstances: 1) a rational decision-making framework (Goodwin et al. 1998; Oliveira 2007), and 2) a psychological framework (DuBois et al. 2015a; Mumford et al. 2008). Rational decision-making, also referred to as normative decision-making, is characterized by adherence to a set of established principles that guide decision-making, often in a group setting (Hoch et al. 2001; Oliveira 2007). Specifically, rational decision-making involves the identification of key components of a situation and justifying decisions related to this situation when different viewpoints are in conflict with one another (DuBois 2008b, 2013). Moreover, those who engage in rational decision-making analyze a number of possible alternative outcomes prior to making a definitive choice and make their decision based on the most likely and best possible outcome (Hoch et al., 2001). This type of decision-making lends itself well to circumstances when professionals are unsure how to address an ethical dilemma, when a group is trying to establish best policies, or when there is disagreement among stakeholders on issues such as relevant facts and norms (DuBois 2013). As it relates to ethical dilemmas, rational decision-making facilitates identification of key ethical concerns that society acknowledges as integral to rational discussions about ethical issues (DuBois 2013).

The psychological framework related to professional decision-making is characterized by a confluence of situational complexities and self-serving biases that influence the way people frame and approach problems (Bazerman and Moore 2013; Mumford et al. 2008). Oftentimes, a “correct” or “best” approach to these problems may not be apparent because of factors such as conflicting interests or needing to address concerns of multiple stakeholders (Dana and Loewenstein 2003; Mumford et al. 2007; Weick et al. 2005). Being able to make sense of and effectively respond to these problems hinges on one’s ability to manage biases and attend to and utilize relevant information appropriately. This approach to professional decision-making lends itself well to situations in which professionals, when

faced with complex ethical dilemmas, intend to take the best course of action but have difficulty doing so due to personal and environmental constraints (Antes 2013). Such constraints may include complexity of social dynamics, heightened emotions, conscious and unconscious biases, uncertainty, and ambiguity.

The present effort will highlight strategies intended to facilitate the psychological framework of professional decision-making, as opposed to rational decision-making, because these strategies enable bias management and quality information integration, application, and synthesis. Moreover, these strategies are beneficial in situations where environmental constraints act to undermine an individual's intent to take the best possible course of action. These strategies help professionals deal with moral distress, situational limitations (e.g., political tensions, increases in regulations, cultural differences), and internal limitations (e.g., ignoring key elements of a situation, self-centered thinking, unwarranted certainty) (DuBois et al. 2016, 2015b).

In what follows, we will demonstrate the utility of a psychological decision-making framework within the context of the research profession, the SMART professional decision-making framework: seeking help, managing emotions, anticipating consequences, recognizing rules and context, and testing assumptions and motives. Research provides a useful context for illustrating SMART strategy training because research frequently involves complexity, ambiguity, assumptions, stress, ethical considerations, and conflicts of interest. Further, ethics training is mandated for all federally-funded research trainees and many key personnel on grants involving human or animal subjects. We believe the SMART professional decision-making framework can add value to ethics training programs in research and other professions.

Constraints to Professional Decision-Making

Several factors can interfere with optimal professional decision-making. We discuss four factors that can be effectively addressed through the use of SMART decision-making strategies: Complexity, ambiguity, biases, and unusually high or negative emotions.

Complexity

Professionals must carefully address and navigate complex and dynamic issues throughout their careers. For researchers, complexity often characterizes data management, mentoring relationships, protection of research participants, institutional hierarchies, and conflicts of interest (Anderson et al. 2007; DuBois 2008a; Jahnke and Asher 2014). These issues oftentimes involve multiple competing goals, guidelines, and stakeholder interests and are not simple to address (Werhane 2008).

For example, a researcher may have competing interests between their funding agency's research priorities and their own profession's methodological norms and standards. These conflicting interests and complex relationships between funding agencies and researchers may undermine confidence in the quality of research being conducted if not appropriately managed (Irwin 2009). Researchers are responsible for identifying and navigating conflicts of interest. Navigating conflicts of interest necessitates reconciling conflicting values,

perspectives, and agendas of multiple stakeholders at the individual, institutional, governmental, and national levels. Failing to do so may result in public mistrust of research, harm to others, tarnished personal and professional relationships, or ruined careers. Thus, professional decision-making strategies can be applied when attempting to identify, prioritize, and reconcile complex stakeholder interests. The multifaceted nature of ethical and professional situations in a research context has the potential to derail professional decision-making if not handled appropriately.

