Seeing Complexity: Cultural Historical Activity Theory (CHAT) As a Lens for Shared Decision Making

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Abstract

Shared decision making, a collaborative approach between patient and provider that considers the patient’s values and preferences in addition to the scientific evidence, is a complex clinical activity that has not realized its full potential. Gaps in education and training have been cited as barriers to shared decision making, and evidence is inconsistent on effective educational interventions. Because individual agents with their own social and behavioral contexts co-construct a shared decision, the educational approach may need to consider the role of patient agency and sociocultural influences.

To address the inherent complexity in shared decision making, the authors identified cultural historical activity theory (CHAT) as a framework for analysis. Although certainly not the only relevant theory, CHAT offers an appropriate lens through which the multivoiced nature of shared decision making can be more clearly appreciated. In this article, the authors demonstrate the application of CHAT as a lens for researchers and educators to examine the complexity of shared decision making.

The fictitious case presented in this article describes the use of CHAT with a patient who experiences 2 clinical encounters; during the second, shared decision making takes place. Elements of the case are threaded through the article, demonstrating a sample analysis of the interacting activity systems of the patient and physician and highlighting inherent tensions and contradictions.

The authors propose CHAT as a tool for future research around the role of agency in shared decision making and other complex topics and as a framework for design of novel instructional strategies. Although not applicable to all topics and settings, CHAT has significant potential within health professions education.

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shared decision making, a collaborative approach between patient and provider that takes into account the patient’s values and preferences in addition to the scientific evidence, is a complex clinical activity that has not realized its full potential. Although shared decision making has been described as the “pinnacle of patient-centered care,” there is limited evidence of its widespread implementation or that its use leads to improved patient outcomes, such as adherence with the chosen treatment. Gaps in education and training have been cited as barriers to shared decision making and evidence is inconsistent on effective educational interventions, leaving health professions educators with insufficient guidance on how to best address this complex activity. We argue that shared decision making, in which individual agents co-construct the decision from within their own social and behavioral contexts, requires an approach that incorporates patient agency and sociocultural influences. In this article, we propose cultural historical activity theory (CHAT) as a lens for researchers and educators to examine the complexity of shared decision making, to provide a framework for developing instructional strategies, and to consider in solving other health professions education challenges.

To demonstrate the complexity of shared decision making, we present the following fictitious case.

**Encounter 1:** A 21-year-old patient presents to her provider, a resident physician, for birth control. She has never been on contraception and, other than knowing her sister takes birth control pills, understands little about her options. Her medical history is uncomplicated. The resident, who is behind in his clinic, runs through the options, sharing a chart listing relative effectiveness of different methods. The patient expresses uncertainty about which would be best.

The resident states conclusively, “Since you know the most about the pill, we can start with that. You can pick them up and start today.”

**Encounter 2:** The patient returns to the clinic 2 months later. She was thankful for the pills because she wants to avoid pregnancy, but she works the night shift and finds she frequently forgets to take them. A friend recommended a decision aid designed to help select a birth control method. After she had gone through a series of educational modules and answered several questions, the decision aid suggested 3 methods most suited to her preferences. She shares the output of the decision aid with the resident, who recently completed a workshop on shared decision making. The resident asks more about her menstrual history and goals for treatment. He encourages her to share what she values in a contraceptive method and her preferences based on the output of the decision aid. They ultimately come to a shared conclusion that an intrauterine device (IUD) is a good option, given her heavy menstrual cycles, her and her husband’s current desire to avoid pregnancy, and her shift work. He counsels her about the risks and benefits of the procedure and, under the supervision of his attending physician, places the IUD.

Although the patient is provided contraception in each encounter, there is a striking difference between the visits. In Encounter 1, which could be described...
as paternalistic, the physician acts as the primary agent in the health care decision. In this traditional role, the physician has more information regarding health status and medical options than the patient does. Unlike the first encounter, Encounter 2 depicts shared decision making and highlights both the importance of patient agency and the influence of sociocultural elements. The patient has more knowledge about her own values and preferences and, lived, first-hand knowledge of potential obstacles to healthy behaviors and positive health outcomes. As defined by Giddens, to have agency the individual must act intentionally, have the capacity to act on his or her intentions, and have the power to create a new event or intervene in an existing event. Agency is not an inert characteristic of a person but, rather, shaped, facilitated, or constrained by social structures, as exemplified in Encounter 2 when the physician asks the patient about her preferences and values. An understanding of shared decision making requires a theoretical lens that can make visible this inherent complexity.

