TRANSFORMING THE ETHICAL BEHAVIOR OF CLINICIANS THROUGH PEDAGOGICAL INNOVATION: SENSEMAKING AS A MEANS TO PROMOTE ETHICAL PRACTICE IN THE FACE OF MORAL AMBIGUITY

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Lea Brandt, OTD, MA

Dr. Lori Popejoy, Dissertation Supervisor

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled:

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Presented by Lea C. Brandt, a candidate for the degree of doctor of philosophy, and hereby certify that, in their opinion, it is worthy of acceptance.

Dr. Lori Popejoy
Dr. David Fleming
Dr. Laurel Despins
Dr. Bonne Wakefield

DEDICATION

This dissertation is dedicated to my daughter, Cheyney Elizabeth Brandt. Seeing the world through her eyes provides insight into why we learn and undergirds the ethical obligation to improve educational systems for future generations. Her presence and curiosity push me to identify pedagogical approaches, which promote self-discovery by the learner. She instills in me the motivation to continue working towards my personal mission of differentiating between knowledge and understanding.

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Transforming the Ethical Behavior of Clinicians through Pedagogical Innovation: Sensemaking as a Means to Promote Ethical Practice in the Face of Moral Ambiguity

Lea C. Brandt, OTD, MA, OTR/L

Dr. Lori Popejoy, Dissertation Advisor

Abstract

Even though there is evidence to suggest that teaching normative ethical theory has limited influence on the ethical behavior of clinicians, typical pedagogy in clinical ethics continues to focus on adherence to professional duties and the principles of biomedical ethics. A sensemaking approach to ethics training has demonstrated promise as an evidence-based pedagogical method to improve ethical reasoning and response. It has been posited that participation in Project ECHO (Extension for Community Health Outcomes) leads to improved sensemaking by clinicians. This study examined the effect of type of ethics training on ethical response self-efficacy scores. Using a series of univariate analyses of variance, the study found that participants of a Health Care Ethics ECHO, who were trained in sensemaking strategies, scored higher than both clinicians who received traditional training in clinical ethics, and clinicians who participated in a traditional Health Care Ethics ECHO, which incorporated normative theory, but not sensemaking (N=172). Clinicians, who participated in the Health Care Ethics ECHO with sensemaking, perceived their ability to recognize and effectively address ethical conflict in practice as significantly higher than those who participated in a traditional Ethics ECHO that did not include sensemaking strategies ($p=0.035$, mean difference = 0.888, 95% CI= (0.05, 1.172)). The study produced preliminary evidence to support the claim that incorporating sensemaking into clinical ethics training increases the clinician's ability to respond ethically in practice.

CHAPTER ONE

GENERAL INTRODUCTION

Clinical ethics discourse and related educational models have been dominated by normative, rule-based approaches to ethical decision-making. Even though there is acknowledgment of the complex skills required to navigate ethical conflicts in practice settings, much of the clinical ethics pedagogy focuses on biomedical principles and other normative theory-based teaching strategies, which do not necessarily inform or shape future practice decisions (Crutchfield, Johnson, Brandt, & Fleming, 2016). Normative ethics generally focuses on the day-to-day deliberations about the right action and is represented by two major categories, teleological theories and deontological theories (Shafer-Landau, 2018). One of the drawbacks to using normative theories in teaching clinicians how to respond ethically to their patients, is that the focus is on theoretical response and not the development of the behavioral skills needed to execute ethically supported actions. Optimal ethics education for health care professionals includes not only understanding of moral theory, but also skills focused on implementing moral choices (Duckett et al., 1992; Rest & Narváez, 1994). Thus, it is important to explore pedagogical approaches that can optimize ethical response of learners once they are in practice. A sensemaking approach to ethics training has shown promise as an evidence-based pedagogical method to improve ethical reasoning and response. Specifically, Karl Weick's application of sensemaking theory to organizational behavior, elucidates how the culture of health care influences clinician response in cases of moral ambiguity.

Over the course of the last decade technological influence has dramatically impacted patients' expectations about their role in healthcare decisions. In many instances, access to more information via the internet and other social media sources has made information more available

and has shifted the power differential typical of decision-making in medical practice. In the past physicians often dominated decision-making based on his or her view of the patient's best interest. This paternalistic decision-making model is no longer touted as the best means of caring for patients, and with this paradigm shift respect for autonomy and the patient's right to decide has dominated bioethical discourse. While in many ways this has been a positive shift which has addressed the ever-encroaching role of paternalism in practice, the problems of yesterday have been replaced by new barriers in providing the best care possible for empowered, but sometimes ill-informed patients. One of the benefits of paternalism is that power is deferred to the physician who arguably has the most clinical knowledge, which is needed to make difficult treatment decisions. However, with the rise in autonomy coupled with increased access to information, decision making power has shifted to the patient and/or patient representative. Media influence and the digital information accessed may not be reliable and patients are influenced by information sources that are often not grounded in reason or scientific evidence. From the perspective of the medical team, this approach to decision making can be dangerous, making it very difficult to promote evidence-based care, reflective of what is clinically indicated.

Clinicians often accept that patients have the right to make bad decisions even if this results in the patient's ultimate demise. From a four-principles approach this response seems to be ethically permissible. While some may argue that it does not fulfill ethical obligations related to beneficence, if a procedure is not medically futile one can reasonably argue that freedom to choose a course of treatment not recommended by the medical team is still consistent with ethical action. According to the principles of biomedical ethics, respecting a patient's autonomous choice above the team's medical recommendation, can be ethically supported in the event that the patient has decision-making capacity (Beauchamp & Childress, 2016). This

response and the subsequent suboptimal patient outcomes associated with a diminished patient-provider relationship, demonstrates increased barriers to acts of fidelity.

Fidelity, which requires physicians to uphold promises and obligations related to caring for the patient, undergirds the physician-patient relationship and has long been referenced as the cornerstone of ethical practice (Pellegrino, 2012). This may be why there has been a reemergence of two major theories that contrast deontological and teleological approaches; virtue ethics, which focuses on human character, and ethics of care, which emphasizes intimacy, caring, and relationship building (Corcoran, Brandt, Fleming, & Gu, 2016; Crutchfield, Johnson, Brandt, & Fleming, 2016). In an algorithmic, hard data culture, the value of virtue and care theories is limited. However, through the lens of sensemaking, the ability of a theory to incorporate knowledge generated by subjective and objective data results in more contextually relevant information needed to make complex clinical decisions (Madsbjerg, 2017).

Ethical provision of health care services requires not only content knowledge, but also analytical skills honed in practice settings secondary to the complex dynamics of working in clinical environments. Clinical decision-making is routinely grounded in ethical theory, however the ethical underpinnings of the practitioner's approach to determining the best course of action are not always overt, especially not to the practitioner herself. Clinical decision-making by experienced practitioners is often mediated by phronesis, which means the knowledge gained from experience or practical wisdom. For example in nursing practice, especially in areas of practice where treatments are limited, experienced nurses use phronesis to incorporate ethical constructs such as caring, respecting patient wishes, managing relationships and resource stewardship into the clinical care process (Farrington, Fader, Richardson, & Sartain, 2015).

In bioethics, phronesis is seen as the virtue of practical wisdom and harkens back to the days of Aristotle and the historical context of virtue ethics. Aristotle wrote about the importance of understanding ethical virtues in their emerging context; virtues were not seen as static rules, but rather complex social skills that require practice to master (Aristotle, Ross, & Brown, 2009). This approach more fully captures the antecedents as well as behaviors required of ethical practice, than the more widely used but less nuanced deontological approaches (Corcoran et al., 2016). In comparison to Aristotle's treatise, which are complex and contextual requiring an understanding of how a moral agent may act or may not act on cognitive understanding, current normative theories are not as adaptable to ethical ambiguity. The current research in ethical decision making has a common theme, the need for clinical decisions to fit the ethical norms, or at a minimum for clinicians to be able to reconcile situations where the patient's choices are incongruent with medical recommendations. Using sensemaking as the framework in which to foster ethical response allows for phronesis to mediate clinical decision-making. Sensemaking embraces the power of practical wisdom generated by context and multiple sources of knowledge (Madsbjerg, 2017). Thus, sensemaking allows for incorporation of cognitive antecedents developed through understanding of normative theory, while recognizing that acting ethically based on the current situation requires clinicians to seek out additional information related to context, feelings, opinions, moods and a shared sensitivity to the existential crisis faced by patients and families. In the frontlines of practice sensemaking supports clinicians in making moral sense when working with patients and families whose own frameworks of meaning and beliefs about fairness are being challenged (Browning, 2012).

Background

Over the course of the last twenty years of practice as both an occupational therapist and clinical ethicist, I have been called to the bedside to assist health care teams and families in resolving difficult value-laden conflict. In clinical ethics, there is often talk about navigating the difficult or complex environments in which health care decisions are made. Ethical conflict typically presents when a clinical decision is precipitated by an unexpected event. Providers deem these moments "difficult", and in order to reconcile the discomfort of moral ambiguity the focus is placed on the clinical decision to be made. However, clinical decision-making models are ill-equipped to deal with these complex situations, because they are primarily reliant on objective data formed from algorithmic norms, not the cases that fall outside of the normal distribution. In contrast, sensemaking models are strategically positioned to manage situations that do not adhere to the norm; they manage the unexpected (Weick & Sutcliffe, 2015).

Clinical decision-making grounded in the medical model is linear, often algorithmic, and based on objective data collection. While the medical model has been criticized for many years for its reductionist tendencies, the underlying assumptions often continue to drive clinical decisions. The assumptions that a) accurate knowledge can be exclusively achieved through an objective assessment of information; b) causation is determined by linear mechanistic linkages; and c) the positivist belief that knowledge exclusively accumulates through collection of data through experimental design, limit the provider's ability to effectively care for patients who live within erratic and unpredictable contexts (Dacher, 1995). This is especially problematic in today's day and age where easily accessed information is framed as factual, but is actually contradictory and ambiguous.

Even though the medical model continues to thrive in current practice environments, health care professions have acknowledged the need to incorporate patient values into clinical decision making. Evidence-based medicine (EBM) has become the new gold standard for clinical practice. EBM requires use of the scientific method to organize and apply data to health-care decisions. However, while best practice may explicate the need to individualize treatment to align with patient values, patient values are not a data point included in the stratified levels of evidence that range from data generated by randomized trials to expert clinical opinions (Tenny & Gossman, 2017). In short, while clinicians are tasked with making contextually appropriate decisions which incorporate patient values, said values or experiences are not categorically considered evidence as determined by the EBM model and thus carry less weight in the decision-making process.

It is due to these limitations in the perception and application of EBM that the nursing profession has embraced evidence-informed practice which promotes use of best evidence, but also allows providers to include other factors that influence clinical decision-making (Florczak, 2017). Patient-centered care, which promotes the incorporation of patient values into practice, is framed as a divergent and preferred approach to both EBM and evidence-informed practice (Florczak, 2017). This misconception feeds into the problematic approach of valuing autonomy and patient wishes over clinical evidence. Framing adherence to patient wishes as dichotomous to evidence based decision-making is just as dangerous as a reductionist approach favoring paternalism.

From a bioethical perspective, the flaws in applying the medical model to ethically complex clinical decisions go beyond concerns related to reductionism. The knowledge needed to guide ethical practice must not only be gathered from objective, scientifically verified data, it

must equally consider the voice of the patient. Taking this a step further, ethically supported courses of action often require clinicians to explore patient values and historical statements in the context in which they were made. For example, a patient may have stated "I never want to be on a ventilator", but unless the clinician questions why the patient made such a statement the context and values that undergird the statement cannot be realized. Existentially the patient may fear the process of dying hooked up to machines and yet, there are many clinical situations in which temporary ventilatory support would not result in this trajectory. Thus, understanding why patients request or decline treatments in the context of the clinical presentation is key to responding in an ethical manner. Pitting autonomy against rationale clinical decisions creates a false and destructive dichotomy.

Clinical ethics has attempted to reconcile problems associated with this false dichotomy by introducing concepts of shared-decision making. In the 20th century medical-decision making transitioned from a paternalistic model to one guided by the patient's autonomous choices; more recently the introduction of shared-decision making attempts to meet in the middle pairing the need to incorporate both values and evidence in decision making processes (Kon, 2010). However, shared-decision making models fall short in their ability to explicate how to engage in the process in order to respond to contextually complex ethics cases. Specifically, in teaching the concept of shared-decision making, clinicians are often trained in substandard approaches that honor patient values over medical effectiveness in making a clinical decision. Typically, there are also few tools provided in navigating conversations that unmask the why. This acknowledgment regarding the limitations of applying measurable data to decision-making in a contextually complex environment allows for exploration of new approaches in determining how

to ethically respond to situations where cognitive bias and social complexities result in ambiguous moral obligations.

Transitioning from a decision-making model to a sensemaking model may help to bridge the gap between objective measurements and human systems, especially in dealing with the unexpected. Sensemaking is about understanding more than just objective knowledge typical of the natural sciences, it creates insight by immersion into the contextual space between the rules (Madsbjerg, 2017). Thus, it would stand that when rule-based theories, such as principlism and consequentialism fall short of elucidating the ethically supported course of action, sensemaking provides a postmodern approach which more fluidly navigates relative and pluralistic situations typical of complex ethical dilemmas in practice. Ethical sensemaking, grounded in information gathering, integration of divergent views, and focus on understanding the crisis is a valuable and viable model for optimizing ethical response (Johnson et al., 2014).

In contrast to ethical decision-making models grounded in normative theories that do not account for complex clinical contexts, sensemaking models that focus on understanding the conflict as opposed to resolving the conflict may be better suited in addressing value-laden cases. Sensemaking can be useful as it acknowledges that people are not always rational or predictable (Madsbjerg, 2017). Pedagogical approaches steeped in normative ethics may help students to develop cognitive antecedents needed for understanding ethical obligations to patients, but these approaches do not help them develop behavioral skills necessary to navigate the ethical nuances of clinical practice. This is consistent with research completed in behavioral ethics which suggests that normative theories lack utility in helping understand how to solve ethical dilemmas, and are also insufficient if we are interested in improving the ethical actions of professionals (Bazerman & Gino, 2012). Incorporating sensemaking models into clinical ethics education, can

help to foster the behavioral skills such as collaboration, thoughtful discourse, and relinquishing authority necessary in promoting ethical decisions (Browning, 2012). Clinical ethics education is not limited to classroom settings, and due to ethical complexities in practice is often integrated into professional training and continuing education opportunities.

Project ECHO

Project ECHO (Extension for Community Healthcare Outcomes) uses videoconferencing technology to connect interprofessional primary care teams simultaneously to engage in case-based learning and discussion. During review of a case in a Health Care Ethics ECHO a situation presented, which elucidates the differences in applying normative ethical theory versus sensemaking to an ethically complex situation.

During the didactic component of the ECHO, the presenter focused on limitations of viewing ethical obligations to patients through the lens of respect for autonomy versus beneficence. The presenter spoke about fidelity, which is often overshadowed by the four principles of beneficence, non-maleficence, autonomy and justice. Fidelity focuses on promise-keeping and the role of trust which grounds the relationship between provider, patient and often the patient's family. The didactic provided participants the opportunity to learn about a principle with which they may not have been familiar, how a principle might guide their ability to recognize the ethical obligation to uphold a promise, and how lack of trust may undermine shared-decision making. However, the explanation of fidelity during the didactic did not teach them the behavioral skills needed to maintain and cultivate a trust relationship in this or related situations. In clinical ethics, sensemaking helps clinicians understand how to collaborate with stakeholders to determine "what is being asked" through non-hierarchical conversations

(Browning, 2012). It was not until the ECHO participants started to explore the clinical case that the applied characteristics of sensemaking were realized.

In this particular case, the group was discussing a 39-year old man, who was 8 years post head injury due to motorcycle accident resulting in a persistent vegetative state. The patient was receiving artificial nutrition and hydration per PEG tube. Prior to his accident he completed a written health care directive assigning his brother and children as durable powers of attorney (DPOA). In a lengthy handwritten addendum to the standard living will form, the patient had stated that he should be "kept alive as long as possible, even if brain dead" so that his children would have a ready source of transplantable organs if needed.

At the time of the ethics consultation he was febrile and needing his feeding tube replaced. The brother, the appointed DPOA and legal guardian as well as the patient's children were requesting a DNAR order and no further aggressive treatment other than replacing his feeding tube. At the time of the ECHO, none of the children were in a clinical situation that would result in benefit from the patient's organs. They did not think the patient ever imagined living in his current state indefinitely and believed he would not want that for himself under present conditions and did not want the patient maintained in a vegetative state on their behalf.

One of the reasons this case so vividly represents the need for sensemaking in clinical ethics is the seemingly nonsensical request of the patient, that was paradoxically intentional, valid and meaningful to the patient in the temporal context in which the directive was drafted. However, now over a decade after its creation, upholding the objective request of the patient as outlined in the document could result and had resulted in ethically problematic clinical decisions. Advance directives, which were developed with the best intentions, often create an ethical conundrum when applied to clinical decision making. The intent of the directive is to provide

insight into patients' wishes when they can no longer speak, but in most situations, it is not possible to predict future clinical circumstances.

Whether the ethics consultants knew it or not, they utilized a sensemaking approach to determine the ethically supported course of action in this case. They acknowledged they did not have the answers, and through conversations with the family they learned the patient had developed the directive as an assignment in a health professions class when he was a much younger man. The clinical ethics instructors in the group, offered a theory that his teacher touched on the ethics of organ donation, the importance of advance directives to capture one's autonomous choices, and as a dutiful student he developed a directive independent of a clinical event or medical advice. This assignment resulted in a document devoid of contextually relevant information, that was also not shared with family during its development. Sadly, prior to involvement of the ethics consultation service the medical team felt obligated to uphold the written directive. Decisions to continue aggressive interventions were grounded in respecting the patient's autonomous choice, but these decisions were devoid of context.

The evidence from an objective standpoint seemed clear. The data available was indisputable, there was a document that clearly stated the patient's wish to be "kept alive as long as possible, even if brain dead". The team however did not engage in conversations to flesh out the ambiguity in this statement or to understand the context in which the statement was made in order to better apply the patient's values to clinical decision making. A reductionist, linear approach to decision making limited its ethicality. The medical intervention is not medically futile (in this case the patient was not brain dead), and there is a directive stating the patient's wishes. The principles of beneficence and autonomy were not in conflict, so the ethically supported course of action went unchallenged, except by the family, who voiced grave concerns

regarding this decision. The family's views, their subjective opinions and feelings, did not fit into the clinical decision-making model.

The ECHO conversation ultimately resulted in consensus to limit aggressive treatment for this patient. The conversation was grounded in sensemaking. The sensemaking approach allows for multiple pieces of information and types of knowledge to be applied to a case enabling ethical problem solving through identification of central features influencing the decision making process (Bagdasarov et al., 2013).

Normative ethical theories and the scientific model primarily rely on objective, observable data to determine ethically supported courses of action. In contrast, to optimize outcomes sensemaking promotes use of four types of knowledge, objective, subjective, shared, and sensory (Madsbjerg, 2017). In unexpected circumstances, which have already demonstrated deviation from a linear, predictable path, sensemaking emerges as a viable and effective model in resolving intractable ethical conflicts.