Uncertainty

It is common for individuals in research fields to be exposed to new and unfamiliar environments and projects where considerable gaps in knowledge may exist. Uncertainty may arise when regulations grow in complexity over time, when a researcher moves into a new research space, or when a researcher moves to a new nation with a different culture or an unfamiliar set of rules and norms (Antes et al. 2017; DuBois et al. 2016). Navigating social and professional life in a new culture, with a new language, and with possibly different ethical standards can be challenging and stressful.

Uncertainty may inadvertently lead to the misinterpretation of norms and other social and professional cues integral to making professional and ethical decisions (Palazzo et al. 2012). This is because individuals may lack essential information needed for interpreting a given situation appropriately (Sonenshein 2007), which may result in failure to think of long-term downstream consequences of their actions or failure to consider the entire range of possible courses of action. Moreover, “unknown unknowns” may result in a breakdown of quality professional decision making if help is not sought from other individuals or resources that are able to provide sound guidance on these issues.

For example, a lab manager may task a new postdoctoral fellow with collecting data from participants using a certain technique, but the postdoc may be unfamiliar with the standard procedures for doing so. Tense lab dynamics between the lab manager and other lab members may worsen this uncertainty by making it uncomfortable or difficult for the postdoc to seek help from another lab mate. Similarly, these lab dynamics may signal to the postdoc that limited or hostile communication is the norm in the lab, which may prompt the postdoc to proceed with their work in isolation. Failure to seek help due to social ambiguities may result in costly protocol violations or detrimental outcomes for both the participants and researchers involved. Without proper use of professional decision-making strategies, facing uncertainty or unfamiliar norms may lead to poor decision-making and negative consequences.

Biases

Despite even the best intentions to maintain objectivity, professionals may be subject to unconscious biases when processing information (Hammond et al. 1998; Kahneman 2003; Palazzo et al. 2012). This poses a considerable challenge to professionals who aim to accurately and objectively process available information relevant to a given situation and to make a sensible, unbiased decision (Bazerman and Moore 2013). Many of these judgment errors, or cognitive distortions, are automatic, making it challenging for individuals to fully

understand the negative influence of biases on decision-making and information processing (Kahneman 2003; Moore and Loewenstein 2004). Biases such as rationalization (Davis et al. 2007; DuBois et al. 2015a), tunnel vision (Posavac et al. 2010), self-preservation (Bandura et al. 1996; Oreg and Bayazit 2009), rigorous adherence to the status-quo (Samuelson and Zeckhauser 1988), and diffusion of responsibility (Voelpel et al. 2008) may contribute to flawed decision-making on the part of professionals.

To illustrate, a researcher may cut corners during the informed consent process as they think to themselves, “nobody reads consent forms anyway” (i.e., assuming the worst) (DuBois et al. 2015a). In yet another example, a researcher may decide to drop outliers from a dataset without reporting it as they think to themselves, “it’s not like I fabricated any data” (i.e., euphemistic comparison). Both of these examples depict poor professionalism. These biased behaviors may occur subconsciously or be actively justified by an individual as in the cases above (DuBois et al. 2015a). Regardless, the characters in these examples failed to utilize professional decision-making strategies that could have helped inoculate against the effects of detrimental self-serving biases.

Emotions

While professional decision-making requires a certain degree of objective and rational thought in order to be successful, professionals are not always rational and objective in their approach to making decisions (Kahneman et al. 2011; Tenbrunsel et al. 2010). It is easy to see how heightened emotions could undermine professional decision-making, for example, when working long hours, applying for intensely competitive grant funding, dealing with a difficult colleague, or trying to impress a world-famous and notably erudite senior faculty member. Stress, negative emotions, or intense emotions left unregulated or unacknowledged have been shown to lessen the cognitive resources needed for effective professional decision-making (Gino et al. 2011; Haidt 2001; Mead et al. 2009). When cognitive resources are depleted, reasoning is impaired and individuals tend to make hasty, biased decisions (Angie et al. 2011; Bazerman and Moore 2013; Gross 2013). Professional decision-making strategies can help counteract these effects.