To address the impact of patient agency and sociocultural influences on shared decision making, we identified CHAT as a theory that can provide a framework for analysis of complex activities and assist in the design of educational interventions. Although certainly not the only relevant theory, CHAT offers an appropriate lens through which the multivoiced nature of shared decision making can be more clearly appreciated. Additionally, CHAT, which has been successfully applied to analysis of other complex human and system interactions within medical education, can help health professions researchers and educators bring about change by uncovering and identifying challenging tensions and developing new educational and management strategies grounded in the workplace context.

**The Theory: CHAT and Expansive Learning**

CHAT proposes that humans learn by doing, that they use tools to learn, and that community plays an important role in human activity. Russian psychologists Vygotsky and, then, Leont’ev developed the concept that a human’s actions are mediated by cultural artifacts (tools). Engeström expanded on the contribution of community and other outside factors to all activities by incorporating in the theory rules, community, and division of labor and their influence on a person (subject) and that person’s mediated action (object). This activity system is considered the basic unit of analysis in activity theory (Figure 1).

An activity system consists of a subject, object, tools, rules, community, and division of labor. It is not a single behavior or a linear interaction between 2 individuals but, rather, a process in which different perspectives interact, and each interaction can influence the outcome of the activity. An example of an activity system might be a physician (subject) deciding whether to admit a patient to the hospital (object). The physician uses history and physical exam findings and tools, such as a stethoscope or X-ray results (all categorized as tools), to achieve the object. The physician may reference clinical practice guidelines (rules), consult other specialists (community), and develop the treatment plan, with responsibilities to be divided between the admitting physician, the emergency department nurse, and the radiologist (division of labor). All components of the activity system contribute to the final decision to admit the patient (outcome). In Figure 1, the arrows between each of the components of the activity system represent potential tensions within the activity system. See Table 1 for a description of the components of an activity system in CHAT with examples from health professions education.

Over time, CHAT evolved to address interacting activity systems in which the object is shared or constructed jointly. The interaction of multiple activity systems, each with varied perspectives, creates many tensions and the potential for great innovation. The subjects of activity systems vary, from individuals to teams or to entire systems, allowing for the study of interactions between individuals as well as of complex adaptive systems. Culture and historicity are 2 other key components of CHAT. The events that take place within and across activity systems (e.g., a clinical encounter) are embedded within and shaped by the norms and values of the culture in which they occur. For example, in some cultures, the physician may be expected to always act on behalf of the patient, while in others, the patient may play a more active role. Consideration of historicity brings attention to the

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**Figure 1** The activity system, considered the basic unit of analysis in activity theory. The arrows indicate potential tensions between elements of the activity systems. Adapted from Engeström, Expansive learning at work: Toward an activity theoretical reconceptualization, Journal of Education and Work, 2001. Used with permission of the publisher, Taylor & Francis Ltd. (http://www.tandfonline.com).
temporal dimension of an activity, that is, when the activity takes place in different historical contexts. The history of the clinical environment (e.g., health care system or clinic) and of the medical technology, procedures, and knowledge can all shape the activity (clinical encounter).

Expansive learning builds on the concept that a series of actions taken by participants within and between activity systems can form an expansive cycle that may lead to the development of novel objects and practices and, ultimately, a new culture or way of acting. In particular, when the objects of 2 or more interacting activity systems are different, the evolving resolution of the contradictions may lead to expansive learning. Understanding how expansive learning can occur through interactions of different activity systems is applicable to the education of health professionals. For example, Larsen et al applied CHAT to study student learning goals in clinical education. In this study, the activity systems of educator and student interact, with a shared goal of patient care but with tensions produced by the additional objects of mastering the material and safe patient care.

**Linking CHAT to Shared Decision Making**

To illustrate the use of CHAT in informing our approach to shared decision making, we refer to our case. Figure 2 demonstrates hypothetical interacting activity systems for the 2 encounters. In contrasting the elements of the interacting activity systems, we can visualize those features that may be key to successful shared decision making.