One of the reasons why Project ECHO has been so effective in multiple clinical contexts has to do with continuity in how the process is structured. Use of self-efficacy scales is a common way in which the benefits of ECHO is measured. ECHO has also been shown to improve self-efficacy scores of participants and thus, linked to improved changes in clinician behavior in practice (De Witt Jansen et al., 2018). In order to ensure a high functioning ECHO, replicating foundational characteristics related to format are required. First the use of distance mediated technology allows ECHO to offer an alternative to traditional clinical education and reaches providers where they practice (Arora et al., 2016; Colleran et al., 2012; Fisher et al., 2017; Komaromy, Bartlett, Manis, & Arora, 2017; Mazurek, Brown, Curran, & Sohl, 2017; Wood et al., 2016). The use of videoconferencing technology to connect primary care teams to

engage in simultaneous discussion highlights its ability to transcend geographic space and bring together stakeholders from multiple contexts. The interprofessional approach lays a foundation for non-hierarchical discourse that values the views and input of all participants regardless of discipline or practice setting (Illingworth & Chelvanayagam, 2017). Perhaps most paramount to ECHO when applied to clinical ethics, is the use of real cases to ground discussion.

Cases have been employed as pedagogical tools across multiple clinical disciplines. A case-based approach is viewed as an effective way to teach clinical ethics and valued above a traditional lecture format for teaching learners how to make decisions in high-risk, ill-defined scenarios (Bagdasarov et al., 2013). Where didactic, lecture-based formats are limited to teaching cognitive antecedents needed to abstractly understand normative theories which undergird concepts of right and wrong, cases require learners to think about how to respond to patients. However, there has been little exploration regarding the learning outcomes associated with case-based ethics instruction (Peacock et al., 2013).

While cases, used to teach clinical reasoning have the ability to produce intended learning outcomes related to diagnostic and treatment acumen, ethical actions in practice are more readily influenced by context (Bagdasarov et al., 2013; Bazerman & Tenbrunsel, 2011; Powell, Bloomfield, Burgess, Wilt, & Partin, 2013; Tschirhart, Du, & Kelley, 2014). Specifically, the use of case-based pedagogical approaches in health professions education have not consistently been linked to ethical behaviors of clinicians. This may go back to ethics instructors' tendency to frame cases in the context of normative response. It may also have to do with the ill-defined term case-based. While some instructors take care to use real-life cases that can be framed in context, others use static case-studies formulated for use as a normative teaching approach. Another limitation is that in education case studies are clearly framed as ethical dilemmas. Thus, students

are “solving” for an ethical problem. In real life contexts, clinicians do not typically see their day to day relationship with patients as ethical so much as clinical. The clinical relationship requires the provider to respond in a competent manner, and while this is not incongruent with ethical response it asks the clinician to respond to a different question. Ethics becomes a secondary driver to decision making. In highly complex situations where clinical procedures are possible, but not always ethically indicated, clinicians often ask the question of can I provide this treatment, not should I provide this treatment. Traditional understanding of ethical decision making in practice lacks awareness of the unintentional yet predictable cognitive patterns that result in unethical behavior (Bazerman, Tenbrunsel, & McQueen, 2014).

Unethical behavior can result from making clinical decisions out of context. While normative theory is the predominant approach to teaching clinical ethics, there are more promising teaching-learning methods which may be effective in cultivating the skills necessary to ethically respond to patients (Bernabeo, Reddy, Ginsburg, & Holmboe, 2014; Bertolami, 2004; Gallagher & Little, 2016; Ginsburg, Bernabeo, & Holmboe, 2014; Henning et al., 2016; Manninen, 2016; Skye, Wagenschutz, Steiger, & Kumagai, 2014; Stratta, Riding, & Baker, 2016; Zeni, Buckley, Mumford, & Griffith, 2016). Instead of looking at ethical principles, ethical behaviors such as altruistic and empathetic response may have greater impact on ethical actions. There is a need to examine whether focused instructional methods can cultivate empathy with the intent of improving providers’ ability to care for future patients (Chen, Lew, Hershman, & Orlander, 2007; Hojat et al., 2004).

The case-based approach in ECHO is founded on the premise of discussing real and even current cases grounded in context. According to sensemaking, context includes subjective information often viewed as emotions or feelings and also shared knowledge defined as

sensitivity to social structures and moods (Madsbjerg, 2017). For the purpose of a Health Care Ethics ECHO it is of utmost importance to ensure that cases used as pedagogical tools are robust, dynamic and most importantly reflective of the patient experience and story. Sensemaking offers a framework for how to organize and construct understanding, stories provide context (Weick, 2012). Understanding and application of the sensemaking framework in ECHO and other case-based approaches to teaching clinical ethics shows opportunity in helping learners to account for and incorporate contextual elements when working to respond ethically to their patients.

Conclusion

With the ever-increasing complexity of the health care environment, marked by external pressures that serve as barriers to ethical practice decisions, there is an increased need to improve the tools clinicians have to navigate these pressures and optimize ethical response. Understanding how clinicians appropriate and enact their realities in these complex situations gives insight into how decisions are made and implemented in practice, both those that are ethically supported and ethically problematic. Thus, it is not enough to teach clinical ethics through development of the cognitive antecedents that assist in determining the ethically supported course of action, pedagogical approaches must include attention to behavioral skills that work to resolve ambiguity and overcome situational barriers impeding ethical action.

This dissertation project attempts to elucidate the limitations of current ethics training and identify innovative pedagogical approaches that aim to close the gap between ethical intent and ethical response in practice. As such Chapter 2 examines the use of sensemaking as a pedagogical approach to teach ethics, highlighting improved behavioral learning outcomes. Chapter 3 describes how Project ECHO (Extension for Community Health Outcomes) provides clinicians access to an innovative learning community that promotes sensemaking and behavior

change, which improves patient care. Chapter 4 outlines the proposal that guided implementation of a Health Care Ethics ECHO designed to assess the effectiveness of this medium on promoting sensemaking and ethical response by clinicians. Chapter 5 includes the preliminary manuscript reporting the results and findings from this study. Finally, Chapter 6 synthesizes the entire scholarly work of this dissertation outlining the significance to ethics training and implications for improving ethical response by clinicians in practice.

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CHAPTER TWO

USE OF SENSEMAKING AS A PEDAGOGICAL APPROACH TO TEACH CLINICAL ETHICS: AN INTEGRATIVE REVIEW

Brandt, L., & Popejoy, L. (2020). Use of sensemaking as a pedagogical approach to teach clinical ethics: An integrative review. *International Journal of Ethics Education*. doi:10.1007/s40889-020-00089-w

Lead author, Lea Brandt, contributed 70% effort and co-author, Lori Popejoy contributed 30% effort.

Abstract

There is a need to explore educational strategies that translate ethics knowledge into ethical behavior. Commonly used pedagogical approaches steeped in traditional normative ethical theory are less powerful than sensemaking in preparing clinicians to respond to ethical problems in practice. This integrative review of 15 articles explores the use of sensemaking as an instructional method for clinical ethics. Whittemore and Knafl's (2005) integrative review method guided a systematic appraisal of data from both qualitative and quantitative research traditions, synthesizing disparate studies in analyzing literature about the use of sensemaking as a pedagogical approach in teaching ethics. Findings supported the use of Weick's sensemaking theory to develop instructional methods that encourage ethical decision making in students as well as promote ethical response by health care providers. The review reveals important theoretical and training implications for introducing sensemaking as a means to promote ethical action in clinical practice.

Key Words: Sensemaking, Pedagogy, Normative Ethics, Clinical Ethics, Ethical Decision Making, Ethics Education

INTRODUCTION

Ethical provision of health care services requires not only content knowledge, but also skills aimed at navigating complex practice settings in order to ethically respond to conflict. However, traditional clinical ethics pedagogy typically focuses on conveying principle-based ethics and other normative ethics theories, and fails to incorporate understanding of the clinical context in which decisions are made. Thus, the traditional pedagogical approaches often fall short in shaping ethical responses to conflicts encountered in clinical practice (Crutchfield, Johnson, Brandt, & Fleming, 2016). Health professions programs often rely on clinical rotations, fieldwork, or residencies to teach ethical content, anticipating that when students are embedded in the clinical environment they will have an opportunity to address ethical dilemmas and develop resolution skills. Yet, substantial research suggests that new clinicians are still not prepared to navigate ethical conflicts encountered in practice (Olson, 2009; Park et al., 2003; Pellico, Brewer, & Kovner, 2009; Wilson, 2014). Because of these noted barriers, it is important to explore other pedagogical strategies in teaching clinical ethics that produce professional behaviors reflective of ethical practice.

Work done in cognitive behavioral ethics indicates that when ethics is taught in abstract terms focused on how a person thinks they will act, the person typically overestimates his/her likelihood of making an ethical choice (Milkman, Rogers, & Bazerman, 2008). Thus, while use of normative ethics theory to teach clinical ethics is linked to the learner's ability to identify an ethically supported course of action, this approach does not necessarily translate into ethical practice that requires action. Focusing on teaching students how to support an action through theoretical reasoning, does not directly teach learners how to execute an ethical action. This is especially true in cases depictive of actual clinical practice, where there are often competing

external pressures that can make it difficult to respond ethically. Conversely, educational experiences that promote ethical action by illuminating real-life barriers seen in ethics cases may better prepare clinicians for unexpected complex events (James et al., 2012; Johnson et al., 2014). This is why there has been a recent shift from looking at how individuals rationally and deliberatively solve ethical problems to incorporating new sensemaking models that account for the affective, intuitive, and impulsive aspects of ethical decision-making (Ness & Connelly, 2017).

Sensemaking

'Sensemaking' is an organizational studies theory that provides an actionable process to address ambiguous events in complex situations (Brown, Colville, & Pye, 2015). Sensemaking has begun to emerge as an effective approach to resolving conflicts that occur as a result of unexpected, nonlinear, and unpredictable circumstances (Caughron et al., 2011; Weick & Sutcliffe, 2015). And since, many of the most difficult clinical ethics cases involve unexpected events resulting in morally ambiguous situations, the theory of sensemaking is uniquely positioned to assist clinicians in navigating ethical conflict.

In contrast to theories that require one to look at a situation prospectively to determine the right course of action, sensemaking acknowledges that people do not often know what the appropriate action is, until action is taken (Sandberg & Tsoukas, 2015; Weick, 1988). In clinical practice not knowing in advance how to ethically respond can result in a reluctance to act, which in turn further delays the provider's response to patients in need. In medicine delaying or not acting can lead to medical errors and result in poor patient outcomes. Sensemaking as a theory and process better prepares individuals to act. Instead of having to see the entire situation before taking any action, those who use sensemaking understand that each action reveals additional

information that lessens ambiguity in decision-making and informs an ongoing response (Brown et al., 2015; Weick, Sutcliffe, & Obstfeld, 2005). This acknowledgement that understanding is often gained retrospectively supports incorporation of sensemaking in teaching ethics for scientists and clinicians (Lanham et al., 2013; Mumford et al., 2008). In fact, sensemaking is increasingly being used by health care teams to promote shared understanding of clinical situations in order to take patient-centered action (Leykum & O'Leary, 2017). The demonstrated benefits of using this approach in both teaching ethics and promoting patient-centered practice, further support its use in teaching clinical ethics. Thus, by introducing students to sensemaking as part of their clinical ethics curriculum, instructors cultivate the ability to better engage in ethically supported future courses of action. This integrative literature review explores the extant literature on the use of sensemaking as a pedagogical approach to teach ethics, and outlines a strategy to close the gap between knowledge and behavior identified in traditional clinical ethics instruction.

METHODS

Whittemore and Knafl's (2005) integrative review method was selected to systematically appraise data from both qualitative and quantitative research. This approach to data review and collection allowed for disparate studies to be synthesized regarding sensemaking as a pedagogical approach to teach ethics. An integrative review is a useful framework to allow for diverse primary research methods to become a part of evidence-based practice initiatives (Whittemore & Knafl, 2005). Best practice is optimized when training mechanisms are supported by research and clearly translate to the clinical setting.

Search Strategy

The lead author in collaboration with a health sciences librarian conducted a literature search to identify articles about the use of sensemaking as a method for teaching ethics using the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, PsychInfo, and Scopus. Further descriptions of the search strategies used for each database are outlined in Table 1.

CINAHL	PUBMED	PSYCHINFO	SCOPUS
((sensemaking) OR ("sense making") OR ("making sense") OR ("making moral sense")) AND ((MH "Ethics+") OR (MH "Decision Making, Ethical") OR (MH "Ethics, Medical") OR (MH "Ethics, Nursing"))	((sensemaking[All Fields] OR "sense making"[All Fields]) OR "making sense"[All Fields]) AND ("Ethics"[Mesh] OR "ethics"[Subheading]) AND ("2013/12/12"[PDat] : "2018/12/10"[PDat] AND English[lang])	(sensemaking OR "sense making" OR "making sense" OR "making moral sense") AND (DE "Ethics" OR DE "Bioethics" OR DE "Professional Ethics" OR DE "Morality")	(TITLE-ABS-KEY (*sensemaking* OR *"sense making"* OR *"making sense"* OR *"making moral sense"*)) AND (TITLE-ABS-KEY (*ethic** OR *bioethic** OR *moral**)) AND (LIMIT-TO (LANGUAGE , *"English"*)) AND (LIMIT-TO (PUBYEAR , *2019*) OR LIMIT-TO (PUBYEAR , *2018*) OR LIMIT-TO (PUBYEAR , *2017*) OR LIMIT-TO (PUBYEAR , *2016*) OR LIMIT-TO (PUBYEAR , *2015*) OR LIMIT-TO (PUBYEAR , *2014*) OR LIMIT-TO (PUBYEAR , *2013)*)

Table 1. *Periodical database and terms used for search.*

Various terms were entered for sensemaking to ensure that all relevant articles were included in the initial search. The search returned 421 citations. Reference lists of included articles were checked, and no additional articles were selected for review.

Article Selection

The process for article selection began by using EndNote citation manager to remove duplicates. After duplicates were removed articles were uploaded to Covidence, a Cochrane technology platform designed for review production, and screened for inclusion and exclusion criteria. Inclusion criteria required that the articles were published in English and were research studies about ethics training or education that used either qualitative or quantitative methods and related to Weick's theory of sensemaking (Weick, 1988). Studies were excluded for wrong

indication (sensemaking was not clearly linked to instructional methods), wrong intervention (not related to Weick's theory), wrong setting (not clearly education/training) or was the wrong study design (not research, e.g. an opinion-based article). Two researchers screened the citation titles and abstracts for inclusion for full-text review; 19 articles were included for data extraction (Fig 1).

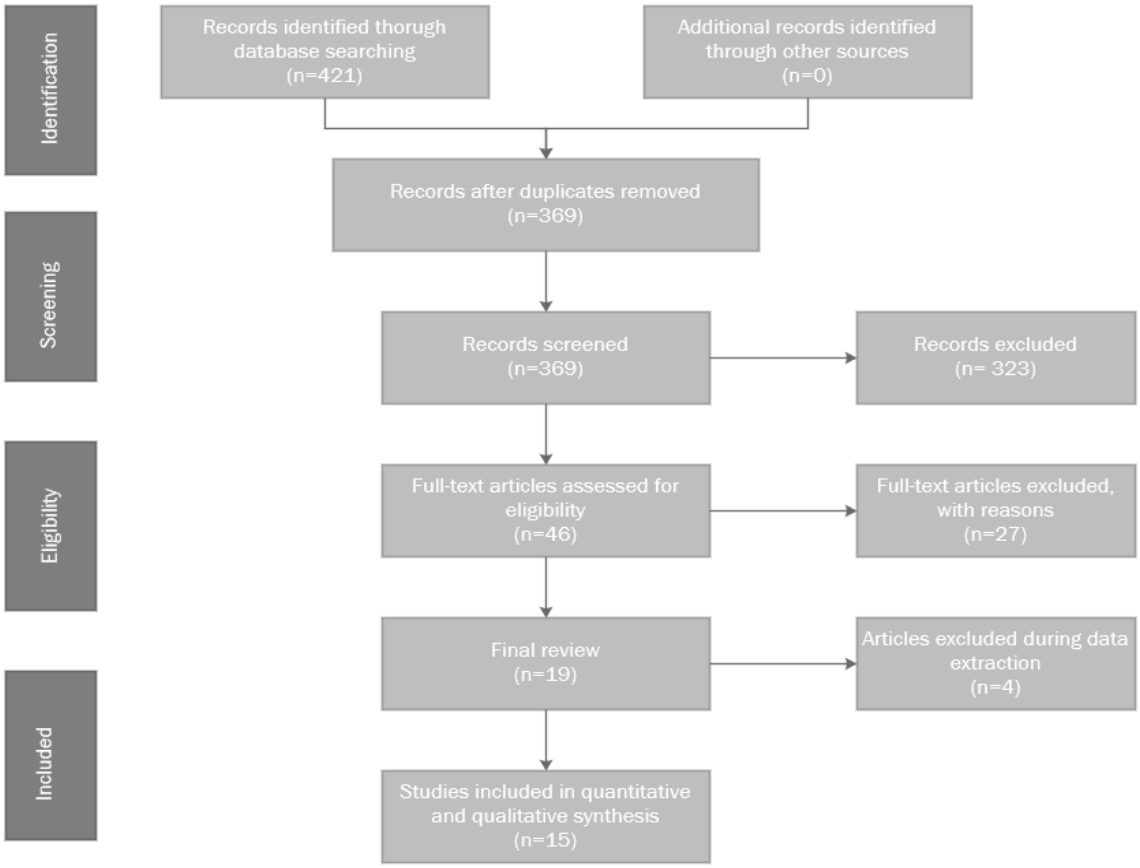

Fig 1 *Flowchart of selection process*

Data were abstracted according to the following categories: Study Aims/Hypothesis, Setting, Sample, Methodology, Instruments, Method of Data Collection, Outcomes, Key Findings, and Limitations. During the data extraction process, four studies were excluded after full text review. One study was excluded due to a focus on the learner characteristics. Two were excluded as the studies focused on learning techniques unrelated to course content. One was excluded due to a

focus on faculty roles versus learning outcomes. The initial analysis identified that the studies had all used elements of the *Sensemaking Model of Ethical Decision Making* (Mumford et al., 2008). Therefore, a second analysis was done to align themes with this model, organized by four categories: 1) situational considerations, 2) framing, 3) emotion, and 4) mental models.

RESULTS

The review identified 15 studies addressing how sensemaking is being used as a pedagogical framework for teaching ethics, and then identified the theme of each article that articulated with the elements of the sensemaking model developed by Mumford et. Al (2008). Table 2. describes the studies included in the review as well as the primary theme(s) explored by the authors.