SMART Strategies

Despite obstacles to effective professional decision-making, certain compensatory strategies exist that enable professionals to help offset these obstacles. Taking a structured approach to making these decisions can help professionals effectively apply strategies that guide ethical decision-making, bias management, and quality information processing (Bornstein and Emler 2001; DuBois et al. 2018; Thiel et al. 2012). Furthermore, this systematized thought process balances the aforementioned constraints that can negatively influence professional decision-making (DuBois et al. 2015b).

Building on the sensemaking work of Mumford (Mumford et al. 2008) and the bias reduction work of Gibbs (Gibbs et al. 1995), DuBois and his colleagues (DuBois 2014; DuBois et al. 2015b) in the Professionalism and Integrity in Research Program (P.I. Program) developed a structured decision-making aid to help professionals remember and recall a comprehensive set of compensatory strategies. Strategy-based training has proven to

be effective in developing cognitive skills (Clapham 1997), and has met success in increasing professional decision-making in the P.I. Program (DuBois et al. 2018). These strategies shape professional decision-making and help professionals work through ethical dilemmas. Professional decision-making strategies comprise the acronym “SMART”, and encompass five domains: Seek help, Manage emotions, Anticipate consequences, Recognize rules and context, and Test assumptions and motives. Table 1 depicts key dimensions of each strategy and reflection questions that can be used to apply each strategy. While these strategies have distinct components, they are related to one another and conceptually overlap. Each professional decision-making strategy is described in detail below.

Seeking Help

This strategy is characterized by 1) gathering information such as facts, options, and potential outcomes, 2) requesting the mediation of an objective third party, and 3) asking for and welcoming feedback and correction. By deliberately processing context-relevant information and consulting with objective others, it is possible to correct for biases and challenge initial assumptions (Sonenshein 2007). This allows the information that may have been formerly disregarded or misconstrued to be revealed and utilized effectively (Mumford et al. 2008). When attempting to apply this strategy, professionals should reflect on questions such as, “Do I welcome feedback or input from others?”, “Where could I seek additional unbiased, objective information or opinions?”, or “Have I owned up to mistakes and apologized to all involved to move forward?”

Managing Emotions

The strategy of managing stress and emotion is characterized by 1) identifying the emotions being experienced, 2) managing those emotions, and 3) acknowledging both positive and negative emotions such as excitement and anxiety. When attempting to apply this strategy, professionals should ask themselves questions such as, “What are my emotional reactions to this situation?”, “How are my emotions influencing my decision-making?”, “Would taking a timeout or a deep breath help the situation?”

Anticipating Consequences

The strategy of anticipating consequences is characterized by 1) anticipating consequences to both oneself and others, 2) anticipating both long-term and short-term consequences, 3) anticipating both positive and negative consequences, 4) considering formal and informal responses, and 5) managing and mitigating risk. When attempting to apply this strategy, professionals should reflect on questions such as, “What are the likely short- and long-term outcomes of a variety of choices?”, “Who will be affected by my decisions and how?” and “How can risks be minimized and benefits be maximized?”

Recognizing Rules and Context

This strategy is characterized by 1) recognizing formal rules, such as laws and policies, 2) recognizing informal rules, such as social norms, and 3) recognizing the power dynamics of individuals involved in a given situation. Professionals attempting to apply this strategy should ask themselves, “What are the causes of the problem in this situation that I can

change?”, “What ethical principles, laws, or regulations apply in this situation?”, and “Who are the decision-makers in this situation?”

Testing Assumptions and Motives

This strategy is characterized by 1) addressing the possibility you might be making faulty assumptions, 2) examining your motives compared to the motives of others, and 3) comparing your assumptions and motives with those of others in an empathetic manner. When attempting to apply this strategy, professionals should reflect on questions such as, “Could I be making faulty assumptions about the intentions of others?”, “What are my motives?”, and “How will others view my choices?”