In Figure 2A, we present a notional representation of the physician and patient activity systems in Encounter 1. In the physician activity system (on the left), the physician seeks to make a quick decision about a contraceptive method. He uses his knowledge to recommend a method, but because time for the visit is constrained, he does not engage the patient in decision making, and he does not consult his attending physician nor involve others in the treatment plan. In the patient activity system (on the right), the patient's object is selection of a contraceptive method that meets her needs, although she has only minimal knowledge of options from her sister. She is not given the opportunity to express her needs, and her ability to engage in decision making may be affected by sociocultural norms that prevent her from speaking up and questioning the confident recommendation of the physician, whom she perceives as more knowledgeable. Previous learned experiences may have included visiting a pediatrician with her mother, who instructed her to always follow the advice of a doctor. Most notable about the interaction between the 2 activity systems is that, while Object 1 of each activity system is similar, they are not the same. Object 2, defined by Engeström as a “collectively meaningful object constructed by the activity system,” is missing in this scenario because neither the patient nor the physician has meaningfully altered their original Object 1. Further, there is no shared object (Object 3).

In Figure 2B, we show physician and patient activity systems in Encounter 2. Unlike the situation in Encounter 1, the...
A physician has had experience with shared decision making before this encounter, and the patient has used a decision aid before the visit. In the physician's activity system (on the left), his primary object is now to elicit the patient's values and preferences, and he has a second object, which is facilitating agency in the patient (Object 2). In addition to sharing his medical knowledge and discussing alternatives, the physician in Encounter 2 appreciates the need to elicit the patient's values and preferences and uses the decision aid as a tool to help the patient achieve agency in her care. Because he had received training on shared decision making, the principles of patient-centered care now overshadow paternalism, and not yet privileged to insert an IUD on his own, he requests the help/supervision of his attending to achieve the object.

In the patient activity system depicted on the right side of Figure 2B, the patient has used the decision aid recommended by her friend and has thought about her values and preferences around this decision. Given her dissatisfaction with the outcome of the first visit, the patient's primary object is now to articulate her values and preferences about contraception. The social norms of a patient–physician interaction in which the patient defers to the physician may still exist, but there is a tension between the historically prevalent behaviors and the existence of a decision aid, which indicates that her values and preferences do indeed matter. By asking about her values and preferences, the physician also reinforces the patient's role and will likely contribute to increased agency in the patient (Object 2). The patient and physician now have a shared object, which is shared decision making (Object 3).

Comparing the activity systems of Encounter 1, in which a shared decision was not achieved, with the rich and meaningful interaction of the activity systems in Encounter 2 can help researchers and educators identify the tensions that appear in the activity systems and can point to targets for educational interventions. The concept of expansive learning in CHAT indicates that as participants in activity systems work through tensions, learning can take place and be reinforced over time. As the physician works through these tensions, his object, which was originally to quickly decide on a contraceptive method, now also needs to account for the patient's preferences and values.
If the physician emerges from this co-constructed encounter reflecting on successfully reaching a shared decision, learning has taken place, and he may be more likely to engage in shared decision making with his next patient. Similarly, the patient will have learned that she does have a voice and her preferences and values matter. She may be empowered to enter into her next visit, for another medical concern, with greater agency—leading to increased engagement over time and a culture that embraces increased patient agency and co-constructed decisions that truly represent patient-centered care.

**Discussion**

As we have demonstrated, CHAT can provide a useful framework to analyze shared decision making. In this section, we describe ways to use CHAT in research involving work-based activities to guide instructional design and CHAT’s potential in relation to other complex education topics. By using CHAT as a lens in qualitative studies of work-based activities, we can visualize the tensions within the activity systems and contemplate which elements seem to contribute to successful shared decision making and to expansive learning. By analyzing the interacting activity systems in Encounter 2 of our hypothetical case (Figure 2B), we perceive that the decision aid, the patient’s community, and the changing rules about who contributes to decisions help the patient gain agency. We also learn that the physician has a role in facilitating the patient’s agency by asking appropriate questions and, after co-constructing a decision with the patient, supporting her decision with immediate action. Moving away from hypothetical examples, we can examine a published study in which researchers used activity theory to observe and analyze teamwork among staff in an organ transplant unit in Canada; they were able to analyze examples of the interprofessional staff working through problems and observed that other objects besides patient care may emerge (e.g., need to provide training to junior physicians) and compete with patient care.12