Author	**Aim**	**Review Theme***	**Key Findings**	**Methods**
(Bagdasarov et al., 2013)	Explore influences of contextual and personal factors on EDM.	Situational Considerations	Inclusion of social context in cases facilitated use of sensemaking processes and greater EDM.	Quantitative 2x2 ANOVA
(Bagdasarov et al., 2016)	Test the relationship of mental models to EDM.	Mental Models	The complexity of respondents' mental models related to EDM, and this relationship was mediated by sensemaking processes.	Quantitative Cross-Sectional Multiple Regression
(Caughron et al., 2011)	Study the effects personal involvement has on cognitive reasoning strategies that promote EDM.	Framing	Environmental factors may influence reasoning strategies, reasoning strategies influence sensemaking, and sensemaking may influence EDM.	Quantitative Multiple Linear Regression & ANOVA
(Gagnou-Savatier & Mercier, 2015)	Describe sensemaking and discourse ethics in the context of caregiving, building ethical competence to provide the best care.	Framing & Emotion	Engaging in sensemaking strategies that elucidated the patient/family lived experience allowed for caring and maximization of ethical response in complex and emotionally charged situations.	Qualitative Thematic Analysis of Semi-structured Interviews
(Harkrider et al., 2013)	Examine how structuring case-based ethics training, either through (a) case presentation or (b) prompt questions, influences training outcomes.	Framing	Comparing cases led to greater sensemaking strategy use and EDM when trainees considered unstructured rather than structured prompts. When cases were presented sequentially, structuring prompts improved training effectiveness. Too much structure, however, decreased future EDM.	Quantitative 2x2 Between Subjects MANOVA

(Johnson et al., 2014)	Examine effect of two aspects of case-based education on sensemaking and EDM.	Framing	Elaborate interrogation techniques can significantly improve ethical sensemaking strategies associated with personal biases, constraints, emotions.	Quantitative 3x2 between subjects ANOVA
(Kligyte, Connelly, Thiel, & Devenport, 2013)	Examine the influence of anger and fear on EDM and sensemaking.	Emotion	Findings indicated that anger inhibited EDM and sensemaking. Fear facilitated EDM. Emotion regulation significantly decreased the negative effects of anger on sensemaking and EDM.	Quantitative 3x2 between subjects ANOVA
(MacDougall et al., 2014)	Examine the the utility of simplified versus complicated cases for learning.	Framing	Findings suggest that increasing cognitive demand reduces satisfaction and detracts from EDM.	Quantitative 2x2 between-groups ANOVA
(Mecca et al., 2016)	Investigate self-reflection, sensemaking and forecasting influences EDM.	Mental Models	Individuals who are trained regarding biases and compensatory strategies demonstrate better EDM. Self- reflection promoted EDM, but forecasting and sensemaking did not significantly improve EDM.	Quantitative ANOVA
(Mumford et al., 2008)	Assess the effectiveness of an ethics training course that stressed the importance of sensemaking on EDM.	All	Ethics training course that stressed the importance of strategies people apply to make sense of ethical problems led to sizable gains in EDM, which were also maintained over time.	Quantitative Pre-Post Design One-tailed t test.
(Ness & Connelly, 2017)	Explore the influences of consequence, performance pressure, and interpersonal conflict on sensemaking processes, metacognitive reasoning strategies, and EDM.	Situational Considerations	EDM is greater when individuals are the recipients of consequences, however high interpersonal conflict is detrimental to sensemaking and EDM.	Quantitative 2x2x2 between subjects design MANCOVA & ANCOVA
(Peacock et al., 2013)	Explore case-based training effectiveness by examining the effects of including (a) alternative outcome scenarios, and (b) a structured outcome evaluation.	Framing	Presentation of alternative outcome scenarios reduces knowledge acquisition, sensemaking and EDM.	Quantitative MANOVA &ANOVA
(Thiel et al., 2013)	Investigate influence of emotional case content, and socio-relational case content, on case-based knowledge acquisition and transfer on future EDM.	Emotion	Emotional case content stimulates retention of cases and facilitates transfer of EDM.	Quantitative 3x2 study design ANCOVA and MANCOVA

(Vovides & Inman, 2016)	Propose an analytics model that captures and supports further development of a learner's reflective sensemaking.	Mental Models	Engagement in reflective sensemaking has the potential to promote deep learning.	Qualitative Exploratory, Descriptive and Discourse Mapping
(Zeni et al., 2016)	Explore the EDM processes of leaders, including cognitive biases& metacognitive strategies, such as sensemaking, in order to improve outcomes.	Mental Models	Component sensemaking processes can be negatively impacted by bias in complex environments that reflect EDM over time v. a single ethical concern.	Quantitative Historio-metric methods using hierarchical multiple regression.

Table 2. *Study description with key findings*
*Based on Mumford et al. (2008)

The following sections not only explore the results of the review by study, but also discuss the implications for how incorporation of various sensemaking elements into pedagogical approach may promote ethical response as a learning outcome.

Situational Considerations

*"*Sensemaking involves turning circumstances into a situation that is comprehended explicitly in words and that serves as a springboard into action" (Weick et al., 2005, p. 409). In the sensemaking model of ethical decision making, situational considerations include professional codes of conduct, perceived causes of a situation, goals of the moral agent, and perceived requirements for attaining those goals (Mumford et al., 2008). Two of the studies included in this review, focused on how those situational considerations are incorporated into case design in order to influence sensemaking and decision ethicality (Bagdasarov et al., 2013; Ness & Connelly, 2017).

Bagdasarov and colleagues (2013) manipulated the social context, including the goals of the characters depicted in case studies to assess the impact on engagement in sensemaking techniques and decision ethicality. This study specifically, assesses how an autonomy-supportive environment, that minimizes the salience of external incentives and threats, avoids controlling language, and acknowledges the learners' frame of reference influences action when compared to

environments that use external pressures, including punishments, instructional adherence and deadlines to shape behavior. The researchers assessed the influences of social context and goal focus content on use of sensemaking techniques to guide ethical decision-making. The results were mixed with regard to this pedagogical approach. Including a description of an autonomy-supportive social context and prevention goal focus lead to improved forecasting of potential outcomes. However, while description of an autonomy-supportive social context lead to improved decision ethicality when compared to those receiving no social context, there was not a significant difference in those receiving a controlling social context when compared to those receiving no social context (Bagdasarov et al., 2013). While researchers found that a description of an autonomy-supportive social context lead to enhanced recognition of critical constraints, with regard to recognition of constraint criticality and decision ethicality there was no significant difference between outcomes when provided a description of (a) prevention goal focus compared to (b) promotion goal focus or (c) no goal focus in cases (Bagdasarov et al., 2013). Thus, with regard to the sensemaking model, this study did not show that the perceived requirements for attaining a goal influenced sensemaking properties or enhanced ethical decision-making. These findings were inconsistent with those explored by Ness and Connelly (2017).

Ness and Connelly (2017) explored the situational influences of consequence, pressure and interpersonal conflict on sensemaking processes, reasoning, and ethical decision making. In contrast to the study done by Bagdasarov et al., (2013), Ness and Connelly (2017) found that ethical decision making was significantly greater when consequences of the action are conveyed. The study explored how manipulation of case content to include interpersonal conflict, performance pressure, and the recipient of consequences influenced ethical sensemaking (Ness & Connelly, 2017). Findings demonstrated that inclusion of organizational consequences when

depicting cases resulted in greater use of some sensemaking techniques and that emphasizing the recipient of consequences lead to greater decision ethicality as well as sensemaking and reasoning strategies.

Framing

According to the model, after considering the situation, the problem is then framed or defined as having ethical implications, which in turn shapes response (Mumford et al., 2008). Often a barrier to ethical decision making is the framing of the situation, where the moral agent does not initially recognize the conflict as ethical in nature. In medicine, "the ways in which events are first envisioned immediately begins the work of organizing because events are bracketed and labeled in ways that predispose people to find common ground" and generate an action (Weick, et al., 2005, p. 411). Six out of the 15 studies addressed the framing of the case as a means to influence sensemaking and EDM (Caughron et al., 2011; Gagnou-Savatier & Mercier, 2015; Harkrider et al., 2013; Johnson et al., 2014; MacDougall et al., 2014; Peacock et al., 2013).

Caughron et al. (2011) examined how framing a situation influences the degree to which an individual uses cognitive reasoning strategies. It was found that framing the outcomes of an ethical situation as organizationally relevant promotes use of sensemaking as a strategy to resolve conflict (Caughron et al., 2011). When framing the case content used in teaching ethics, case outcome information can influence use of sensemaking strategies as well as EDM (Johnson et al., 2014; Peacock et al., 2013). In situations where novice learners are engaging in case analysis, inclusion of clear cause-and-effect relationships that provide mental closure with regard to case outcomes is beneficial (Johnson et al., 2014). Peacock and colleagues (2012) found that those who use case-based instruction should take care as unclear outcomes decrease effective

sensemaking, and use of a structured outcome evaluation did not improve decision ethicality. Regarding how cases were framed two studies looked at how the complexity of case material impacted sensemaking and EDM. Researchers assessed if case presentation style promoted or inhibited EDM. This included evaluating case sequence in the course material, incremental case presentation, and the effect of strategically placed prompts regarding what to consider or potential outcomes influenced EDM. Inducing structure in the presentation of case material was found to be beneficial (Harkrider et al., 2013; MacDougall et al., 2014). In cases that present too much complexity, the increased cognitive demand will, however, detract from learning (MacDougall et al., 2014; Peacock et al., 2013). Thus, in order to organize the learner's response, providing structured prompts that encourage learners to address key causes, relationships, constraints and possible outcomes can be beneficial, but case developers need to take care to avoid over-structuring (Harkrider et al., 2013). In five out of the six studies exploring framing as a means to promote sensemaking and EDM, novice learner outcomes were explored and only one article looked at sensemaking as means to promote ethical action by seasoned providers.

When exploring how to build ethical competence of clinicians in practice, incorporating the complexities and ambiguity of clinical care was paramount in promoting sensemaking among practitioners (Gagnou-Savatier & Mercier, 2015). In contrast to the novice learner, promotion of ethical response by moral agents was not predicated on structured environments or clear cause-effect relationships between actions and outcomes. Instead, ethical response was increased when teams engaged in open discourse with various stakeholders to construct a plausible story for understanding their roles in caring for patients and their families (Gagnou-Savatier & Mercier, 2015). The study gives credence to the use of sensemaking strategies to promote an ethical

response even in situations where a good biomedical outcome related to cure is not possible and acknowledged that strong emotions influence action (Gagnou-Savatier & Mercier, 2015).

Emotion

It is anticipated that sensemaking in organizations often occurs amidst intense emotional experience, that significantly influences an individual's responses (Weick et al., 2005). Mumford et al. (2008) note that depending on how a case is framed, the moral agent will have an emotional response that will likely influence EDM. In clinical settings, such as pediatric oncology units, where anticipated, yet difficult outcomes occur, such as the death of child, a sensemaking approach to discursive ethics allows for providers to go beyond the technical aspects of treatment to respond in a caring manner that incorporates effective communication skills (Gagnou-Savatier & Mercier, 2015). Communication is a central component of sensemaking, which emphasizes linguistic aspects of making sense over the cognitive (Brown et al., 2015; Sandberg & Tsoukas, 2015; Weick et al., 2005). Thus, building ethical skill grounded in sensemaking requires the "ability to speak to patients and families in the fairest way possible" (Gagnou-Savatier & Mercier, 2015, p. 45). In addition to the study conducted by Gagnou-Savatier and Mercier, two additional studies explored the influence of emotion on EDM (Gagnou-Savatier & Mercier, 2015; Kligyte et al., 2008; Thiel et al., 2013).

Findings demonstrated that use of emotional case content improved learner retention and facilitated transfer of EDM to future decision-making tasks (Thiel et al., 2013). The findings from this study help to better understand how to structure cases, specifically descriptions of case characters' emotional experiences in order to promote engagement and retention of material, with the intent to shape future behavior of clinicians. In contrast to these findings, the study conducted by Kligyte et al. (2013) found that anger inhibited ethical decision making and

sensemaking. Alternatively, fear facilitated ethical decisions compared to anger and no emotion condition, and in general the ability to regulate emotion significantly decreased the negative effects of emotion on sensemaking and decision ethicality (Kligyte et al., 2013). This understanding regarding the influence of emotion gives further credence to the use of sensemaking as opposed to normative theory when teaching clinical ethics. Emotion is a strong tool to promote learner engagement and retention, but it also can result in bias and blind spots. From a practical standpoint these findings suggest that in order to improve EDM, professional training should incorporate sensemaking techniques that recognize the need to develop skills related to emotional regulation and other strategies that help to restructure mental models (Kligyte et al., 2013).

Mental Models

A mental model is a framework that influences how actors interpret and combine cues in their environment in order to construct a response (Sandberg & Tsoukas, 2015). The mental model formulated on the basis of past experience informs the sensemaking process of forecasting, reflection, sensemaking and decision making (Mumford et al., 2008). Four of the 15 studies included in this review primarily focused on how mental models influence ethical decision making through sensemaking (Bagdasarov et al., 2016; Mecca et al., 2016; Vovides & Inman, 2016; Zeni et al., 2016). Understanding the relationship between mental models and EDM provides opportunities for improving ethics and integrity training to promote use of sensemaking as a means to improve decision ethicality (Bagdasarov et al., 2016).

Mental models are subject to heuristic processing, and can be steeped in cognitive bias that reduces decisional ethicality (Mecca et al., 2016; Zeni et al., 2016). This is supported by behavioral ethics research that acknowledges subconscious processing may inhibit the moral

agents' ability to see a problem from multiple perspectives and result in the tendency to ask the wrong question (Bazerman & Tenbrunsel, 2011). For example, in clinical ethics, some of the most concerning actions result from a practitioner who makes a medical decision based on the ability to technically offer a clinical intervention, versus whether they should offer the intervention. Engagement in sensemaking strategies allows for the clinician to offer her perspective, while calibrating with others to promote better understanding of the problem (Leykum & O'Leary, 2017). Zeni et al. (2016) identified that incorporating a sensemaking processes when gathering and interpreting information improves EDM (2016). Since this study reviewed the ethicality of decisions already made as part of its analysis, it was able to directly address how sensemaking influences EDM in real life situations. While the study was not limited to decisions made in health care organizations, it provides important insights regarding training interventions that may improve EDM in practice. Targeting bias reduction during problem recognition and information gathering through specific training on the use and employment of sensemaking strategies can significantly improve EDM (Zeni et al., 2016).

The study by Vovides and Inman, also acknowledged the "messy" nature of decision making in the workplace and proposed an analytics model to promote the learner's reflective sensemaking to better prepare them for professional practice (2016). Through a formative evaluation using focus groups, researchers assessed the learner's interaction with a non-linear learning tool aimed at promoting sensemaking through discourse mapping. This study supports educational offerings that promote reflective sensemaking to engage in deep learning. Ensuring deep understanding of the ethical perspectives and concepts when faced with ill-structured problems is a process that requires dialogue over time as well as repeated exposure to problem scenarios (Vovides & Inman, 2016).

In contrast to some of the other case manipulation techniques employed in studies outlined in this review, Bagdasarov et al. required learners to complete a self-guided packet of pen-and-paper exercises to assist them in illustrating their mental models and subsequently tested the relationship between mental models and EDM as well as sensemaking processes as a mediator (2016). In addition to demonstrating that the mental model people apply during EDM significantly impacts their reasoning, the relationship between EDM and mental models is fully mediated by sensemaking (Bagdasarov et al., 2016). When applying these findings to pedagogical approaches in teaching clinical ethics, training in sensemaking processes is likely to lead to the development of more complex mental models, which in turn can improve decision ethicality in practice.

DISCUSSION

Clinical ethics discourse and related educational models have been dominated by normative theory, which promotes the learner's ability to recognize and recommend a response to an ethical dilemma, most predominantly through identification of conflicting biomedical ethics principles. This approach implies that the central focus of ethical response is choice. However, given the complexity of the healthcare environment events can often be misinterpreted and mismanaged. Thus, focusing on developing skills that are aimed at increasing the accuracy of interpretation, instead of a static choice, better prepares clinicians for practice.

This integrative review has offered an overview of the current literature exploring sensemaking as a viable alternative to teaching ethics with the aim of maximizing ethical response by clinicians. Specifically, there are multiple opportunities both through case review and integrated training to teach sensemaking as a means to promote ethical decision making in practice. The Weick theory of sensemaking (1988) can be used to enhance ethical decision-

making by those practicing within complex health care organizations. Similarly, sensemaking theory has been shown in this literature to be a way to structure the teaching of ethics in classroom environments; thereby, better preparing health professions students for work in complex settings influenced by situational pressures, prior experience, and implicit bias. This review provides evidence to support the claim that training in strategy application represents a critical component of both sensemaking training and subsequent ethical decision-making. For instructors who are working to translate ethical decisions into ethical action, use of sensemaking as an approach and theory provides multiple opportunities to influence EDM. As outlined in this review, whether highlighting situational considerations, identification and interpretation of the problem, emotional regulation, or influence of mental models and bias on decision making, understanding and use of sensemaking strategies may be the key to optimize ethical response in clinical practice.

Limitations

The search was limited to 15 qualitative and quantitative methodologies describing the use of sensemaking as a pedagogical approach to teach ethics. While the overall intent of this review is to demonstrate how use of sensemaking impacts the learner's ability to engage in EDM, secondary to limited research the review contained literature that was not specific to clinical environments or health care professions. The studies were primarily focused on students going into the sciences, and so while the study samples extend outside of health care, the review provides a foundation for developing and replicating similar pedagogical methods for use in clinical training. Also, there is limited interventional research in this topic area, so a significant number of studies included in this review were influenced and guided by research done at the University of Oklahoma and predicated on the work done by Mumford (2008). As sensemaking

theory and strategy use is more fully integrated into health care environments and the teaching of future health care professionals, variations on how the theory is integrated into pedagogy will expand understanding of its utility and application in teaching clinical ethics.

CONCLUSION

In contrast to ethical decision-making models grounded in normative theories that do not account for complex clinical contexts, sensemaking models that focus on understanding the conflict as opposed to resolving the conflict may be better suited in addressing value-laden cases. Pedagogical approaches steeped in normative ethics approaches may help students to develop cognitive antecedents needed for understanding ethical obligations to patients, but these approaches do not help them develop behavioral skills necessary to navigate the ethical nuances of clinical practice. This is consistent with research completed in behavioral ethics which suggests that normative theories lack utility in helping students understand how to solve ethical dilemmas, and are also insufficient if we are interested in improving the ethical actions of professionals (Bazerman & Gino, 2012). Incorporating sensemaking models into clinical ethics education, can help to foster behavioral skills such as information gathering, collaboration, thoughtful discourse, and a focus on understanding the crisis to better support ethical decision-making (Browning, 2012). Sensemaking, as an instructional method, demonstrates a more viable approach to cultivating professional behaviors that translate ethical intent into ethical response.

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CHAPTER THREE

EMBRACING THE POWER OF SHOW-ME ECHO LEARNING COMMUNITIES TO TRANSFORM CLINICAL PRACTICE IN MISSOURI

The lead author, Lea Brandt, contributed 40% effort, co-authors Melissa Warne-Griggs and Kimberly Hoffman contributed 25% effort each and co-authors Lori Popejoy and Rachel Mutrux contributed 5% effort each.

Abstract:

Show-Me ECHO, a state-funded project, provides access to education within a community of learners in order to optimize healthcare for the citizens of Missouri. Through videoconferencing and case-based review, ECHO shifts professional development from learning about medical problems in isolation to experiential learning as part of a multidisciplinary team. There are many ongoing opportunities for clinicians from across the state to join a Show-Me ECHO learning community as a means to elevate their practice.

In a personal interview, Dr. Sanjeev Arora, a hepatitis C specialist at the University of New Mexico, recalls a patient's story that inspired him to start the Extension for Community Health Outcomes project (Project ECHO). The patient was a 43-year-old woman with Hepatitis C, who was a single mother of two after being widowed when her husband died in a car accident. There was an eight-month wait to see Dr. Arora, a hepatitis C specialist located hundreds of miles from her home. Unfortunately, by the time the woman was able to get in to see Dr. Arora she had already developed cancer of the liver. The greatest tragedy of this story is that her illness was curable with early treatment. Because providers in her area lacked the evidenced based knowledge about how to treat Hepatitis C, she died a premature death, orphaning her two children (Arora, 2018).