Not only have compensatory strategies been demonstrated to be a helpful tool for high-quality professional decision-making, but these strategies are also learnable, trainable, and applicable to a wide variety of challenges and situations (DuBois et al. 2015b; Kligyte et al. 2008). The generalizability of strategies is noteworthy because they apply across contexts (e.g., human subjects research, animal research, translational research) and challenges faced by professionals (e.g., compliance, personnel management, integrity, bias). Moreover, these compensatory strategies, when applied correctly, can facilitate more critical analysis of a problem, improve information gathering and information evaluation, and contribute to better decision-making that leads individuals to make more professional and ethical decisions (DuBois et al. 2015b; Thiel et al. 2012).

Compensatory Strategy Case Application

Below we present a case with an ethical, professional dilemma and discuss how each SMART strategy can be properly applied in this example. We then caution against flawed application of these SMART strategies and highlight potential pitfalls to effective strategy application. It should be noted that, while the main character in the following case is a research assistant, applying the SMART strategies is a skill that can be learned and utilized by individuals across career stages and professions. The dilemma is as follows:

Sara is a new research assistant in the social science lab of Dr Jackson. She recently emigrated from China. Knowing that Sara is great with quantitative data analysis, Dr. Jackson asked her to run some statistics on data gathered by other research assistants on a National Science Foundation (NSF) grant that Dr. Jackson received two years ago. She ran the statistics, but none of Dr. Jackson’s hypotheses were confirmed. She thinks the study was simply under-powered. When she speaks with Dr. Jackson, he tells her she is mistaken and he asks her to run the tests again. She does so with the same results as before. This time, Dr. Jackson is angry, calls her incompetent, and says he will give her one more chance before he hires a new research assistant to run the statistics. Sara is fearful that she will lose her student visa if she loses her funded position. She drops several outliers and changes the data for several subjects and produces results that Dr. Jackson likes very much.

The above illustration is a great teaching case because, at first glance, Sara appears to be a victim: Dr. Jackson did not help her to do good work; rather, he bullied her to get the results he wanted. At the same time, the case perfectly illustrates a failure to use good decision-

making strategies in a stressful situation with competing interests where few good options readily present themselves. Sara made a very bad decision: she committed research misconduct through her data falsification, the project was federally-funded, and now she and her institution could be prosecuted for this federal crime. While not every difficult situation requires the use of every one of the SMART strategies, Sara may have benefited from using each of them.

Seeking Help

Sara could have asked other research assistants, graduate students, or postdocs for help with addressing problems with analyses and strategies for approaching and communicating with Dr. Jackson. If issues with Dr. Jackson had been persistent overtime, Sara could have sought support from colleagues or other faculty members who could provide advice for navigating the troubling work relationship. Ideally, the environment in the department would allow Sara to feel comfortable approaching another faculty member or others for help. Sara could have referred to objective field standards for conducting the analyses and determining how to proceed after unsuccessful analyses. After conducting the initial analyses, Sara could have asked a member in her lab to re-run the analyses with her in attempt to address any potential mistakes. Doing so may have affirmed her initial findings and assuaged concerns that she had approached the analyses incorrectly. Sara could have involved a mediator, such as a university ombudsperson, to help find a viable solution if she was unable to do so after exhausting the aforementioned options. A more complete picture presents itself after seeking help and additional information, and more ethical and professional courses of action become more apparent.

Managing Emotions

Because of the threat the situation poses to Sara's personal and professional goals, emotions run high in this scenario. Sara wishes to be successful in her career and education, maintain her position in the United States, and earn Dr. Jackson's approval. Sara is also likely aware that Dr. Jackson wishes to maintain a successful reputation in his field, publish interesting findings, and be productive throughout his career. She should introspectively identify her emotional reactions of anxiety, fear, frustration, and stress. When Sara was chastised by Dr. Jackson, she could have taken a "time out" to calm down and acknowledge how her emotions could override taking a more rational approach to addressing the problem instead of hastily reacting to Dr. Jackson's response. At a broader level, taking time to manage stress each day would help Sara cope with the pressures and day-to-day stressors of her work. By identifying and managing the range of emotions experienced when faced with ethical and professional situations, clearer and more thoughtful judgment is likely to result.