Findings from research studies using CHAT to analyze work-based activities can be used to guide the development of appropriate instructional strategies. In our hypothetical example, a researcher observing similar scenarios as part of a research study may conclude that, because patient agency was observed to be a critical component of shared decision making, the provider has a role not only as a medical expert but also as a facilitator of the patient’s agency. An instructional strategy for shared decision making could include presenting videos of providers successfully using specific language to elicit patients’ individual values and preferences, followed by role play in which students practice those communication skills. Shared decision making cannot be thought of as simply an interaction between 2 individuals; rather, it must be seen as the interaction of the individual complex activity systems of a patient and a provider—each existing within social structures. Gulbrandsen et al describe the aim of shared decision making as boosting patient autonomy, which involves strategies that address the patient’s vulnerability and scientific uncertainty, among other key elements.16

Shared decision making requires more than basic communication competencies, and CHAT provides a suitable framework for identifying the characteristics of a clinical interaction to emphasize in a successful educational intervention.

In applying CHAT to complex health professions education topics, we can identify numerous facilitators for and barriers to learning and thereby envision new approaches to instruction that encompass the actual complexity of the clinical educational problem being addressed. By examining the facilitators that can help individuals or teams work through tensions within and between activity systems, educators can develop novel interventions that boost the facilitators. As an example, discourse (language) or other tools (like decision aids or other clinical support tools)—potential facilitators for expansive learning—can be shaped and applied in educational settings where needed. Specifically, if trainees learn and use phrases that enhance patient agency and use decision aids during patient encounters, such behaviors will be the norm, and patient and provider objects may become more aligned. Another example is the application of CHAT to analyze simulations, such as mock codes or emergency cesarean deliveries. Specifically, analysis of how division of labor, rules, and community affect interacting activity systems may lead to the evolution of more effective team-based care. Similarly, barriers to change and learning may include rules that are entrenched in the historical context of the learning environment and that need to be addressed and mitigated. These are but a few of the facilitators and barriers that may exist in health professions education; if these, and others, are addressed, educational interventions may be successful in addressing complex learning issues.

By becoming nimble with CHAT, health professions education researchers will begin to appreciate its potential applicability in several other complex educational areas. For example, there is a potential role for CHAT in the education of health professionals in competencies under the umbrella of systems-based practice or, more broadly, health systems science, including team-based care, quality improvement and patient safety topics, and interprofessional education.

In a recent application of the CHAT framework, Varpio et al stated, “By understanding how interprofessional communications are influenced by multiple activity systems, research can uncover the layers of personal, professional, organizational, social, and physical contexts that influence the actions and interactions involved in interprofessional communication.”17

Another recent study used activity theory as an organizing principle to better understand cultural differences and cross-cultural applicability of problem-based learning.18 And, in a study of the socially complex zone of practice around identification of autism spectrum disorder, the authors mapped activity systems in 2 medical education systems to identify some of the barriers to effective, comprehensive care for children diagnosed with this disorder.19

Although CHAT provides a useful lens to study learning and instruction related to shared decision making and other education topics, it has potential limitations. First, the very nature of CHAT as a theory that focuses on the interactions of the subject, object, and tools, as well as sociocultural influences, may make it less generalizable for a broader audience. Frambach et al10 addressed this concern in their study, stating that, although they could not necessarily generalize to contexts other
than what was studied, they were able to identify elements that could be applied to other settings. Second, although CHAT is often used to successfully address many activity systems simultaneously, in studying the development of shared decision making in the physician–patient dyad, researchers may want to limit the scope of the inquiry. Several interacting activity systems may distract from focusing within activity systems, where the foundational unit of analysis lives—and where educators may most readily identify the root of tensions. The physician–patient dyad and the interacting activity systems explained in this article present several tensions for analysis—areas that can be addressed in educational interventions. Finally, CHAT may be more useful to researchers and educators for analyzing the complexity of shared decisions than to learners for trying to master shared decision making in their daily educational activities.

In this article, we have described how CHAT provides medical educators a lens to consider the complexities of shared decision making. A better appreciation of the complexity of this topic, and many other health professions education topics, is critical to developing effective educational interventions. We have also proposed CHAT to help bring into focus the variety of perspectives and tensions inherent in shared decision making and suggested recommendations for medical educators harnessing CHAT as an analytical tool and framework to assist with the design of instructional strategies. Lastly, we proposed that future work should focus on revealing the ways in which CHAT can be more broadly applied to the design and evaluation of instructional methods in other areas of health professions education.

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