While every patient's story is unique, this type of situation is seen regularly across the US. Even though the US healthcare system is home to some of the most sophisticated treatments and medical technologies in the world, there are vast discrepancies in the quality of care to which patients have access depending on their geographic location and the knowledge of the providers within their communities(Arora et al., 2014). In response to these types of barriers the Institute of Medicine (IOM) published multiple blue-ribbon reports describing the essential features of quality care: health care that is safe, effective, patient-centered, timely, efficient and equitable. The IOM *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America* outlines a vision to catalyze effective, efficient high-quality care in a system that continuously learns to become better (2013). Show-Me ECHO, a state-funded telehealth project created and operated by the Missouri Telehealth Network at the University of Missouri, addresses the IOM's six domains of quality care by offering opportunities for health care providers to participate in

learning communities aimed at improving access, safety, and elevating the care provided to residents across the State of Missouri and beyond.

ECHO connects primary care providers with each other, with local resources, and with specialists through structured and formalized live-interactive video sessions. By linking rural and underserved populations with specialized expertise, Show-Me ECHO elevates care and promotes lifelong learning by providing clinicians access to the most current knowledge they need to effectively care for their patients. Extant literature demonstrates that the ECHO principles are congruent with other national calls for health care reform: 1) Macy Foundation's 2008 call to shift continuing medical education to focus on practice-based learning; 2) Institute of Medicine's (IOM) 2009 report describing the role of continuing education to achieve and maintain proficiency, and 3) Carnegie Foundation's 2010 description of the significant challenges, and needed changes in preparing physicians for the future (Arora et al., 2017). The ECHO model resonates with salient features of *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America (Health., 2013)* including the need to: 1) generate and apply knowledge in real time, 2) engage patients, families and communities in the provision of care, 3) manage increasing clinical complexity, and 4) leverage opportunities from technology.

Background

Show-Me ECHO began in 2014 after a Missouri team visited the University of New Mexico, home to Dr. Sanjeev Arora and Project ECHO. There they learned about the success of ECHO, a technology-enabled collaborative learning and capacity building model for Hepatitis C. The ECHO model "connects specialists with multiple other health care professionals through simultaneous interactive videoconferencing for the purpose of facilitating case-based learning, disseminating best practices and evaluating outcomes"((ASPE), 2019). ECHO has been

replicated across the United States and internationally to address a wide variety of disease conditions. Key features of ECHO programs include: 1) a hub and spoke organization where multidisciplinary content experts mentor participants through teleconferencing, 2) regular and recurring virtual meetings, 3) focused didactic presentations, and 4) case-based learning where participants select and present cases from their own practices((ASPE), 2019). ECHO offers an alternative to traditional continuing education as it situates learning within authentic professional practice and connects to workplace learning (Arora et al., 2017; Eraut, 1994; Mazurek et al., 2017). Show-Me ECHO connects Missouri primary care providers with each other and with specialists as well as other health care team members. Diverse perspectives are incorporated into ECHO, as the teams may include, among others, persons with lived experience, physicians, nurses, social workers, therapists, community members, counselors, chaplains, administrators, etc. These multidisciplinary participants collaborate in a case-based learning environment where discussions with, and mentoring from, content experts help equip providers with the knowledge and tools they need to give their patients the right care, in the right place, at the right time.

In recognition of its rigorous adherence to the key tenets of ECHO, the University of New Mexico's Project ECHO designated Missouri's Show-Me ECHO as a "Super Hub" training organization, one of only seven global sites. As a super-hub, Show-Me ECHO provides immersion training for new ECHO content expert panels and staff. What began as a partnership with the Missouri Primary Care Association (MPCA) to support one pilot chronic pain management ECHO in 2014 has grown into 19 Show-Me ECHOs with more in the planning stage (Appendix 1). Show-Me ECHOs are scheduled for 1-1.5 hours, and most occur year-round. Learning occurs through three routes: 1) short didactic presentations, 2) deidentified case presentation selected from the clinical practices of participants and 3) opportunities for practice

and feedback among all participants as they consider the case (Arora et al., 2007; Arora et al., 2017). Content experts facilitate discussions and model the best approach in management of each case. Although Show-Me ECHO draws participants from across the United States and internationally, it focuses on the needs of Missourians.

ECHO creates a bridge between academic medical centers and specialists, and increases access to care in rural and underserved areas (Arora et al., 2014). Multidisciplinary teamwork is essential to the ECHO model and Show-Me ECHO recruits expert mentors from across the state. Nearly 300 participants from different health care organizations in 21 counties and three states have been represented on the expert hub teams from inception in 2014 thru December 2018. Additionally, Show-Me ECHO has touched 80 of Missouri's 114 counties plus the city of St. Louis. This geographic diversity is evidence that the University of Missouri recognizes and partners with experts located throughout the state who can best understand local resources, contacts, and realities for providing care in underserved areas. The number of learners engaged by Show-Me-ECHO, the number of Missouri counties participating, and the number of current case-based learning opportunities are presented in Table 3.

Show-Me-ECHO Project	**# of Participants**	**# of Participants' Cases Presented**	**# of MO Counties**
Autism	93	105	28
Asthma	164	145	34
Child Psychiatry	85	25	28
Community Health Worker	166	25	35
Dermatology	86	392	28
Hepatitis C	39	140	20
HIV	32	3	5
Multi-Tier System of Support	104	9	18
Opioid Use Disorder	116	22	25
Pain Management	101	41	36

Table 3. Show-Me-ECHO Participants from inception through December 2018

Other articles in this series examine outcomes in more detail, however, Table 4. provides illustrative examples of the impact of Show-Me ECHO on patient care. It is important to note that patients benefit not only indirectly through the knowledge acquired by participating clinicians, but also directly. Patients whose case is presented during ECHO, directly benefit from the review by a community of learners, whose combined expertise exceeds the knowledge of any one provider.

ECHO	**Medicaid Claims Data**	**Pre-Post ECHO Participation Outcomes**
Pain Management	Opioid Prescribing Patterns Morphine Milligram Equivalents (MME)	19% decrease in MME*
Autism	Child Development Screenings	29% increase in screenings
Dermatology	Claims containing one or more specific dermatology diagnosis code	452% increase in coding specificity**

* 2 years post participation
**by providers that attended more than one Dermatology ECHO
Table 4. Pre-Post ECHO Participation Outcomes Data

Although ECHO models are now widespread, a February 2019 Report to Congress calls for strengthening the evidence base to help determine how best to expand use of the ECHO model((ASPE), 2019). One must understand the essential features of ECHO in order to successfully replicate this model. In this article, we draw from rich literature on adult learning, social cognition, situated learning, communities of practice and learning organizations to describe how and why the ECHO model enhances learning and transforms learning into improved patient outcomes.

Connecting Learning to Professional Practice

Lifelong learning is critical to high-quality medical practice. Because clinical information is constantly growing, successful clinicians must persistently refresh medical knowledge and understand personal limitations related to knowledge acquisition and application. This requires a

commitment to self-assessment and to identifying learning needs (Aronson, 2011). Reflection is a necessary skill for self-directed learning because the individual must be able to consider their own strengths and weaknesses in order to pursue learning. Traditional cognitive approaches to expertise often emphasize diagnostic ability and assume that expertise is an end-state of mastery of existing knowledge and technique. However, these assumptions of the cognitive model unnecessarily limit conceptions of expertise in medicine and elucidate the need to distinguish between "routine expertise and "adaptive expertise" (Mylopoulos & Regehr, 2007). Routine expertise involves a set of habits used by the practitioner. Adaptive expertise, on the other hand, is flexible and involves combining old and new knowledge to generate different ways of thinking about a problem in order to achieve meaningful learning (Mylopoulos & Regehr, 2007). When practitioners engage in meaningful learning it fosters flexibility and a more comprehensive understanding of health in order to better meet the dynamic needs of patients, giving practitioners the tools necessary to incorporate context and alternative approaches into practice. Adult learning theories tell us that adults prefer learning opportunities that draw upon their life experiences, are problem-centered, experiential, and focus on the "why" behind what they are learning (Knowles, 1984). Learning through doing is an important part of professional preparation and continuing education. Most innovations and changes in practice take place in the context of use, not formal education (Eraut, 1994). Instead of mastering proven procedures, much of professional learning occurs through activities that provide an opportunity to practice and problem solve in contextually relevant situations (i.e., experiential learning).

Theory is usually explicit in "book knowledge" and implicit in "action knowledge;" thus, people have a difficult time verbalizing knowledge gained through experience (Eraut, 1994). This does not imply this type of knowledge is unimportant but rather that it is difficult to

articulate and explicitly teach. One way to address this is through the use of narrative. Narrative thinking (thinking through telling and interpreting stories) involves trying to understand experiences or patient cases (Brunner, 1986). Telling the narrative story of a person or patient turns knowledge into understanding by allowing for reflection and translation of the story to a clinical reality that is actionable information (Astrom, Norberg, Hallberg, & Jansson, 1993; Benner, 1996). Problem/patient-based learning is powerful because, it makes the knowledge more accessible and more likely to be used when caring for patients. In contrast to traditional classroom-based learning that seems disconnected from practice, problem or case-based learning is inextricably connected to patient encounters (Wenger, 1998).

Traditional classroom education falls short of meeting the needs of adult learners that have transitioned from formal education programs and into clinical practice. This can be attributed to Kegan's theory of adult development positing that adults use four lenses, instrumental, social, self-authoring, and self-transforming, to enable and constrain what they pay attention to in order to make sense of a given situation (Lewin, McManamon, Stein, & Chen, 2019). A person is not aware of using a particular lens until the lens becomes inadequate to address a situation. This disorienting case helps the person see the lens they were using. Kegan calls this a shift from subject to object because the lens then becomes something that the individual can perceive and investigate. These shifts reflect transformative learning. For transformative learning to occur, the learner must be able to recognize and critically examine the lens they are using. Through their participation in case-based learning, the clinicians can identify their lens, practice using new lens, reflect on their own knowledge/learning and are therefore better positioned to incorporate new learning into their professional practice. One can begin to

see why participation in ECHO not only results in transformative learning, but also results in transformation of clinical practice.

Transformative Learning through ECHO

ECHO offers an alternative to traditional clinical education and reaches providers where they practice. ECHO is transformative as it not only promotes knowledge acquisition and increases confidence to treat complex conditions; it creates an opportunity for experiential learning so providers can use new knowledge to improve problem solving in order to meet the dynamic needs of patients (Arora et al., 2016; Fisher et al., 2017; Komaromy et al., 2017; Mazurek et al., 2017; Wood et al., 2016). Extant research on ECHO learning outcomes include acquisition of both book and experiential knowledge, improved self-efficacy, improved competency and enhanced clinical performance (Arora et al., 2007; Mazurek et al., 2017; Sohl, Mazurek, & Brown, 2017). Learning outcomes are determined through various means, including quantitative assessment of knowledge acquisition as well as collection of qualitative data outlining the participant's ECHO experience. To understand the power of ECHO as a learning community, we must understand the salient features of ECHO that foster deep learning and the articulating learning outcomes that demonstrate a full understanding and retention of the content presented as well as ability to apply it to future practice. Potts describes six principles of learning health systems (Potts et al., 2017). Table 5. illustrates quotes from Show-Me ECHO participants that are congruent with the identified learning principles.

Table 5. Participant Quotes Related to Learning Principles of Learning Health Systems

Learning Principle	**Corresponding Show-Me ECHO Participant Comments**
Draw on wisdom of groups and value connections	There is a huge need for pediatric providers in rural settings to be better educated in identifying characteristic and to be able to screen in order to initiate therapies early. I participate because it is a support resource, links me to the professional who educate and guide me in the care of my patients.

	Learning from other professionals that I usually would not be able to connect with on a regular basis. There was a need for better care in my area and this was a great opportunity to connect with specialists and other providers to help provide that care.
Embrace sensemaking over decision making in dealing with the unexpected	When a case was presented and then talked out with everyone's ideas, I found that it helped me be more open minded. Case presentation review - I think I understand something till we talk about it in a particular patient scenario. The opportunity to get expert help is immeasurably important. Another way to connect to the asthma community to share ideas and troubleshoot difficult cases.
Bring diverse perspectives to complex challenges	To observe other CHWs styles or approaches to difficult cases. It is reassuring knowing others in this position may have the same struggles. Also, one can learn about resources they might not be aware of. I have a better understanding of the legal implications involving guardians, the legal system, and the medical field. Learn from other clinicians how they are working though hurdles of accessing and managing HCV treatment for their specific patient populations.
Animate people, provide direction, update regularly, and interact respectfully	The collegial atmosphere is very conducive to learning without feeling threatened or left out. There are no stupid questions and we don't have egos in this group. We help each other learn. Feels like a true team.
Appreciate the power and ubiquity of emergent change and the limitations of planned change	Made aware that there are occasions that seem to be the right thing to do may be in conflict with regulations. I enjoyed finding new resources and helping other CHWs that may have run out of ideas for helping a patient. Saw a need in my patients and those in my community-long wait times at specialty centers.
Concentrate on small wins and characterize challenges as mere problems	Passion to make a change in a rural health setting to offer a broader developmental screen to catch these children early for earlier intervention to improve the overall outcome. Brainstorming ideas with fellow peers regarding resources and patient care. The wait for referral to [Autism] Center was so long for my patients that I was excited to be able to facilitate quicker access to treatment for children in rural areas. Saw a need in my patients and those in my community-long wait times at specialty centers
*Representative quotes come from participants of the following ECHOs: Asthma, Autism, CHW, Derm, Ethics, Hep C, HIV, OUD, Pain.	

This commentary by the community of learners cultivated through Show-Me ECHO, gives credence to how participation in ECHO creates a learning culture among participants which draws on the wisdom of groups and values connections, embraces sensemaking over decision making in dealing with the unexpected, brings together diverse perspectives to complex challenges, provides opportunity to interact respectfully, appreciates the power and ubiquity of

emergent change and finally allows participants to concentrate on small wins.(Potts et al., 2017) ECHO enhances learning, resulting in transformational outcomes that improve patient and community health.

ECHO uses real-time cases depicting the true complexity of health care practice environments. It creates a safe space, where diverse viewpoints are explored. ECHO promotes collaborative, individualized health care choices, drives the process of discovery, is embedded in community, accommodates learners at different stages in the learning process and is a natural outgrowth of clinical care of patients (Health., 2013). ECHO participants engage in learning that not only transforms the clinician's practice, but in turn improves health outcomes of patients. The ECHO model is better able to teach complex, dynamic content reflective of clinical environments and the skills practitioners need to effectively treat patients, current and future.

Conclusion

This review demonstrates how ECHO helps refresh knowledge and translate that knowledge into practice providing a foundation for replication across the highest-priority care issues for the State of Missouri. This goal is already being realized with the growth in ECHOs across the last 16 years and a steady increase in provider participation will help to maximize the impact. Show-Me ECHO acts as a catalyst to shift professional development moving learning from learning in isolation ***about*** a complex medical problem to learning as part of a multidisciplinary team and learning ***how to*** provide comprehensive care for real patients (Eraut, 1994). This in turn promotes real changes to clinical practice and improved patient outcomes.

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CHAPTER 4

METHOD

The following research proposal outlines the study funded by the Missouri Telehealth Network for the corresponding Health Care Ethics ECHO offered in collaboration with the MU Center for Health Ethics.

Project Summary

Extension for Community Healthcare Outcomes (ECHO) uses videoconferencing technology to connect multidisciplinary primary care teams simultaneously to engage in case-based learning and discussion. A Health Care Ethics ECHO has been deployed as a means to cultivate skills related to addressing ethically complex cases in practice. The ECHO is an alternative to traditional normative ethics approaches used to teach clinical ethics. In contrast to traditional pedagogical approaches that have demonstrated little influence regarding how clinicians act in consideration of patients (Crutchfield et al., 2016), participation in ECHO has been linked to behavior change in clinicians (Arora et al., 2016). Work done in cognitive behavioral ethics indicates that when ethics is taught in abstract terms regarding how a person thinks they will act, the person typically overestimates his/her likelihood of making an ethical choice (Milkman et al., 2008). Conversely, educational experiences that promote ethical action by illuminating the real-life barriers through ethics cases may better prepare clinicians for unexpected complex events (James et al., 2012; Johnson et al., 2014). Many of the most difficult clinical ethics cases involve unexpected events resulting in morally ambiguous situations. The theory of sensemaking is uniquely positioned to manage the unexpected (Caughron et al., 2011; Weick & Sutcliffe, 2015). By introducing Health Care Ethics ECHO participants to sensemaking tools, providers may be better able to navigate complex ethical cases in practice. Effective sensemaking promotes a shared understanding of the patient's unique needs supporting the health care team in taking patient-centered action (Leykum &

O'Leary, 2017). Using linear regression, this quasi-experimental study explores relationships between self-efficacy and ethics education, discipline, sex, and years in practice. Specifically, this study examines the relationship between exposure to sensemaking tools through a Health Care Ethics ECHO and ethical response self-efficacy scores related to addressing and resolving common clinical ethics concerns in practice.

Project Narrative

To translate educational content to ethical behavior in practice, new methods of teaching clinical ethics should be explored, including Extension for Community Health Outcomes (ECHO). Using an independent samples t-test and linear regression, this quasi-experimental study examined the relationship between participation in Ethics ECHO, exposure to sensemaking tools, and self-efficacy scores related to addressing and resolving common clinical ethics concerns in practice.

Specific Aims

Traditional ethics education focuses on understanding normative theories, such as deontology, to inform ethical decision-making, but these approaches are not sufficient in preparing clinicians to respond to complex and unexpected ethical issues in practice (Bertolami, 2004; Crutchfield et al., 2016). According to behavioral ethics theorists, moral theory alone does not improve understanding about how to solve ethical dilemmas, nor does it improve ethical actions of professionals (Bazerman & Gino, 2012; Bazerman & Sezer, 2016). Extension for Community Health Outcomes (ECHO) provides a unique opportunity to shift the pedagogical framework from normative theory to a behavioral ethics approach. ECHO uses simultaneous videoconferencing technology to connect multidisciplinary primary care teams in order to engage in case-based learning and discussion. ECHO creates a learning culture that (a) draws on the wisdom of groups, (b) values connections, (c) assists in

dealing with the unexpected, (d) applies diverse perspectives to complex challenges, (e) provides opportunity to interact respectfully, (f) appreciates the power and ubiquity of emergent change, and (g) allows participants to concentrate on small wins (Potts et al., 2017). Specifically, using ethics cases that highlight complex cause-effect relationships in practice cultivates the sensemaking skills needed for improved ethical decision making quality (Johnson et al., 2012). Evidence suggests that ECHO offers an alternative to traditional clinical education aimed at changing providers clinical behaviors (Arora et al., 2016; Colleran et al., 2012; Fisher et al., 2017; Komaromy et al., 2017; Mazurek et al., 2017; Potts et al., 2017; Wood et al., 2016). Thus, ECHO shows promise as a means to shift traditional clinical ethics pedagogical approaches towards a behavior-based model. A clinical ethics pedagogy that incorporates a behavioral ethics approach focused on sensemaking optimizes the clinician's ability to learn to act ethically in practice (Browning, 2012). The purpose of this study was to explore educational strategies that translate into ethical practice, and thus examined the relationship between ethical response self-efficacy score and method of training controlling for participant characteristics of discipline, years in practice, and sex.