Anticipating Consequences

Considering both the long-term and short-term consequences for all possible individuals is central to making a quality professional and ethical decision. Specifically, Sara should consider how falsifying data could end up negatively impacting not only her career trajectory and her immediate ability to work in the United States, but the careers and

reputations of Dr. Jackson, her fellow lab mates, and the university where she works. Data falsification also undermines public trust in the field and scientific enterprise more broadly. In addition to attempting to minimize risk, Sara could have also considered how to maximize the benefits of, or make the best of, the situation. Perhaps by addressing the limitations of the analytical approach and bringing the analysis issue to light, a learning opportunity for everyone in the lab could have presented itself, paving the way for smoother management of similar situations in the future. Forecasting downstream consequences for all individuals that could be impacted by a given course of action is essential to maximizing benefits and minimizing harm to oneself and others.

Recognizing Rules and Context

Taking time to identify formal laws and policies and informal professional and social norms will help elucidate the context in which an ethical or professional dilemma unfolds. Sara could have identified the causes of problems and tensions in the situation, including publication pressures, Sara being new to the job, job stressors, and the like. By doing so, she could have more concretely comprehended the factors that limit her choices and could have avoided tunnel vision or narrow-mindedness in approaching the problem. Sara could have taken time to reflect on relevant ethical principles and regulations as they relate to falsifying data. Doing so may have cued her to not manipulate the data to obtain certain findings.

For better or worse, Dr. Jackson is her supervisor, and she must figure out a way to navigate the interpersonal problem in the case: He is upset and has threatened to fire her. Some of the strategies described above under “Seeking Help” might assist her in navigating the political dimension of this situation. Additionally, if these strategies fail, she should recognize that Dr. Jackson’s lab is situated within a larger institutional context. She could have reached out to other individuals within the university (e.g., department chair, research integrity officer) who prioritize responsible research and mentoring after exhausting alternative courses of action. These individuals, in turn, could have provided support and helped Sara navigate a path forward. Realizing the entirety of the context opens up a wider realm of options in navigating this challenging and threatening situation.

Testing Assumptions and Motives

Understanding the motives of oneself and others provides the opportunity to consider multiple perspectives and take steps to avoid biased decision-making. While it can be challenging when one feels affronted, it can be helpful to consider the perspective and motives of other parties in the situation. For example, Sara could have considered whether Dr. Jackson was having a stressful day and overreacted when she initially approached him. She could have better managed self-serving and self-protecting biases perpetuated by her fear of not being allowed to work in Dr. Jackson’s lab by acknowledging how they may be distorting her perception of the situation. Sara might have questioned whether her analysis was correct; perhaps she did make an error and the study was not underpowered. That is, Sara should have questioned her assumption that, if she did conduct the analyses correctly, falsifying data was the only available option that would allow her to keep her position. Seldom is professional decision-making served well by engaging in simplistic either-or

thinking. It is likely that multiple alternate courses of action would have presented themselves if she had engaged these strategies. Being proactive in managing biases by engaging in self-reflection and considering the perspectives and motives of others is beneficial to quality professional decision-making.

Questioning one's assumptions is also a classic emotion management strategy used in cognitive behavioral therapy. Sometimes just realizing that we are making assumptions about how others perceive the situation and about our limited options can relieve anxiety.

Evaluate and Revise

If one wishes to take these strategies a step further to engage in "SMART-ER" professional decision-making, they can: 1) Evaluate their decision and its outcomes and 2) Revise future behavior in similar situations. By acknowledging what did and did not work well in past situations and attempts at strategy use, modified and improved approaches to professional decision-making can be taken when faced with other professional and ethical challenges in the future.

Considerations for Applying SMART Strategies

While the SMART strategies are an excellent tool for professional decision-making, it is equally important to recognize the several important considerations when utilizing this approach. While a five-part decision-making aid has the opportunity to be highly useful for navigating complex, ambiguous professional situations, it is not a perfect algorithm or panacea for all ethical and professional conundrums. Given situational limitations and available contextual information, it may not always be possible to use each strategy fully, and challenges navigating the problem will still exist. Not all strategies will be equally applicable across all situations and may not be applied in the same order in all situations. However, SMART strategies are generalizable to myriad contexts, professions, and dilemmas and are not limited to major ethical transgressions such as fabrication, falsification, and plagiarism.

An additional consideration for using SMART strategies is that people may have a preference for or tendency to use one strategy over the others. While the SMART strategies are interrelated, over-attending to one strategy may result in biased or incomplete information gathering and information processing and, ultimately, sub-optimal professional decisions. When individuals face emotional, stressful, or ethically-charged situations, it is important that they consider and use multiple strategies to inform well-rounded decision-making. When educating trainees on SMART strategies, educators should encourage trainees to use a balanced approach and consider multiple strategies.

Perhaps one of the most considerable challenges educators may encounter is motivating trainees to use these compensatory strategies regularly. Simply teaching the strategies does not guarantee constructive application of strategies. In situations where individuals are overconfident or rushed to solve a problem that needs to be resolved quickly, immediately turning to the SMART strategies is unlikely to be an automatic course of action. Furthermore, if individuals engage in cognitive distortions in such a way that disengages

from compliance or harms quality professional decision-making, they may fail to see the need or utility of SMART strategies (DuBois et al. 2015a). Educators should make professionals aware of how they might fall prey to these pitfalls.

A final consideration is that other mechanisms exist aside from training professionals to use SMART strategies that reinforce the recall and application of professional decision-making strategies. Such mechanisms include creating ethical and supportive organizational and departmental cultures, developing and enacting ethical leadership and management practices, and establishing institutional policies and procedures that reinforce the use of professional decision-making strategies.

Training SMART Strategies

Below, we examine practices that are useful in conducting professional decision-making training programs and creating pedagogical tools that can be implemented by a research ethics or professionalism course instructor. We focus on training practices designed for adult learners that support their professional growth and advancement (Knowles et al. 2012). This is not an exhaustive list of considerations for designing and planning for an ethics or professionalism training program, and a systematic approach should be taken when developing any instructional program (Antes 2014; Antes and DuBois 2014). Rather, the pedagogical practices described below were selected because of their implications for the transfer of complex skills, such as professional decision-making, to the workplace after training has occurred. That is, facilitating trainee learning, retention, and application of the content learned during training is essential to improving professional decision-making and making the training successful (Noe 2013).

SMART Training Program Practices

Establish Learning Objectives

Prior to presenting training content, provide trainees with stated objectives of the training program that define the expected outcomes of training and what it is they will be expected to accomplish as a result of completing the training (Moore et al. 2008). Doing so alerts trainees to what is important and helps consolidate learning. Learning objectives have three components: 1) a statement of expected performance standard or outcome, 2) a statement of the quality or level of expected performance, and 3) a statement of the conditions when a trainee is expected to perform the skill learned in training (Mager 1997). An example learning objective for a professional decision-making, or “SMART” strategies-focused, training is: Trainees will be able to apply professional decision-making strategies when they are faced with uncertain, complex, and high-stakes professional and ethical decisions in the workplace.

Create Meaningful Content

Explaining to trainees how a SMART strategies-focused training will directly benefit them and describing how training content is specifically linked to experiences in their profession will help garner buy-in from trainees (Smith-Jentsch et al. 1996). Trainee dedication to achieving learning objectives is essential for learning and retention to occur and for

transferring knowledge and skills to the work environment (Goldstein and Ford 2002; Slavin 1990). To demonstrate the benefits of training, the content of training needs to be practically useful and applicable. This includes presenting content that is relevant to trainees' professions and that addresses ethical and professional issues they have faced or are likely to face in their careers. Discussing a case or critical incident that the trainees have encountered, or something similar to what they have encountered, is an effective way to get them engaged with and derive meaning from training content.

Engage Multiple Pedagogical Activities

Pedagogical activities that occur during training reinforce key training concepts, help trainees derive meaning from training content, and facilitate active learning of professional decision-making skills. *How* trainees learn is equally as important as *what* trainees learn during training. Integrating case studies, individual reflection activities, think-pair-share exercises, and role plays into training fosters learning more than a traditional lecture format (Bransford et al. 1999; DuBois 2013; Handelsman et al. 2004). These pedagogical activities vary in terms of their complexity and length, resulting in dynamic training content. Engaging trainees with these activities provides them with the opportunity to examine and connect their existing knowledge, experiences, and perspectives to the learning material. Table 2 provides a brief overview of how to implement various pedagogical activities, along with estimated level of complexity and duration.