Study Hypotheses and Aims

H.1. Clinicians who have participated in a Health Care Ethics ECHO with sensemaking will demonstrate higher self-efficacy scores than traditional Health Care Ethics ECHO participants, who will score higher than clinicians trained in a traditional model, after controlling for participant characteristics.

SA 1. To examine the effect of the three types of ethics training on ethical response self-efficacy scores.

SA 2. To examine the relationship between ethical response self-efficacy scores and method of training, controlling for participant characteristics of years in practice, discipline and sex.

SA 2.1 Examine bivariate relationship between ethical response self-efficacy score and participant characteristics.

SA 2.2. Fit a predictive model forecasting ethical response self-efficacy score from training method and participant characteristics.

The null hypothesis is that there is no relationship between the type of ethics training and ethical response self-efficacy scores. The alternative hypothesis is that Health Care Ethics ECHO training with a sensemaking component shows a significant effect on ethical response self-efficacy scores even when controlling for participant characteristics.

Background and Significance

Clinical ethics discourse and related traditional educational models are dominated by normative, rule-based theory. These rule-based theories, such as principles in biomedical ethics and professional codes of ethics, provide the learner with an understanding of the ethical norms that are valued by clinicians, but they do not teach skills for carrying out ethical action. Even though there is acknowledgment of the complex skills required to navigate ethical conflicts in practice settings, much of the clinical ethics pedagogy focuses on principlism and other normative theory-based teaching strategies, which do not typically inform or shape future practice decisions (Bertolami, 2004; Crutchfield et al., 2016). Normative ethical theory dominates ethics discussions in health professions education as these theories are linked to determining the rightness of an action and focus on either the act itself (deontology), or the consequence of the action (teleology). Codes of Ethics are also normative, focusing on the deontological actions or duties of professionals. From a pedagogical perspective, understanding these theories and related codes of ethics should improve the clinician's ability to identify and resolve ethical conflicts. However, in complex clinical ethics situations, reasoning can be unknowingly steeped in cognitive bias. Bias formed from emotion or divergent personal experiences

may shift the clinician's perception of reasonable goals. Unless the stakeholders are willing to acknowledge that others may have information that they do not, or that there is an alternate view, clinical decisions can come to a halt or decisions may become ethically problematic. Ethical sensemaking, grounded in information gathering, integration of divergent views, and focus on understanding the crisis is a valuable and viable model for determining the ethically supported course of action in clinically complex situations (Johnson et al., 2014).

Case-based ethics instruction that provides social context, including the views of those involved in the case has been shown to facilitate sensemaking processes that improve ethical decision making (Bagdasarov et al., 2013). Because clinical ethics involves navigating viewpoints of multiple stakeholders in complex environments, and rapidly changing situations to make life altering health care decisions, case-based ethics discussion can improve ethical reasoning of participants (Bagdasarov et al., 2012; Peacock et al., 2013). Ethical conflict typically presents when a clinical decision is precipitated by an unexpected event. For example, the unexpected event could be an atypical response from the patient/family, an unanticipated clinical outcome, or an unforeseen tragedy. Sensemaking is an optimal approach when dealing with unexpected events as it is the process by which people give meaning to their collective experiences, especially when those experiences do not adhere to the norm (Weick & Sutcliffe, 2015). When practitioners are faced with difficult ethically charged situations, they will often act in ways inconsistent with what is ethically or clinically indicated as they are trying to appease patients or avoid conflict (Ginsburg et al., 2014). This is why clinical decision-making models are ill-equipped to deal with these complex situations as they primarily rely on objective data formed from algorithmic norms, not the cases that fall outside of the normal distribution. Therefore, teaching clinical ethics through applying sensemaking models to actual patient cases may better prepare clinicians in addressing complex and unique ethical conflicts in practice (Browning, 2012). In contrast to traditional

normative pedagogies that use linear, algorithmic approaches to ethical decision-making, sensemaking provides a more fluid approach. Thus, a sensemaking approach is better equipped to address complex and unforeseen conflicts typical of clinical ethics situations. Sensemaking models are strategically positioned to manage situations that do not adhere to the norm; they manage the unexpected (Weick & Sutcliffe, 2015).

Theoretical Framework

Traditional ethical decision-making models grounded in normative theories do not account for the complex clinical contexts common to ethical problems in practice. On the other hand, sensemaking models focus on understanding conflict and may be better suited to resolving value-laden cases. One significant strength of sensemaking is the acknowledgement that people are not always rational or predictable (Madsbjerg, 2017). Pedagogical approaches steeped in normative ethics approaches may help students to develop cognitive antecedents needed for understanding ethical obligations to patients. However, these approaches do not help them develop behavioral skills needed to navigate the ethical nuances of clinical practice. This is consistent with research in behavioral ethics, which suggests that normative theories are not useful in helping students and professionals respond to ethical dilemmas in clinical practice (Bazerman & Gino, 2012). Incorporating sensemaking approaches into clinical ethics education can help to foster behavioral skills reflective of improved team performance. A sensemaking approach that helps to frame conversations to improve meaning and anticipate expected as well as unexpected events is the "STICC" Protocol: Situation, Task, Intent, Concern and Calibrate (Weick & Sutcliffe, 2015). In particular, using the STICC approach generates a shared understanding among clinical teams in order to improve care delivery (Leykum & O'Leary, 2017). The elements and corresponding definitions of the STICC Framework are outlined in Table. 6.

Element	*Definition*
Situation	Discussion of "here is what we are dealing with."
Task	Assessment of "what are we going to do."
Intent	Explicit, concrete discussion of why the team is embarking a specific diagnostic or therapeutic plan.
Concern	Discussion of "what we need to keep our eye on" or "what we need to look out for"
Calibrate	"Talk to me." Discussion regarding what the team might be missing, what is unclear or not yet understood. If-then contingency statements.

Table 6. STICC Framework

By introducing a sensemaking framework into ethics education and case review, clinicians have a tool that guides professional actions. By integrating sensemaking tools into the ECHO case review process, participants are able to connect ethical reasoning to an action-based strategy in context. While normative theory can shape cognitive perceptions regarding right or wrong, sensemaking gives meaning to the decision-making process that occurs during an unexpected event, such as clinical ethics conflicts. Sensemaking is a growing model used to understand decision making by health care providers, because it is a cognitive process in which individuals construct mental models to interpret unexpected events (Vogelsmeier et al., 2017). In teaching clinical ethics, it is important that learning outcomes include a clinician's ability to respond to ethically complex cases, not just identify ethical norms. Case-based ethics instruction allows for increased understanding of the contextual and individual factors that can influence decision making (Bagdasarov et al., 2013). Discussion of real cases within clinical teams provides an opportunity to gain a better appreciation of how these factors may impede one's ability to carry out an ethical action supported by normative theory. Incorporating a STICC Framework into discussions helps to guide team decisions resulting in high reliability regarding choosing the optimal course of action for a specific patient (Leykum, et. Al, 2015). With the increased access to technologies such as videoconferencing, clinicians now have opportunities to discuss these

complex cases within diverse health care teams. Videoconferencing used for open discussion which uses sensemaking tools to ground discussion in terms of actions, can help to cultivate provider skills aimed at resolving unexpected ethical conflicts, which arise in clinical practice.

Extension for Community Healthcare Outcomes (ECHO)

The Extension for Community Healthcare Outcomes (ECHO) process offers an alternative to traditional clinical education and reaches providers where they practice (Arora et al., 2016; Fisher et al., 2017; Komaromy et al., 2017; Mazurek et al., 2017; Wood et al., 2016). ECHO uses videoconferencing technology to connect multidisciplinary primary care teams simultaneously to engage in case-based learning and discussion. ECHO has demonstrated success in helping health care providers to gain new knowledge, increase confidence and improve attitudes towards clinical conditions (Colleran et al., 2012; Wood et al., 2016). Results from other studies demonstrate a significant increase in self-efficacy of clinical providers after participating in ECHO offerings (Arora et al., 2016; Mazurek et al., 2017). A Health Care Ethics ECHO may help clinicians learn how to address clinical ethics cases. The ECHO process embraces sensemaking over decision-making and shows promise in helping clinicians learn how to address unexpected clinical situations (Potts et al., 2017). In clinical ethics instruction the intended learning outcome is the student's ability to respond to ethical conflict often precipitated by unexpected events, which makes ECHO a great tool in cultivating behaviors associated with ethical response. In particular, using ECHO grounded in sensemaking properties to deliver clinical ethics training may increase clinicians' ability to respond ethically to unexpected events in clinical practice. However, there is limited understanding of how sensemaking properties are elicited during the ECHO process. With regard to the Health Care Ethics ECHO, the question remains as to whether participants will engage in sensemaking naturally to improve ethical

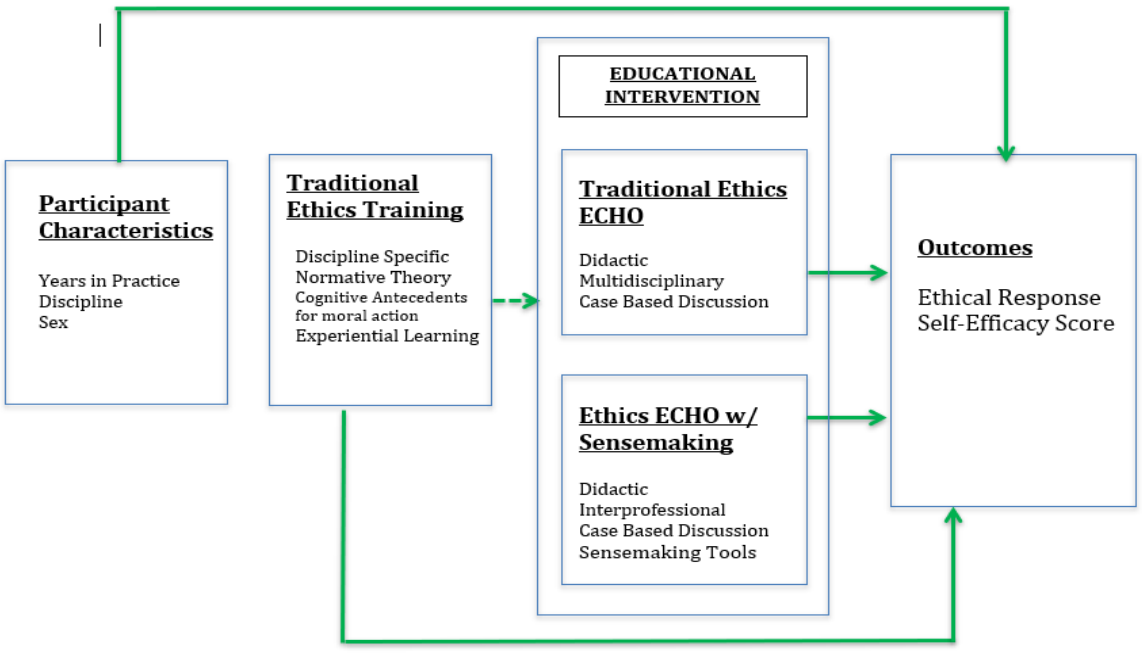
response, or does intentional incorporation of a sensemaking model for ethical decision making increase the likelihood of an ethical response? In order to assess ethical response, short of assessing action in practice, one can assess the perceived ability of a practitioner to respond ethically.

Self-Efficacy

Self-efficacy relates to the individual's belief about his/her abilities of organizing and controlling actions leading to achieving the specified level of performance. The concept of self-efficacy was introduced by Albert Bandura, who dealt with human behavior modification (Bandura, 1995). According to Bandura's social cognitive theory, perceived self-efficacy is a primary indicator of human motivation and future action (Bandura, 1995; Janiszewska et al., 2017; Luszczynska, Scholz, & Schwarzer, 2005; Zalewska-Puchała, Majda, Gałuszka, & Kolonko, 2007). Similar to the behavior theories explored by Bandura, ethical behavior requires individuals to feel as though they have the ability to carry out the intended action and that the action will result in the expected outcome. In order to measure specified self-efficacy, the questions must be tailored to the particular domain of functioning (Pajares & Urdan, 2006) . The self-efficacy domain of functioning for this study relates to perceived ability to navigate ethical conflicts even in the face of external pressures. In particular, even if a person can identify the ethical course of action, if confronted with competing external pressures, a "good" person will often act unethically (Bazerman & Gino, 2012; Drumwright, Prentice, & Biasucci, 2015; Gaspar, Seabright, Reynolds, & Yam, 2015; Milkman et al., 2008; Thronicker, 2016). The self-efficacy scale focuses on the provider's perceived ability to execute ethical action even in difficult situations. This scale focuses on the action as opposed to the recognition or identification of ethical conflict and supported actions. Short of observable behavior, assessing perceived self-

efficacy of a specific behavior provides a good indication of the actions and behaviors that a person will display (Bandura, 1995). In this study, the specific behavior examined is the participant's ability to respond ethically; measured by the *ethical response self-efficacy score*. This varies from typical assessments in clinical ethics training, such that the focus is on the response and not solely on the ability to identify the ethically supported course of action.

The study reviews how educational interventions that use ECHO as well as sensemaking tools may more significantly affect ethical response self-efficacy scores by clinicians. However, since sensemaking is often influenced by personal experience, participant characteristics, including years in practice, discipline and sex were also assessed regarding relationship to self-efficacy scores (Figure 2.)



The study will measure the relationships between variables connected by solid lines. The dotted line represents the relationship of influence between variables.

Research Strategy

Design. Using independent samples t-test and linear regression, this quasi-experimental study examined the relationship between ethical action self-efficacy and method of clinical ethics training. In examining this relationship it also controls for attribute variables including the participants' discipline, years in practice and sex.

Setting. This study is related to a larger ECHO project originating at the University of Missouri, an academic medical center located in central Missouri. Healthcare providers from diverse disciplines who practice across the state of Missouri were recruited for participation in the Ethics ECHO, however participation in the Ethics ECHO was not excluded to those practicing in Missouri and also includes practitioners from other states including a large percentage from West Virginia. The geographic focus on these two states was driven by the participation of the Missouri Telehealth Network (MTN) and the Rural Emergency Trauma Institute (RETI) located in West Virginia in formulation of a joint Health Care Ethics ECHO initiative.

Sample. Convenience sampling was used for this study, with an anticipated minimum sample size of 30, with approximately 10 participants in each group. Clinicians who had participated in the Ethics ECHO and non-participant clinicians were asked to participate in the study. Recruitment strategies for ECHO participation included personal emails from the core clinical ethics team located at the Center for Health Ethics (CHE) and RETI. The ECHO participants served as the research sample as well. Clinicians from a variety of practice settings are represented in this pool of potential participants. Although recruitment efforts focused on Missouri and West Virginia, word-of-mouth efforts also resulted in multiple participants from other states. Average attendance for a Health Care Ethics ECHO is 10 sites that includes multiple

attendees from various disciplines located at those sites. Inclusion criteria regarding attritbute variable was the same for each group, and included those with varying years of practice experience, men and women as well as clinicians from different disciplines, with the largest percentages of participants being nurses. Recruitment of ECHO participants specific to the research component included an invitation sent via email to complete the Self-Efficacy Survey at the conclusion of the 12 month Health Care Ethics ECHO series.

Group 1-Normative Ethics Training Non-ECHO participants. This group included those participants who have only received clinical ethics instruction in a traditional normative format and have not participated in ECHO. Traditional normative ethics training often utilizes case studies and theory, but does not include real case discussion amongst various stakeholders (Appendix 3). An invitation was sent via email to all eligible nurse participants within the academic medical center. An invitation was also sent to the multidisciplinary providers including nurses and physicians at the Family Health Center, a primary care corporation that primarily provides services to the underinsured in Boone County Missouri. An announcement was also included in MU Info distribution system which is emailed to all members of the academic community including employees of the University of Missouri Health Care system. Interested parties were sent an email asking them to complete the ethical response self-efficacy survey generated through RedCap (Appendix 2).

Group 2-Traditional Health Care Ethics ECHO participants, who participated in the Ethics ECHO in 2017/18 as well as participants from the Health Care Ethics ECHO in 2018/2019 offered through West Virginia's RETI ECHO. Self-efficacy surveys were distributed to assess outcomes of 2017/2018 participants. A survey was also sent via

email in July 2019 asking West Virginia Health Care Ethics ECHO to participate in a survey (Appendix 2) regarding their self-efficacy post ECHO training. The structures of the 2017/2018 Show-Me Ethics ECHO and the 2018/2019 RETI Ethics ECHO were consistent with the ECHO format where there is a case presentation and a didactic on an ethics topic, however there was not a sensemaking component offered during these sessions (Appendix 4).

Group 3- Health Care Ethics ECHO with sensemaking participants, who participated in the Health Care Ethics ECHO in 2018/19 where a sensemaking component was added to the didactic component of the training were sent an email generated throug RedCap that asked them to participate in a survey (Appendix 2) regarding their ethical response self-efficacy post ECHO training. The structure of the 2018/2019 Health Care Ethics ECHO is consistent with the ECHO format where there is a case presentation and a didactic on an ethics topic, however there was a sensemaking component incorporated into the didactic and applied to case offerings during this session (Appendix 5).

While there are similarities across all curricula, there are distinct differences regarding the purpose, structure and curriculum (Table 7.). It is hypothesized that these differences will result in different learning outcomes, specifically behavior based outcomes for the ECHO groups that are not typical of traditional normative ethics training.

Table 7. Ethics Training Comparison

Type of Training	**Traditional Normative**	**Ethics ECHO Traditional**	**Ethics ECHO with Sensemaking**
Learning Outcomes	Identify ethical issues, problems and dilemmas. Propose a theoretical course of action aimed at resolving ethical conflict between competing principles.	Identify ethical issues in practice and propose ethically supported courses of action in response to the conflict.	Identify, act and resolve ethical conflict in practice. Utilize sensemaking tools to navigate unexpected ethical conflict in practice.

Benefits of Participation	Course credit. Gain cognitive antecedents needed to identify ethical conflicts typical to clinical practice.	Free Continuing Education No cost to participating sites or individuals Ability to share personal cases/stories Collaboration, support, and ongoing learning.	SAME as Ethics ECHO Traditional *Plus* Gain access to sensemaking tools aimed at improving the participants ability to resolve ethical conflict when it arises in future practice.
Purpose	Prepare students for recognition of ethical conflict they may experience in practice.	Improve ethical awareness and knowledge to promote patient centered care and shared decision making	Improve patient-centered care and shared decision-making by cultivating sensemaking skills aimed at carrying out ethical actions.
Structure	Face to Face in Class Didactic Traditional Discipline Specific Professional Code of Ethics Review Theoretical Application such as a principles-based approach to Case Studies	Virtual Technology Multidisciplinary Didactic Traditional Real Case Discussion and use of ethical frameworks such as a principles-based approach to resolve ethical conflict.	Virtual Technology Interprofessional Didactic w/ Sensemaking Tools Real Case Discussion with application of a sensemaking tool to resolve ethical conflict.
Curriculum	Review of ethical theory In class discussion to apply principles or other theory to a case study. Evaluation via examination and/or written paper.	Retrospective Case Review Sharing of clinical experience examples Didactics on Common Ethics Issues and Best Practice for Ethics Consultation	Retrospective and Current Case Review Sharing of clinical experience examples Didactics on common ethical issues and how to apply sensemaking tools in practice to resolve the conflict.

Methods

Descriptive statistics were computed to summarize the study variables. Relationship of independent variables including method of training and participant characteristics to scores on the Ethical Response Self Efficacy Survey were determined by a 95% confidence interval. Thus, level of significance was established at $p<0.05$. All operations were carried out using IBM SPSS Statistics software.

1. *Specific Aim #1: To examine the effect of the three types of ethics training on ethical response self-efficacy scores.*

In order to assess Specific Aim #1, the sample was broken into 3 groups: Normative Ethics Training Non-ECHO, Traditional Ethics ECHO, and Sensemaking Ethics ECHO. Using IBM SPSS Statistics Software, a simple linear regression was run to assess the relationship between type of ethics training and ethical response self-efficacy scores. Relationship to self-efficacy scores was determined by a 95% confidence interval. Thus, level of significance was established at $p<0.05$. Normality was checked for analysis including ethical response self-efficacy questions 1-5 by group (traditional ECHO, Sensemaking ECHO, Control). Compared groups by demographics using a Chi Square test of independence. Differences were identified in discipline, gender and years in practice and thus, controlled for when fitting the model for Specific Aim #2.

2. *Specific Aim #2: To examine the relationship between ethical action self-efficacy scores and method of training, controlling for participant characteristics of years in practice, discipline and sex.*

An Independent Samples T-Test, was used to assess relationships between ethical response self-efficacy scores and participant characteristics. Using IBM SPSS Statistics software a predictive model was fit to forecast the ethical response self-efficacy score from training method, when controlling for participant characteristics.

Limitations

The most significant limitation related to the small group size for Health Care Ethics ECHO participants. While the study included a total n of 139, there were only 3 participants in Group 1, that had data related to the Ethical Response Self-Efficacy Survey and participant characteristics. Participant data from 2017/2018 did not include participant characteristics, thus, while the study could assess the relationship between training and ethical response self-efficacy scores, when fitting the model to account for participant characteristics only the traditional Ethics ECHO

participants from 2018/2019 completed a survey that included characteristics. Also, the largest group was Group 3, accounting for 119 responses, with only 17 from Group 2, the Ethics ECHO with Sensemaking cohort.

Threats to validity include convenience sampling limitations. Participants who have self-selected to participate in the Health Care Ethics ECHO may demonstrate higher self-efficacy scores when compared to other practitioners, even without ECHO training. Specifically, ECHO participants often are members of ethics committees and thus could be influenced by history, in that they may engage in other dialogue or be exposed to other feedback unrelated to ECHO which influences responses on the self-efficacy scale. Specifically, years in practice may be a confounding variable as sensemaking strategies draw on previous experiences. However, this limitation should be minimized by controlling for participant characteristics including years in practice.

Limitations of the study include the limited application of the instructional methods specific to the MTN offering. If future studies include a larger number of subjects and/or participants from an Ethics ECHO offered through expanded partnerships including participants from outside Missouri, a stronger predictive relationship between educational variables may develop. This may require additional statistical methods such as moderation or mediation to assess the relationship between predictive variables and the potential impact on self-efficacy scores. Specifically, years in practice may be assessed as a mediator variable when looking at ethics training as the independent variable and self-efficacy as the dependent.

While the literature is reflective of many assumptions regarding the relationships between education and ethical behavior in clinical practice, there has been little research to support claims regarding the variables explored in this linear regression. This research study has the potential to

produce important preliminary data to support use of ECHO as a pedagogical approach in teaching clinical ethics. The outcomes of this linear regression may provide statistical evidence to support the expansion of Ethics ECHO educational offerings as a means to optimize ethical response in clinical practice as well as the use of sensemaking tools in teaching clinical ethics.

Human Subjects

An application will be submitted to the University of Missouri-Columbia, Health Sciences Institutional Review Board. All IRB processes will be followed as required by the university system. Participants will be contacted via email to confirm their interest and to inform them that there is very little is known about the ethical decision-making processes of health care practitioners and that their participation will potentially help fill this gap in knowledge. They will be informed that their participation will involve taking a self-efficacy survey.

Each survey will be analyzed for statistical trends and relevant comparable data. They will be informed that the results of the study may be published, but that their name or identity will not be revealed. It will be reinforced that participation is voluntary and that refusal to participate will involve no penalty or loss of benefits to which they are otherwise entitled; and that they may withdraw from participation at any time without penalty or prejudice. To assure participants' right to privacy, study ID numbers will be assigned to each individual and only those id numbers will be used on study instruments and with data sets constructed for analyses. Names and other possible identifiers will not be used. All staff will complete IRB training online via the University of Missouri's Health Sciences Institutional Review Board's online training site.

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CHAPTER 5

HEALTH CARE ETHICS ECHO: IMPROVING ETHICAL RESPONSE SELF-EFFICACY THROUGH SENSEMAKING

Abstract

Introduction: In clinical practice, evidence suggests that teaching ethics using normative ethical theory has little influence on the ethical actions of providers in practice. Thus, new training methods are needed that improve clinician response to ethical problems. A sensemaking approach to ethics training has demonstrated promise as an evidence-based pedagogical method to improve ethical reasoning and response. Project ECHO (Extension for Community Health Outcomes) is theoretically linked to improved sensemaking. This study examines the effectiveness of ECHO and training in use of sensemaking approaches to ethical response by clinicians.

Methods: A quasi-experimental design study using univariate linear regression was used to examine the effect of the three types of ethics training on ethical response self-efficacy scores, while controlling for participant characteristics of years in practice, discipline and sex.

Results: We found evidence that training in sensemaking through participation in ECHO promotes improved ethical response self-efficacy of clinicians. However, results also suggest that a traditional ECHO format that does not explicitly introduce sensemaking strategies into the training does not result in the same learning outcomes as measured through an ethical response self-efficacy survey.

Conclusions: This study found important preliminary results to support use of sensemaking approaches in clinical ethics training.

Introduction

Clinical ethics discourse and related traditional educational models are dominated by normative, rule-based theory. Typically, these theories are linked to determining the rightness of an action and focus on either the act itself (deontology), or the consequence of the action (teleology). Common approaches to clinical ethics training include teaching the principles of biomedical ethics and application of professional codes of ethics in didactic format? These methods provide the learner with an understanding of the ethical norms that are valued by health care professions, but they do not facilitate learning about how to carry out an ethical action. Even though there is acknowledgment of the complex skills required to navigate ethical conflicts in practice settings, much of the clinical ethics pedagogy focuses on principles (respect for autonomy, nonmaleficence, beneficence, and justice) and other normative theory-based teaching strategies, which do not typically inform or shape future practice decisions (Bertolami, 2004; Crutchfield et al., 2016). From a pedagogical perspective, understanding these theories and related codes of ethics should improve the clinician's ability to identify and resolve ethical conflicts. However, decision-making models grounded in normative theories do not account for the complex organizational contexts that contribute to ethical problems in practice, thus limiting their application to decision making in clinical practice. On the other hand, sensemaking that is grounded in information gathering, integration of divergent views, and understanding the crisis, offers a valuable and viable approach for promoting ethical action in clinically complex situations (Johnson et al., 2014).

Case-based ethics instruction that includes contextual elements has been shown to facilitate sensemaking processes that improve ethical decision-making (Bagdasarov et al., 2013). While cases are often utilized to teach clinical ethics, they do not always include detailed information about the social, environmental, and organizational factors that may influence decision making. Real cases that are nuanced and complex provide a more accurate picture of ethical challenges that are encountered by

clinicians in practice. Specifically, the context and competing perspectives of a case can obfuscate the ethically supported course of action and thus, it is important that future practitioners have experience in navigating complex clinical situations reflective of real practice. Since following clinicians in practice to provide "just in time" ethics education related to these complex cases is not practical exploration of innovative training methods that capitalize on instruction linked to actual patient cases is indicated.

Relationship between ECHO and Sensemaking

Project ECHO (Extension for Community Healthcare Outcomes) uses videoconferencing technology to connect multidisciplinary primary care teams simultaneously to engage in case-based learning and discussion (Arora et al., 2016). ECHO uses informal discussions and guidance, offering advantages of learning through authentic cases, focusing on the current needs of participants and building on participants' current knowledge (Komaromy et al., 2017). ECHO situates learning within authentic professional practice and workplaces, thus enhancing the likelihood that newly acquired knowledge will change professional practice (Arora et al., 2017; Mazurek et al., 2017). ECHO has demonstrated success in helping health care providers gain new knowledge, increase confidence and improve attitudes towards clinical conditions (Colleran et al., 2012; Wood et al., 2016). Participation in ECHO has also resulted in a significant increase in clinical provider's self-efficacy (Arora et al., 2016; Becevic, Mutrux, & Edison, 2016; Mazurek et al., 2017). With regard to integration of sensemaking theory into clinical practice, ECHO shows promise in helping clinicians learn how to address unexpected clinical situations by adopting the properties of sensemaking when making decisions, over rule-based decision-making (Potts et al., 2017). This sensemaking approach closely articulates with promotion of ethical response as it reframes ethical challenges to good people trying to make sense of complex situations as opposed to bad ones making poor decisions (Weick et al., 2005).

In clinical ethics instruction, the intended learning outcome is to improve the ability of clinicians to respond to ethical conflict. Because ethical conflict is often precipitated by unexpected events, sensemaking is a potentially valuable tool that can cultivate behaviors associated with ethical response. In particular, using ECHO grounded in sensemaking properties to deliver clinical ethics training will likely increase clinicians' ability to respond ethically to unexpected events in practice. Clinical ethics involves making life altering health care decisions by navigating viewpoints of multiple stakeholders in complex environments, and rapidly changing situations. (Bagdasarov et al., 2012; Peacock et al., 2013). Ethical conflict typically presents when a clinical decision is precipitated by an unexpected event, e.g. atypical responses from patient/family members, an unanticipated clinical outcome, or an unforeseen tragedy. Sensemaking is an optimal approach to dealing with unexpected events as it is the process by which people give meaning to their collective experiences, especially when those experiences do not adhere to the norm (Weick & Sutcliffe, 2015).

When practitioners are faced with difficult ethically charged situations, they will often act in ways inconsistent with what is ethically or clinically indicated as they are trying to appease patients or avoid conflict (Ginsburg et al., 2014). This is why clinical decision-making models are ill-equipped to deal with these complex situations as they primarily rely on objective data generated from looking at typical cases. They do not account for unexpected or atypical situations that fall outside of the norm. Therefore, teaching clinical ethics through applying sensemaking models to actual patient cases may better prepare clinicians in addressing complex and unique ethical conflicts in practice (Browning, 2012). In contrast to traditional pedagogies that use linear, normative approaches to ethical decision-making, sensemaking provides a more fluid approach. However, there is limited understanding of how sensemaking properties are elicited during the ECHO process. With this in mind, this study examined whether ECHO participants would engage in sensemaking naturally to improve ethical response, or if

intentional incorporation of a sensemaking framework for ethical decision making increased the likelihood of an ethical response.

Methods

The quasi-experimental study used a series of univariate analyses of variance (ANOVAs) to assess the relationship between the type of ethics training (independent variable) and ethical response self-efficacy survey (dependent variable), when accounting for participant characteristics of years in practice, sex and discipline. The study also adjusted for number of Health Care Ethics ECHO attended. This study was approved by the University Health Sciences Institutional Review Board.

Study Setting and Sample

The sample was a non-randomized, convenience sample of Health Care Ethics ECHO participants and a control group consisting of clinicians who did not participate in ECHO. Participants were primarily from a Midwestern and Eastern state, however there were a small number of participants from across the country. Healthcare providers from diverse disciplines who practice across the two states were recruited for participation in the Health Care Ethics ECHO and other providers joined via word of mouth. The geographic focus on these two states was driven by the participation in two different telehealth networks as part of a larger joint Health Care Ethics ECHO initiative.

Recruitment strategies for ECHO participation included personal emails from the core clinical ethics teams located at the network sites. Participant characteristics were the same for each group, and included those with varying years of practice experience, men and women as well as clinicians from different disciplines, with the largest percentages reflective of those in the

nursing profession. The group characteristics and recruitment and study procedures are outlined below.

- Group 1-Normative Ethics Training Non-ECHO participants (Control). This control group included participants who did not participate. Participants in this group would have received traditional clinical ethics training as part of their professional education.
- Group 2-Traditional Health Care Ethics ECHO participants (Traditional ECHO). Group was introduced to a curriculum that included a case presentation and a didactic on an ethics topic, however there was no intentional sensemaking component offered during these sessions.
- Group 3- Health Care Ethics ECHO with Sensemaking participants (Sensemaking ECHO). Participants of a modified Health Care Ethics ECHO, where in addition to the a case presentation and a didactic on an ethics topic, a sensemaking component was integrated into the didactic and applied to cases during these sessions.

Measures

Often evaluation of clinical ethics education focuses on knowledge acquisition. However, when assessing the effectiveness of the training, this study focused on ethical response. In order to determine behavioral learning outcomes, the chosen measure was a self-efficacy scale developed to specifically assess ethical response. Self-efficacy relates to the individual's belief about his/her abilities of organizing and controlling actions leading to achieving the specified level of performance to change human behavior (Bandura, 1995). According to Bandura's social cognitive theory, perceived self-efficacy is a primary indicator of human motivation and future action (Bandura, 1995; Janiszewska et al., 2017; Luszczynska et al., 2005; Zalewska-Puchała et al., 2007). Similarly, ethical behavior requires individuals to feel as though they have the ability

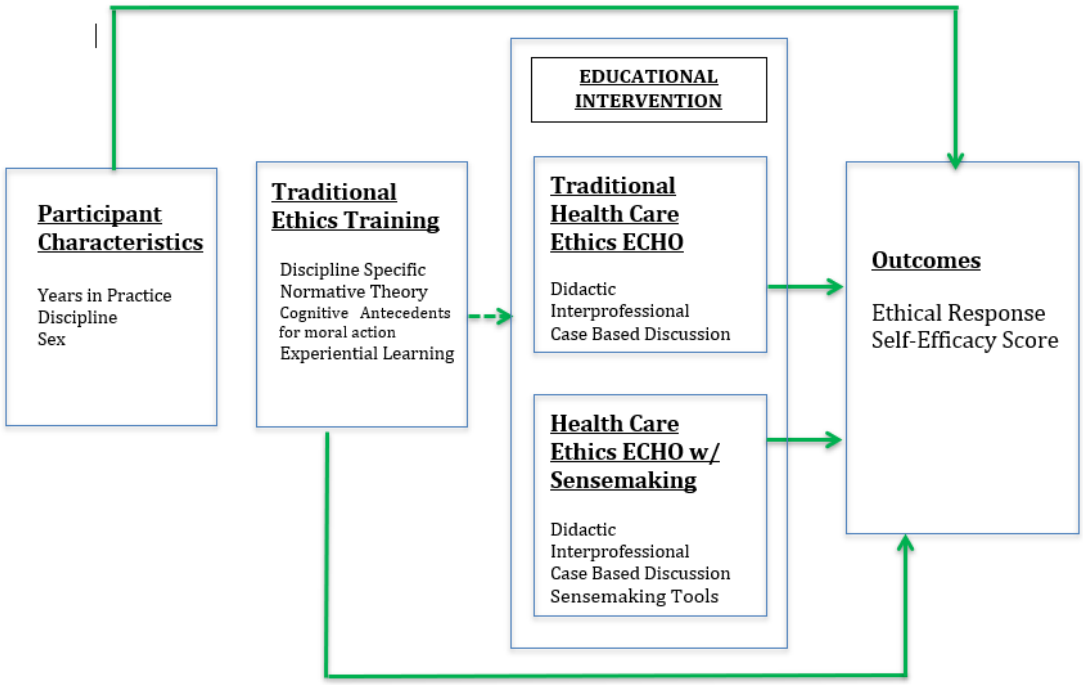
to carry out the intended action and that the action will result in the expected outcome. In order to measure self-efficacy as it relates to specific behavior, the questions must be tailored to the particular domain of functioning (Pajares & Urdan, 2006). The self-efficacy domain of functioning for this study relates to perceived ability to navigate ethical conflicts even in the face of external pressures. In particular, even if a person can identify the ethical course of action, if confronted with competing external pressures, a "good" person will often act unethically (Bazerman & Gino, 2012; Drumwright et al., 2015; Gaspar et al., 2015; Milkman et al., 2008; Thronicker, 2016). The ethical response self-efficacy scale focuses on the provider's perceived ability to execute ethical action even in difficult situations. This scale focuses on the behavior (action taken) as opposed to the recognition or identification of ethical conflict and supported actions. Short of observable behavior, assessing perceived self-efficacy of a specific behavior provides a good indication of the actions and behaviors that a person will display (Bandura, 1995). In this study, the specific behavior examined is the participant's ability to respond ethically measured by the ethical response self-efficacy score.

Questions for the ethical response self-efficacy survey were developed by the Health Care Ethics ECHO hub team clinical ethicists, who have specific training in bioethics and clinical ethics consultation as well as experience teaching clinical ethics content. A consensus approach was used to confirm use of the agreed upon questions. The questions were then sent to the administration at the telehealth network for final approval to be used as survey questions prior to being disseminated via email to Health Care Ethics ECHO participants. A copy of the Ethical Response Self-Efficacy Survey is provided in Addendum 1.

We hypothesized that clinicians who participated in the Sensemaking ECHO would demonstrate higher self-efficacy scores than traditional ECHO participants, who in turn would

score higher than clinicians trained in a traditional model, after adjusting for participant characteristics (control). Specifically, we examined (1) the effect of the three types of ethics training on ethical response self-efficacy scores, and (2) the relationship between ethical response self-efficacy scores and method of training, adjusting for participant characteristics of years in practice, discipline and sex. A conceptual model outlining the study interventions is depicted in Figure 3.

Figure 3. Intervention Chart



The training content was designed to assess if incorporating sensemaking approaches into clinical ethics education helps foster behavioral skills that reflect the clinician's ability to respond ethically in practice. Thus, three groups were studied. Group 1, those who only received traditional ethics training, did not participate in a Health Care Ethics ECHO. Group 2, received training in a traditional health care ethics ECHO model. Group 3, not only participated in the Health Care Ethics ECHO, but also received

instruction in sensemaking, specifically instruction in the "STICC" Framework: Situation, Task, Intent, Concern and Calibrate. The STICC Framework was chosen as it has been noted to generate a shared understanding among clinical teams in order to improve care delivery (Leykum & O'Leary, 2017). The elements and corresponding definitions of the STICC Framework are outlined in Table 8.

Element	***Definition***
Situation	Discussion of "here is what we are dealing with."
Task	Assessment of "what are we going to do."
Intent	Explicit, concrete discussion of why the team is embarking a specific diagnostic or therapeutic plan.
Concern	Discussion of "what we need to keep our eye on" or "what we need to look out for"
Calibrate	"Talk to me." Discussion regarding what the team might be missing, what is unclear or not yet understood. If-then contingency statements.

Table 8. *STICC Framework*

By introducing a sensemaking framework into ethics training and case review, clinicians were provided a tool that can be used to guide professional actions. Use of a sensemaking framework like STICC allows individuals to manage unexpected events and organize various demands of a situation into a more orderly set of action-based responses (Weick & Sutcliffe, 2015). By using pedagogical tools that promote use of sensemaking when reviewing cases during ECHO, participants are more likely to connect ethical reasoning to an action-based strategy in context.