Case Studies

Applied to professionalism and research, case-based learning consists of using factual or fictional scenarios to illustrate examples of complex and ambiguous ethical and professional situations researchers may face (Bagdasarov et al. 2013; Johnson et al. 2012; Kolodner 1992). Case-based learning helps trainees link course concepts to realistic, real-world scenarios by immersing themselves in these scenarios and exploring how to apply professional decision-making strategies (Miller and Tanner 2015). The positive effects of case-based learning are magnified when trainees work together in small groups to collectively seek out important information, ask relevant questions, and find solutions to the problem (Allen and Tanner 2002a). This enables greater breadth and depth of understanding of decision-making strategies that can be used to address issues related to the case. Trainees can also use what they learned during this practice when applying these decision-making skills to a situation in the future that is similar. That is, trainees can draw upon their case-based knowledge to make sense of future professional and ethical situations and navigate these situations when they arise (Kolodner et al. 2004).

Individual Reflection

Because of the personal and interpersonal nature of ethical and professional problems, reflecting on personal experiences and processing cases individually reinforces the knowledge base that influences ethical and professional decision-making (Antes et al. 2012). Moreover, when professionals are confronted with ethical dilemmas, they are likely to draw upon personal experiences to make sense of the dilemma and generate solutions (Mumford et al. 2000; Scott et al. 2005; Thiel et al. 2012). Drawing on past experiences allows professionals to consider important aspects of these past experiences such as causes and

outcomes, which are essential for effective professional decision-making (Stenmark et al. 2010).

Think-Pair-Share

Think-pair-share activities consist of having students initially think about a solution to a problem individually, then pairing with a neighboring student to exchange ideas, and finally reporting out to the larger group key points from their discussion (Allen and Tanner 2002b). Discussion between peers enhances understanding of complex subject matter even when both trainees are uncertain initially (Smith et al. 2009). This may be due to the cognitive reasoning and communication skills needed to relay and justify perspectives about complex subject matter to others. Conversely, similar evaluative skills are needed to appraise the viewpoints of the other and determine if their explanation and rationale make sense in context.

Role Plays

Role plays are training activities where trainees take on the role of someone in a hypothetical scenario and model what it is like to have the perspective of that character (Thiagarajan 1996). For example, trainees in a role play can model social interactions between characters faced with an ethical or professional dilemma regarding authorship, human subjects protections, mentor-trainee relationships, or data management (DuBois 2013). Role plays enable trainees to learn how to identify, analyze, and resolve these dilemmas because they provide trainees with the opportunity to practice navigating these situations (Chan 2012; DuBois 2013). This technique is particularly effective in trainings that involve exploration and acquisition of complex social skills, such as professional decision-making (Noe 2013). Role play activities have been shown to be effective in ethics instruction (Mumford et al. 2008). They can involve a select few volunteers who perform for the class while the remainder of trainees observe, or involve all trainees divided into small groups of two or three where all trainees take part in the role play activity. Role play activities have been shown to promote a deep understanding of the complexities involved with ethical and professional dilemmas (Brummel et al. 2010).

In order to be effective, however, certain activities must take place before, during, and after the role play (Noe 2013; Thiagarajan 1996). Specifically, before the role play, trainees should be provided with background information that gives context for the role play and a script with adequate detail for trainees to understand their role. During the role play, actors and observers should be able to hear and see one another, and trainees should be provided with a handout detailing the key issues of the role play scenario. After the role play has commenced, both actors and observers should debrief on their experience, how the role play relates to the concepts being taught in training, and key takeaways. Trainees should also be provided with feedback in order to reinforce what was learned during the role play experience (Jackson and Back 2011).

Provide Practice Opportunities

Trainees will need multiple opportunities to practice applying the professional decision-making skills they are learning. Practice opportunities can take the form of the various

pedagogical tools, as discussed above, including case studies, individual reflection, and role-play activities. These tools promote active learning and create a safe mechanism for trainees to experiment with SMART strategy application (Bell and Kozlowski 2008). Instructors should also have trainees periodically recall the SMART strategies throughout training. This active recall will increase the likelihood of strategy use beyond practice during training.

Give Feedback

Immediately after each practice activity, instructors should provide feedback to trainees by noting what was done well and where there are opportunities for change or improvement. Feedback should be specific and frequent in order to convey to trainees what resulted in poor professional decision-making performance and good professional decision-making performance (Gagné and Medsker 1996). Carefully guiding feedback-oriented discussions can further enhance learning, retention, and application of SMART strategies.