An ethical response self-efficacy survey was used to assess participants' perceived ability to respond to ethical conflict in practice. The survey was developed by clinicians with specific training in bioethics and clinical ethics consultation as well as experience teaching clinical ethics content. The questions were also reviewed and vetted by the hub-team members of both participating ECHO hub team networks. The outcome variable of ethical response self-efficacy score is numerical with responses ranging on a scale from 1-7. Predictor variables include type

of ethics training (Control, Traditional ECHO & Sensemaking ECHO) and participant characteristics.

Data Analysis

The ethical response self-efficacy survey was modified in 2018 to include demographic information. This demographic information included discipline, number of years in practice, and sex. Health Care Ethics ECHO participants were also asked about the number of Ethics ECHO's attended. Participant discipline was coded into 4 categories, nursing, physician, other and ethics consultant/committee member. Sex was coded as a 1 for female and 2 for male. The questions resulting in a continuous variable were "how many times have you participated in Ethics ECHO" and "how long have you been in your professional role". Also, in 2018, while the first five questions were kept the same, questions 6-10 were modified to focus on ethical response as opposed to ethical knowledge. Thus, there were missing data related to demographic information and responses to questions 6-10 for those who participated in the Health Care Ethics ECHO prior to June 2018. Therefore, descriptive statistics include mean scores for the first five questions and total mean score on the ethical response self-efficacy survey for all three groups, control, traditional ECHO and the sensemaking ECHO group. Descriptive statistics were run for the Post Hoc groups comparing mean scores on the ethical response self-efficacy survey for all ten questions and total mean score for the non-ECHO control group and all Health Care Ethics ECHO groups combined. Normality was checked for analysis 1 including questions 1-5 by group (Traditional ECHO, Sensemaking ECHO, Control) and for analysis 2 including questions 1-10 by Post-Hoc group (ECHO & Control). Demographics of the groups were compared using a Chi Square test of independence. Differences were noted and thus, we adjusted for these differences in discipline, gender and years in practice when fitting the linear regression model.

A series of one-way analysis of variance (ANOVA) tests were used to determine whether there were statistically significant differences between the mean scores for the Ethical Response Self Efficacy Survey for each of the three groups. An ANOVA was run for each individual question as well as the total mean score for the survey, including all 10 questions. Secondary to the small numbers and unequal groups a Post-Hoc ANOVA was run to compare the mean scores on the Ethical Response Self-Efficacy survey between the Health Care Ethics ECHO groups combined and the control group. Due to missing data, an ANOVA was run for each question, the mean score for questions 1-10 as well as the mean score for questions 1-5. The relationship between method of training and participant characteristics to scores on the Ethical Response Self Efficacy Survey were determined by a 95% confidence interval. Level of significance was established at $p<0.05$. All operations were carried out using IBM SPSS Statistics Software Version 25.

Results

There were 172 participants in the study. Of those, 119 belonged to the control group (Group 1); 38 participants belonged to Group 2, Traditional ECHO; and Group 3 consisted of 15 sensemaking ECHO participants. Of 172 participants 139 completed the demographic questions for sex, provider type, and length of time in practice. Twenty out of 139 (14%) identified as male and 119 (86%) identified as female. The primary provider types included 115 nurses (83%), 10 physicians (7%), and 14 who were classified as other (10%). Participants in the other category represented ethics consultants, compliance and quality officers, a genetic counselor, social workers, a dental hygienist, a risk management officer, and ombudsmen. The participants response regarding years in practice ranged from 1 to 50 years: 35% had 1-5 years of experience, 19% had 6-10 years of experience, 16% had 11-15 and 30% had more than 15 years.

Descriptive statistics for mean scores on the first five questions of the Ethical Response Self-Efficacy survey by group are shown in Table 9.

Table 9. ***Descriptive statistics for predictor variables (N=172)***

Question	Variable	N	Mean Score (SD)	Range
Recognize and effectively address ethical conflict when it occurs	Control	119	5.08 (1.121)	2-7
	Traditional ECHO	38	4.58 (1.328)	2-7
	Sensemaking ECHO	15	5.47 (.990)	4-7
Question	Variable	N	Mean Score (SD)	Range
Communicate with patients about EOL issues and concerns	Control	119	4.88 (1.457)	1-7
	Traditional ECHO	38	4.82 (1.574)	1-7
	Sensemaking ECHO	15	5.40 (1.502)	2-7
Question	Variable	N	Mean Score (SD)	Range
Participate with patients/families in advance care planning	Control	119	4.41 (1.362)	1-7
	Traditional ECHO	38	4.82 (1.557)	1-7
	Sensemaking ECHO	15	4.93 (1.710)	1-7
Question	Variable	N	Mean Score (SD)	Range
Recognize and address burdens of caregiving for complex patients	Control	119	4.80 (1.338)	1-7
	Traditional ECHO	38	4.63 (1.282)	2-7
	Sensemaking ECHO	15	5.20 (1.612)	2-7
Question	Variable	N	Mean Score (SD)	Range
Respond effectively to patient and families when requests for aid in dying occur	Control	119	4.66 (1.531)	1-7
	Traditional ECHO	38	4.18 (1.658)	1-7
	Sensemaking ECHO	15	4.87 (1.727)	1-7
Question	Variable	N	Mean Score (SD)	Range
Total score	Control	119	23.83 (5.833)	10-35
	Traditional ECHO	38	23.03 (6.232)	9-32
	Sensemaking ECHO	15	25.86 (6.917)	12-35

As noted in Table 9 the Sensemaking ECHO participants, demonstrated the highest mean scores of any group on the ethical response self-efficacy survey with a mean score of 25.86 on the first five questions, compared to 23.83 for the control group and 23.03 for the Traditional ECHO group. However, these differences were not statistically significant.

Relationship between training group and score on the ethical response self-efficacy survey was computed using a series of one-way ANOVAs. The series of ANOVAs was run for the three groups, control, Traditional ECHO, and Sensemaking ECHO for each individual question as well as an overall mean score. The Sensemaking ECHO group scored significantly higher than the Traditional ECHO group on the first question of the ethical response self-efficacy survey ($p=0.04$, mean difference

= 0.9, 95% CI= 0.05, 1.17). The Sensemaking ECHO participants scored higher (mean=5.47) on the first question of the ethical response self-efficacy survey than both the Traditional ECHO group (mean=4.58) and the control (mean=5.08); however, the difference between the sensemaking and control group was not statistically significant (p=0.437, mean difference = 0.391, 95% CI =-0.36, 1.14). Summary statistics for the first five questions on the Ethical Response Self-Efficacy Survey are outlined in Table 10.

Table 10. Summary statistics of SE score and comparison to sensemaking group

Dependent variable	Sensemaking Group	Comparison Groups	Mean Difference	SE	p	95% CI Lower	95% CI Upper
Recognize/address ethical conflict when it occurs	sensemaking	control	.391	.318	.437	-.36	1.14
		traditional	.888	.354	**.035**	.05	1.17
Communicate about EOL	sensemaking	control	.518	.407	.414	-.45	1.48
		traditional	.584	.453	.404	-.49	1.66
Participate with patients/families in ACP	sensemaking	control	.522	.394	.562	-.43	1.47
		traditional	.118	.438	1.00	-.94	1.18
Recognize/address burdens of caregiving	sensemaking	control	-.167	.252	1.00	-.78	.44
		traditional					
Respond to requests for aid in dying	sensemaking	control	.203	.432	1.00	-.84	1.25
		traditional	.682	.481	.473	-.48	1.84
Total Score	sensemaking	control	2.03	1.65	.657	-1.95	6.02
		traditional	2.80	1.84	.271	-1.50	7.18

Bivariate relationships between ethical response self-efficacy (SE) score and participant characteristics were examined using an independent samples t-test. Relationships were assessed for each individual question as well as total mean score for the ethical response self-efficacy survey. We found no statistically significant relationships between self-efficacy score and participant characteristics. When fitting a predictive model to forecast ethical response self-efficacy score from training method when adjusting for participant characteristics, the only statistically significant participant characteristic affecting self-efficacy score was years in practice, and only for Question 1. The relationship between

years in practice, group, and self-efficacy score was statistically significant (p = .02, b=0.02, 95% CI = 0.003, 0.03). That is, for every 50 years of practice, there would be an increase of 1 point on the ethical response self-efficacy score for question one (table not included), thus this relationship is not clinically meaningful.

Discussion

This study examined including sensemaking theory into didactic training and case for Health Care Ethics ECHO. The Sensemaking ECHO group that was introduced to the STICC framework perceived that they were better able to recognize and address ethical conflict arising in the clinical setting, when compared to the Traditional ECHO participants who were not introduced to sensemaking theory and strategies. While both ECHO groups received a didactic presentation on ethics theory and application to practice, reviewed cases, and discussed real-life ethics consults, the participants who were trained in application of sensemaking theory to resolve ethical issues in practice demonstrated statistically significantly higher scores in their perceived ability to address ethical conflict. It is also important to note, that even though not statistically significant, participants who were trained in sensemaking produced the highest score on every component of the ethical response self-efficacy survey when compared to the other two groups.

Since a primary learning objective in clinical ethics education is to prepare clinicians to respond ethically in practice, understanding the relationship between type of training and self-efficacy is important. While the results from this preliminary study are mixed, there are implications for both the understanding of ethical decision-making in practice as well as opportunities to improve pedagogical approaches to better prepare clinicians to respond ethically in practice. Specifically, use of sensemaking to teach clinical ethics shows promise as a pedagogical approach in improving ethical response of clinicians in practice.

An interesting finding was that the control group, i.e. those individuals who only received the traditional ethics training as part of their professional education, had self-efficacy scores that were higher than those who participated in a Traditional ECHO. While these differences did not rise to the level of statistical significance, it should be noted that the results are inconsistent with the study hypothesis. It was hypothesized that the Traditional ECHO participants would score higher on the ethical response self-efficacy survey than the control participants. However, it is possible that the Health Care Ethics ECHO participants had in increased awareness of the complexity of responding ethically to complex cases in practice, and this may explain the lower self-efficacy scores compared to the control group.

As noted by many behavioral ethicists, one of the most prevalent barriers to ethical action relates to inability to recognize the ethical components relevant to the decision-making process (Bazerman, 2008; Sezer, Zhang, Gino, & Bazerman, 2016). This has also been noted in clinical ethics, where a common barrier to resolving ethical conflict stems from a general inability to recognize and frame conflicts at the bedside as ethical in nature (Alice, Marianne, Sandra, & Linda, 2011). This indicates that if clinicians are not trained in recognizing ethical conflict, they may overestimate their ability to address and resolve ethical concerns at the bedside. Thus, secondary to the limited ethics training received by control group participants, they may be less likely than the ECHO groups to recognize the ethical nuances of medical decision-making. This could potentially explain the difference in self-efficacy scores between the control group and Traditional ECHO participants, who arguably have advanced training in recognizing the complexities of ethics issues at the bedside. Thus, it is recommended that a knowledge-based assessment be incorporated into future studies. Since ethical response is predicated on being able to identify the ethically supported course of action, assessment

should include determining cognitive awareness of an appropriate response prior to assessing behavioral skills related to one's ability to respond.

Findings from the predictive model to assess the influence of participant characteristics on ethical response, indicate that practice experience alone cannot be relied upon to develop the skill of responding ethically in practice. The predictive model forecasting ethical response self-efficacy score from training method and participant characteristics was statistically significant when accounting for years in practice. However, the result is not practically relevant in that for every 50 years of practice, you would see an increase of 1 on the self-efficacy score. For example, if a female nurse with 1 year of practice experience rated her ability to recognize and effectively address ethical conflict when it occurs as a 5/7 on the self-efficacy scale, all other things being equal a nurse with 51 years of experience would rate herself as 6/7 on the self-efficacy scale, which could be attributed to her years in professional practice even if she had the same ethics training. This supports the need to optimize behavioral learning outcomes produced by clinical ethics training.

Limitations

Limitations of this study include use of a small convenience sample, particularly in the Sensemaking ECHO, and the uneven number of participants in each group. Expanding the number of study participants as well as the number and type of participants in Health Care Ethics ECHOs will strengthen future studies. While the results showed preliminary promise in use of sensemaking strategies as a pedagogical approach to teach clinical ethics, incorporation of sensemaking into other clinical ethics instructional forums is necessary to determine if its use is effective across teaching platforms. Further exploration to differentiate influence of ECHO and sensemaking on learning outcomes is indicated. With a larger number of subjects and a more even distribution of participants by group, a stronger predictive relationship between variables

such as sensemaking or ECHO and ethical response may develop. Since the sensemaking group in this study also potentially benefited from the ECHO model, use of additional statistical methods such as moderation or mediation to assess if ECHO delivery influences the relationship between sensemaking and ethical response is recommended.

Another limitation relates to the use of self-efficacy as a determinant of ethical response. Use of a specified self-efficacy scale is limited by the uncertain psychometric properties. In particular, the survey that was utilized for this study was not validated. In future studies it is recommended to also use a knowledge assessment to discern whether a person's perception regarding ability to respond ethically aligns with actual ability to determine the ethically supported course of action. Optimally, assessing behavior in practice, simulation, or virtual immersion would provide an outcome variable more reflective of actual ability to respond ethically in the face of competing external pressure.

Conclusion

This study focused on whether intentional incorporation of a sensemaking framework for ethical decision making into a Health Care Ethics ECHO increased the likelihood of an ethical response. Specifically, integration of sensemaking theory and application of the STICC framework to cases included in didactic presentations served as a way to translate ethical decision making into ethical response. The STICC protocol allows for individuals to organize disparate information in meaningful ways that allows for an action-based response (Weick & Sutcliffe, 2015). This is especially important in clinical ethics, where there is increased uncertainty, significant flux in demands, and anomalies that fall outside of clinical or social norms.

While normative theory can shape cognitive perceptions regarding right or wrong, sensemaking gives meaning to the decision-making process that occurs during an unexpected event, such as clinical ethics conflicts. In teaching clinical ethics, it is important that learning outcomes include a clinician's ability to respond to ethically complex cases, not just identify ethical norms. Case-based ethics instruction allows for increased understanding of the contextual and individual factors that can influence decision making (Bagdasarov et al., 2013). Discussion of real cases within clinical teams provides an opportunity to gain a better appreciation of how these factors may impede one's ability to carry out an ethically supported course of action. Incorporating the STICC framework into discussions helps to guide team decisions resulting in high reliability regarding choosing the optimal course of action for a specific patient (Leykum, et. Al, 2015). Sensemaking frameworks also assist with the linguistic aspects of making sense (Brown et al., 2015; Sandberg & Tsoukas, 2015; Weick et al., 2005). In clinical situations, sensemaking builds ethical skills related to fair and clear communication with other stakeholders (Gagnou-Savatier & Mercier, 2015). With the increased access to technologies such as videoconferencing, clinicians now have opportunities to discuss these complex cases within diverse health care teams. Videoconferencing used for open discussion that uses sensemaking tools to ground discussion in terms of actions, can help to cultivate provider skills aimed at resolving unexpected ethical conflicts that arise in clinical practice.

Based on the scores of the ethical response self-efficacy survey the study demonstrated that there is preliminary evidence to support the claim that incorporating sensemaking into clinical ethics instruction increases the clinician's ability to respond ethically in practice when compared to traditional normative ethics training and a traditional ECHO model that does not include introduction to sensemaking theory. While it has been argued that clinical experience

may best prepare clinicians for addressing complex ethical conflicts in practice, the outcomes of this study indicate that even when clinicians have practiced for many years, they would benefit from clinical ethics training that includes instruction in sensemaking theory and action-based strategies focused on resolving ethical conflict and maximizing ethical response.

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CHAPTER 6

CONCLUSION

With regard to clinical ethics, traditional pedagogical approaches predicated on application of normative theory often fall short in shaping ethical response to conflicts encountered in clinical practice (Crutchfield et al., 2016). There is a need to explore educational strategies that translate ethics knowledge into ethical behavior. Commonly used pedagogical methods steeped in traditional normative ethical theory are less powerful than sensemaking approaches in preparing clinicians to respond to ethical problems in practice.

Dissertation Overview and Findings

This dissertation study focused on the influence of ECHO and a sensemaking approach to clinical ethics training on the ethical behavior of clinicians. Chapter 1 introduced the practical examples regarding the limitations of applying normative ethics theory to complex practice decisions. Through an extant literature review and analysis, Chapter 2 examined the use of sensemaking as a viable pedagogical approach to teach clinical ethics that would support behavioral learning outcomes. As such Chapter 3 described how current innovative learning communities offered through Project ECHO (Extension for Community Health Outcomes), provide clinicians access to educational environments that promote sensemaking and behavior change, which improves patient care. These findings substantiated the need to explore the viability of a Health Care Ethics ECHO in promoting sensemaking and ethical response by clinicians, as outlined in Chapter 4. The results reported in Chapter 5 revealed both opportunities and limitations regarding the use of a Health Care Ethics ECHO to teach clinical ethics with the intent of promoting sensemaking and ethical response by clinicians. This study offers important

preliminary evidence regarding the significance of using a sensemaking approach in ethics training and implications for improving ethical response by clinicians in practice.

Approach

This quasi-experimental study examined the difference in ethical response self-efficacy scores between three groups receiving different types of ethics training. As described in Chapter 2, a sensemaking approach to ethics training is a viable model in promoting ethical decision-making in clinicians. Chapter 3 touches on clinical educational experiences through ECHO that promote sensemaking by clinician participants. Thus, the study outlined in Chapter 4 and further refined in Chapter 5, sought to explore sensemaking a pedagogical approach in teaching clinical ethics and further examine the learning variables that promote sensemaking and subsequent ethical response by clinicians. The logistical restrictions of studying ethical behavior in practice resulted in construction of an ethical response self-efficacy survey, designed to assess perceived ability to respond to typical ethical conflicts in practice. Use of self-efficacy measures are highly linked to future behavior (Bandura, 1995). Development of the ethical response self-efficacy survey by trained clinical ethicists and bioethics instructors, provided an opportunity to measure specified self-efficacy as related to ethical behaviors of clinicians. As such this study resulted in preliminary evidence supporting a sensemaking approach to ethics training as a means to promote ethical response in clinical practice.

Major Findings

Quantitative analysis of the data demonstrated that incorporation of sensemaking theory and strategies into the didactic component of a Health Care Ethics ECHO resulted in higher ethical response self-efficacy than those not exposed to sensemaking. When examining the

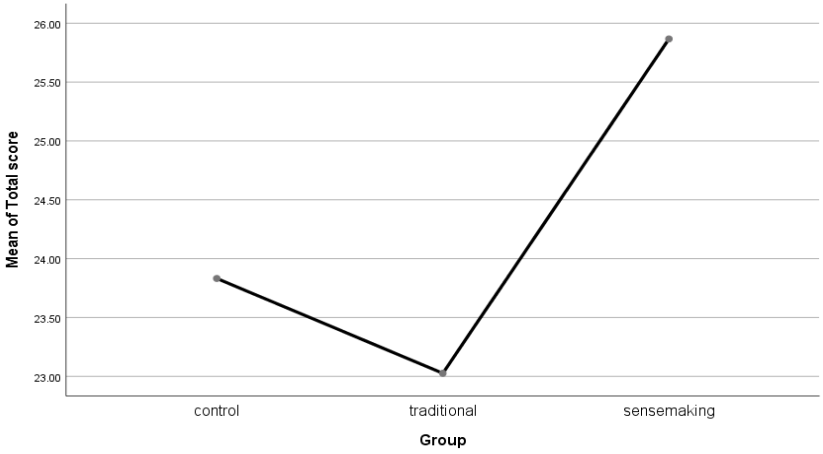
relationship between type of ethics training on ethical response self-efficacy scores, regarding perceived ability to "recognize and effectively address ethical conflict when it occurs", results were statistically significant between the Health Care Ethics ECHO with sensemaking and Traditional Health Care Ethics ECHO groups. This finding demonstrated that the relationship between type of ethics training and self-efficacy score was higher for those who participated in a Health Care Ethics ECHO where sensemaking techniques were incorporated into the training, as compared to those who only participated in the traditional Health Care Ethics ECHO. This data provides preliminary evidence to support that incorporating a sensemaking approach in training produces behavioral skills that may better prepare clinicians to respond to ethical conflict in practice.

While response to the primary question of perceived ability to recognize and effectively address ethical conflict in practice provides preliminary evidence that training in sensemaking through participation in a Health Care Ethics ECHO promotes ethical response by clinicians, with regard to the hypothesis that ECHO innately promotes engagement in sensemaking was refuted. The findings suggest that a traditional Health Care Ethics ECHO, that does not explicitly introduce sensemaking strategies into the training, does not result in the same learning outcomes as a Health Care Ethics ECHO that includes sensemaking strategies as measured through an ethical response self-efficacy survey.

When looking at the major findings of this preliminary study that may inform future research, it is important to note that while statistical significance was not found between the three groups with regard to the overall perceived ability to respond to different types of ethical conflict in practice, there is a trend in the data that suggests a need to further explore sensemaking as a pedagogical approach in teaching clinical ethics. As noted in Figure. 5 the mean total score on

response to the survey does reflect that participants trained explicitly in sensemaking theory and approach did score higher on the ethical response self-efficacy survey that the other two groups.

Figure 4. *Mean Total Response Score on Ethical Response Self Efficacy Survey by Group*



Discussion

To my knowledge this is the only study assessing ethical response learning outcomes associated with participation in a Health Care Ethics ECHO. Likewise, this is the only quantitative study that attempts to discern the relationship between three different types of ethics training and ethical response by clinicians. With regard to applied ethics in the professions, this work supports the theory that when education in professional programs merely focuses on the technical aspects and overlooks skills focused on questioning and inquiry, ethical reasoning is diminished (Rest & Narváez, 1994). In addition, if learners do not have a cognitive framework to apply theoretical concepts to future encounters, the knowledge they have acquired is not actionable (Dewey, 1963). This study attempts to show that ethics education and professional training that incorporates a cognitive framework, in the form of sensemaking, when teaching clinical ethics results in learning outcomes that promote ethical response in practice. Conversely, a focus on normative theoretical ethics, reflective of traditional pedagogical approach that does

not incorporate a cognitive framework for decision-making, has limited effect on the ethical behavior of clinicians.

Findings from this study highlight opportunities to promote ethical response by clinicians through incorporating sensemaking theory and frameworks into clinical ethics pedagogy. A sensemaking approach has demonstrated preliminary evidence as to its effectiveness in optimizing ethical decision-making and response when integrated into ethics training for scientists and professionals. This may be because engagement in sensemaking provides people with an explicit understanding of circumstances in such a way that supports their ability to act on information; action not interpretation is the central focus in a sensemaking framework (Weick et al., 2005). The findings from the Health Care Ethics ECHO study, give further credence to this claim.

When introduced to the theory of sensemaking and by applying sensemaking frameworks, such as the STICC protocol, to actual ethics cases, participants scored higher on an ethical response self-efficacy survey. Since self-efficacy is closely linked to future behavior it would be reasonable to assume that those who scored higher on this survey will demonstrate a higher likelihood of responding ethically in practice.

Implications for Practice

Findings supported the use of Weick's sensemaking theory to develop instructional methods that encourage ethical decision-making in learners as well as promote ethical response by clinicians. The review reveals important theoretical and training implications for introducing sensemaking as a means to promote ethical action in clinical practice.

The statistical analysis provides preliminary evidence that training in sensemaking through participation in a Health Care Ethics ECHO promotes ethical response by clinicians. However, results also suggest that a traditional ECHO format with content focused on clinical ethics, that does not explicitly introduce sensemaking strategies into the training, does not result in the same learning outcomes as measured through an ethical response self-efficacy survey. In order to promote ethical practice in the face of moral ambiguity, it is imperative to further explore a sensemaking approach as a means to improve the effectiveness of clinical ethics training.

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Appendix 1. Show-ME ECHO Offerings and Contact Information

Show-Me ECHO Project	Established	To Learn More Contact	Expertise Available To Participants	Session Schedule
Autism	March 4, 2015	Shelly Gooding: (573) 884-5935; goodings@health.missouri.edu	Developmental Pediatrician, Child Psychologist, Child/Adolescent Psychiatrist, Dietitian, Resource Coordinator, Health Literacy Expert, Parent Advocate/Educator.	11:45-1:15pm First and Third Wednesday of the Month, Year-Round
Asthma	September 8, 2015	Shelly Gooding: (573) 884-5935; goodings@health.missouri.edu	Clinicians in Pediatrics, Allergy and Environmental Assessment, Health Literacy Expert, Nursing and Asthma Education Specialists.	Noon-1:30pm Each Tuesday in January, February, May, June, September, October.
Child Psychiatry	May 15, 2017	Amanda Craighead: (573) 884-7673; craigheadan@health.missouri.edu	Child Psychiatrist, Pharmacist, Psychologists, Social Worker, Developmental Pediatrician, Health Literacy Expert.	Noon-1pm Second and Fourth Fridays May-October and November-April
Community Health Worker	November 7, 2017	Shelly Gooding: (573) 884-5935; goodings@health.missouri.edu	Community Health Workers, Educators, Community Resource Specialists, Behavioral Health Specialist, Nurse Care Manager, Health Literacy Expert	2pm-3pm First and Third Tuesdays of the month
Dermatology	November 20, 2015	Lauren Dahm: (573) 882-8240; dahml@health.missouri.edu	General Dermatologists, Pediatric Dermatologists, Dermatopathologist, Nurse Practitioner, Clinical Psychologist.	Noon-1pm every Friday Year-Round
Health Care Ethics	July 13, 2017	Shelly Gooding: (573) 884-5935; goodings@health.missouri.edu	Ethicists' with Experience in Consulting, Social Work, Adult Geriatric Nurses.	11am-Noon Second Thursday of Each Month, Year-Round
Hepatitis C	January 20, 2016	Beth Monson: (573) 884-3847; monsonb@health.misssouri.edu	Hepatologist Clinical Psychologist Nurse Resource Specialist, Pharmacist, Health Literacy Expert	Noon-1pm First and Third Fridays of the Month, Year-round
HIV	November 8, 2018	Beth Monson: (573) 884-3847; monsonb@health.misssouri.edu	Physician, Clinical Pharmacist, HIV Nurse, HIV Medical Case Management Expert, Treatment Adherence Expert, Behavioral Health Expert.	Noon-1pm Second and Fourth Thursday of the month Year-Round

Multi-Tier System of Support	April 17, 2018	Wendy Hough: (573)884-3048; houghw@health.missouri.edu	MU's College of Education Faculty, Teacher, Special Education Teacher, Instructional Coach, Principal, School Psychologist, Director of MO CASE	4-5pm Thursdays (12/5, 1/30, 2/27, 4/30)
Opioid Use Disorder	September 13-2017	Beth Monson: (573) 884-3847; monsonb@health.misssouri.edu	Psychiatrist, Psychologist, Social worker, Addictionologist, Pharmacist, Health Literacy Expert	11:45-1pm Second and Fourth Fridays, Year-Round
Pain Management	November 11, 2014	Beth Monson: (573) 884-3847; monsonb@health.misssouri.edu	Chronic Pain Management Specialist, Clinical Psychologist, Pharmacist, Physical Therapist, Social Worker, Sleep and Pain Specialist, Health Literacy Expert	Noon-1pm Second and Fourth Thursday From January - June and Sept.-December
High Risk OB-Urban (HOPE)	February 5, 2019	Amanda Craighead: (573) 884-7673; craigheadan@health.missouri.edu	OB-Gyn, Maternal-Fetal Medicine, Labor and Delivery Nurse, Diabetes Educator, Dietician, Neonatologist, Psychiatrist, Pharmacist	Noon-1pm First and Third Tuesday of the month Year-Round
High Risk OB-Rural (CROWN)	February 28, 2019	Amanda Craighead: (573) 884-7673; craigheadan@health.missouri.edu	Maternal-Fetal Medicine, Psychiatrist, Charge Nurse, Social Worker, Neonatologist	Noon-1pm Second and Fourth Thursday of the month Year-Round
Neonatal Abstinence Syndrome (NAS)	February 7, 2019	Lauren Dahm: (573) 882-8240; dahml@health.missouri.edu	Neonatologist, Pediatrician, Neonatal Outreach Educator, Lactation Consultant, Pharmacist, Social Worker	Noon-1pm First and Third Thursday of the month Year-Round
Oral Health ECHO	February 13, 2019	Wendy Hough: (573)884-3048; houghw@health.missouri.edu	Dentist, Periodontist, Endodontist, Dental Hygienist, Pathologist, Pediatric Dentist, Oral Surgeon, Pharmacist	Noon-1pm Second Wednesday of the Month
SEMO Diabetes	September 3, 2019	Beth Monson: (573) 884-3847; monsonb@health.misssouri.edu	Endocrinologist, Primary Care Physician, Behavioral Health Specialist, Nephrologist, Pharmacist, Community Health Worker, Diabetes Educator, Dietician	Noon-1pm First and Third Tuesday of the month Year-Round
Kidney Disease	October 3, 2019	Amanda Craighead: (573) 884-7673; craigheadan@health.missouri.edu	Nephrologist, Social Worker, Dietician, Pharmacist, Diabetes Educator, Transplant Nurse, Patient Advocate	Noon-1pm First and Third Thursday of the month Year-Round

Developmental Disabilities	August 8, 2019	Lauren Dahm: (573) 882-8240; dahml@health.missouri.edu	Behavior Analyst, Psychiatrist, Patient Advocate, Caseworker, Pharmacist	Noon-1pm Second and Fourth Thursday of the month Year-Round
Hypertenstion	October 28, 2019	Wendy Hough: (573)884-3048; houghw@health.missouri.edu	Cardiologist, Internist, Nephrologist, Psychologist, Exercise Kinesiologist, Pharmacist, Dietician, Social Worker	Noon-1pm Second and Fourth Monday of the month Year-Round
Trauma Informed Schools	November 19, 2019	Wendy Hough: (573)884-3048; houghw@health.missouri.edu	Principal, Program Training, School Counselor, Social Worker, District Administrator	1:30-2:30pm First and Third Tuesday of the Month Year-Round

Appendix 2: Health Care Ethics ECHO Survey 2018/2019

Demographics/Attribute Variables

What is your sex? M F Other

What is your primary provider type?
Physician
Nurse (Nurse Practitioner/RN/LPN)
Ethics Consultant
Other (Please Specify: _____)

How long have you been in your professional role? (in years) _____

How many times have you participated in an Ethics ECHO? _____ (whole number)

Specified Measure of Self-Efficacy

On a scale of 1-7 (described below) please rate your skills, knowledge or competence to address the following topics related to self-efficacy during your participation in Health Ethics ECHO at various points of time
1 = none or no skill
2 = vague knowledge, skills or competence
3 = some knowledge, skills or competence
4 = average among my peers
5 = competent
6 = very competent
7 = expert, teach others

1. Recognize and effectively address ethical conflict when it occurs
2. Communicate with patients about end of life issues and concerns
3. Participate with patients and their families in advance care planning
4. Recognize and address burdens of caregiving for complex patients
5. Respond effectively to patients and families when requests for aid in dying occur
6. Address ethical problems related to futility in order to limit clinically inappropriate treatment
7. Accomplish goals related to carrying out an ethically supported course of action
8. Deal with unexpected events that can result in ethical conflict
9. Identify and utilize resources that can assist in handling unforeseen ethical situations
10. Communicate effectively when healthcare team members disagree in order to act ethically in consideration of the patient

Appendix 3: Traditional Normative Curriculum

NORMATIVE THEORY BASED CURRICULUM

Clinical Ethics Instructor provides didactic information focused on understanding ethical principles and applying those principles to case studies. Students learn about ethical frameworks and principles that can guide ethical decision making and assist with other ethics concerns, including how to:

- Compare normative ethical approaches such as principlism, utilitarianism and virtue ethics.
- Identify ethical issues, problems and dilemmas
- Evaluate approaches to ethical decision making considering basic ethical principles and theories
- Apply an ethical framework to a case study to determine an ethically supported course of action.

BENEFITS OF PARTICIPATION:

- Gain cognitive antecedents needed to identify ethical conflicts typical to clinical practice.
- Familiarize students with discipline specific Codes of Ethics and professional licensure/certification requirements.

HOW DOES IT WORK?

- Attend classes to learn about ethical theory and principles.
- Traditional in class PPT presentations
- Participants review case studies that present with an ethical conflict
- Students are assessed on ability to apply ethical principles and theories in order to theoretically resolve the ethical conflict presented in the case study.

NORMATIVE CURRICULUM INCLUDES:

- Review of ethical theory
    - Principlism/Deontology
    - Utilitarianism/Consequentialism
    - Virtue Ethics
- In class discussion to apply principles or other theory to a case study.
- Evaluation via examination and/or written paper.

Appendix 4: Ethics ECHO Curriculum Traditional

HEALTHCARE ETHICS ECHO: JOIN EXPERT ETHICISTS IN RESOLVING ETHICAL CONFLICTS IN THE HEALTHCARE SETTING

Get expert Healthcare Ethics knowledge in a virtual learning network with University of Missouri Health Care and West Virginia Rural Emergency Trauma Institute, Inc. (RETI) specialists. Learn about ethical frameworks and principles that can guide ethical decision making and assist with other ethics concerns, including how to:

- Identify ethical issues, problems and dilemmas
- Evaluate approaches to ethical decision making considering basic ethical principles, theories and the cultural context in which decisions are made
- Identify clinical options and the ethical issues that those options may present based upon stakeholder values and beliefs

BENEFITS OF PARTICIPATION:

- No cost to participating sites or individuals
- Free CE for health care professionals
- Ability to share your own de-identified cases for case base learning
- Collaboration, support, and ongoing learning with clinical ethicists

WHY HEALTHCARE ETHICS?

Healthcare Ethics ECHO will enhance and improve patient centered care and shared decision making by fostering better understanding of the importance of values and preferences of patients and professional obligations of the health care team. It will improve ethical awareness and knowledge for those dealing with clinically and ethically complex situations. The Healthcare Ethics ECHO is collaborative in nature and will provide a learning venue suitable for providers and students of all health professions and experience levels.

HOW DOES IT WORK?

- Join an online lunch hour video conference once per month
- Participants will need access to internet, webcam, and microphone
- Discuss and share:
    - Clinical case presentations
    - A brief educational presentation by an expert in Healthcare Ethics
- Complete evaluation of ECHO programming and post-session evaluations

CURRICULUM FOR CASE-BASED LEARNING AND DISCUSSION INCLUDES:

- Clinical Ethics & Conflict Resolutions
- Ethics Consultation: Process, Interpersonal, & Evaluative

- Futility & Indications for Withholding and Withdrawing Treatment
- Ethics Consultation: Cultural Competence
- Advance Care Planning
- Duty to Inform Patients
- Clinical Ethics Issues & Concepts
- Obligations to Not Abandon
- Ethics Consultation: System, Institution & Policies

Appendix 5: Ethics ECHO Curriculum with Sensemaking

HEALTHCARE ETHICS ECHO: JOIN CLINICAL ETHICISTS TO DISCOVER SENSEMAKING STRATEGIES THAT OPTIMIZE ETHICAL ACTION IN HEALTH CARE SETTINGS

Acquire ethics resolution skills in a virtual learning network with University of Missouri Health Care specialists. Learn about ethical frameworks, including a sensemaking approach that can guide ethical decision making, assist with resolving ethics concerns and promote ethical actions of health care teams. Through Ethics ECHO, participants will:

- Increase awareness of ethical issues, problems and dilemmas in order to promote conflict resolution within their respective organizations and areas of practice.
- Learn sensemaking strategies aimed at navigating complex, unexpected clinical events that often result in ethical conflicts.
- Engage with case-based data in order to cultivate skills aimed at promoting future ethical actions of providers and patients.

BENEFITS OF PARTICIPATION:

- No cost to participating sites or individuals
- Free CE for health care professionals
- Ability to share your own de-identified cases for case base learning
- Collaboration, support, and ongoing learning with clinical ethicists and other health care providers
- Gain access to sensemaking tools aimed at improving the participants ability to resolve ethical conflict when it arises in practice.

WHY HEALTHCARE ETHICS? The Ethics ECHO will improve patient-centered care and shared decision-making by cultivating skills aimed at carrying out ethical actions. In addition to improving ethical awareness and knowledge for those dealing with clinically and ethically complex situations, the case-based learning methods will help translate the educational content to skill acquisition. The Healthcare Ethics ECHO is collaborative in nature and will provide a learning venue suitable for providers and students of all health professions and experience levels.

HOW DOES IT WORK?

- Join an online lunch hour video conference once per month
- Participants will need access to internet, webcam, and microphone
- Discuss and share:
    - Clinical case presentations
    - A brief educational presentation by an expert in Clinical Ethics and Sensemaking
    - Apply sensemaking tools in case discussion to determine actions to resolve ethical conflict
- Complete evaluation of ECHO programming and post-session evaluations

CURRICULUM FOR CASE-BASED LEARNING AND DISCUSSION INCLUDES:

- What were they thinking? Sensemaking as a behavioral ethics approach
- Where bioethics went wrong: Stories from the bedside
- From Milgram to Trump: The ethical landscape of contemporary health care
- Quinlan, Cruzan and Schiavo: How to ethically manage medical trauma
- Limitations of EBP: The power of sensemaking in the age of algorithms
- Planning for the unexpected: A response to failed advance directive initiatives
- Just trust me: RIP informed consent
- "Do everything"…The ethics of persuasion
- No thanks, I'll just ask Dr. Google

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VITA

Lea Cheyney Brandt is a doctorally prepared occupational therapist and Associate Professional Practice Professor at the University of Missouri's School of Medicine. In addition, she serves in leadership positions as the Director of the University of Missouri's Center for Health Ethics and Medical Director of Clinical Ethics and Consultation Services for the health system.

Dr. Brandt earned a Master of Arts in Bioethics and Health Policy from Loyola University-Chicago and a Post-Professional Doctorate in Occupational Therapy with an emphasis in Healthcare Ethics and Administration from Creighton University in Omaha, NE. She teaches clinical ethics throughout the University of Missouri Health System. In her role with the Center she sits on several ethics-related committees, serves as the ethics content expert for organizational policy development, works as a clinical ethics consultant, chairs the clinical ethics committee, and serves as an investigator on multiple grants.

National appointments include serving as Chairperson for the American Occupational Therapy Association's Ethics Commission. In her role as both member-at-large and as chairperson, she played an integral role in writing the *Occupational Therapy Code of Ethics (2015)*. She is currently serving as a chair of the CGFNS International Occupational Therapy Professional Standards Committee. Dr. Brandt has authored and co-authored multiple articles, book chapters, and continuing education materials on ethics in practice. She also lectures nationally and internationally on the topics of clinical ethics, education, and professionalism in practice.