Conclusion

Professionals across various fields, especially in research contexts, encounter complex situations involving multiple stakeholders that necessitate professional decision-making skills. Fortunately, these skills are trainable, and the SMART strategies decision tool helps facilitate professional decision-making skill retention and application. In the present effort, we approach professional decision-making using a compensatory strategy framework and showcase how each of the SMART strategies could be applied to a scenario involving a professional dilemma. We also discuss how to maximize the effects of a SMART strategy-oriented training program and highlight pedagogical tools to guide SMART strategy education.

This paper provides a guide for educators and institutions with the goal of integrating training on professional decision-making skills into their curriculum. We provide educators with a robust understanding of the steps involved in mitigating negative effects of self-serving biases and making sense of complex professional dilemmas. Additionally, we discuss the individual-level and environmental-level constraints that influence the way problems are framed and approached, and the strategies that individuals can use to counteract the negative effects of these constraints on decision-making. Educators can take this understanding, along with the knowledge of effective training and pedagogical practices, to create training content that prepares its trainees to effectively navigate multifaceted professional issues they may face in their careers.

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Table 1

SMART strategies

Strategy	Dimensions	Reflection Questions
Seek Help	<ul style="list-style-type: none"> Seeking information Requesting mediation Welcoming correction and alternative viewpoints 	<ul style="list-style-type: none"> Where should I seek additional information or an objective opinion? Would it help to involve a mediator or third party? Do I welcome correction or input from others?
Manage your Emotions	<ul style="list-style-type: none"> Identifying emotions Managing emotions Both positive (excitement) and negative (depression, anxiety, anger) emotions 	<ul style="list-style-type: none"> What are my emotional reactions to this situation? How are my emotions influencing my decision-making? Would taking a “time out” help?
Anticipate Consequences	<ul style="list-style-type: none"> Consequences to others and to self Long-term and short-term consequences Positive and negative consequences Risk management 	<ul style="list-style-type: none"> What are the short- and long-term outcomes of various choices? How will this decision affect myself and others? How can risks be minimized and benefits be maximized?
Recognize Rules and Context	<ul style="list-style-type: none"> Recognize rules—formal (e.g., laws & policies) and informal (prevailing social norms) Recognize the power dynamics (e.g., social hierarchies, decision-makers) 	<ul style="list-style-type: none"> What are the causes of this situation? What ethical principles, laws, or regulations apply in this situation? What factors place limitations on my choices?
Test your Assumptions and Motives	<ul style="list-style-type: none"> Test your assumptions and unspoken rules Examine your motives Empathically compare your assumptions and motives to those of others 	<ul style="list-style-type: none"> Am I making faulty or hasty assumptions about the causes of the situation or other’s intentions? What are my motives? How will others view my choices?

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Table 2

Pedagogical activities

Activity	Activity implementation	Complexity level	Duration
Case Studies	<ul style="list-style-type: none"> • Present trainees with scenarios to illustrate examples of professional dilemmas • Include discussion questions to promote reflection on key issues in the case • Discuss answers to questions posed as a group; provide clarity on points of confusion 	Moderate complexity	Moderate to long (5 to 30 min)
Individual Reflection	<ul style="list-style-type: none"> • Present trainees with a prompt or question that encourages connection of key takeaways to their professional and personal experiences • Ask trainees to write down their responses • Group discussions about these reflections are not necessary 	Low complexity	Short (1 to 5 min)
Think-pair-share	<ul style="list-style-type: none"> • Use in tandem with other pedagogical activities • First, have trainees engage in individual reflection; second, have trainees share their responses with one individual sitting next to them; third, have trainees report to the larger group what was discussed in their pair • Can opt for think-pair only approach if class is too large for group sharing 	Moderate complexity	Moderate (5 to 10 min)
Role Plays	<ul style="list-style-type: none"> • Present trainees with a scenario that illustrates an ethical or professional dilemma • Assign trainees to take the role of a character in that scenario • Have trainees model the social interactions of the characters in the scenario using a script • Debrief with the entire group on key points • Provide feedback to trainees as needed 	High complexity	Moderate to long (5 to 30 min)