

## Situativity: Diagnosis in the Real World

By Susan Carr, Senior writer

There appears to be no easy solution for the problem of diagnostic error. Efforts to improve system-related issues with diagnosis have made modest gains and are ongoing.<sup>1-3</sup> Avoiding errors in clinical reasoning has been an elusive goal. Decades of study and reflection on the cognitive process have yielded greater understanding but no magic bullet to address diagnostic error.<sup>4,5</sup>

Situativity, a group of related theories based in cognitive psychology, offers another way to address diagnostic error by reframing how we understand the cognitive process. Emphasizing the social and complex nature of cognition, situativity takes an expansive view of factors that influence thinking and learning. Beyond recognizing that external forces can affect thinking, it sees the “dynamic and reciprocal interaction of the person, environment and behavior”<sup>6,7(p161)</sup> as a creative process.

A [special, open access issue of \*Diagnosis\*](#) explores different ways to apply situativity theory to teaching, improving and assessing diagnosis.

### A Holistic Approach to Diagnosis

Applied to diagnosis, situativity explores what happens inside *and* outside the clinician’s head: medical knowledge plus the people, environment and interactions that surround and influence the process.<sup>8</sup> “People” include, at a minimum, patients, family members and the clinician’s colleagues. The environment is the community and the healthcare setting, including all of what the setting offers (or doesn’t offer) in the way of infrastructure, technology and information. “Interactions” refers to connections and transactions not just between but among the forces that affect the ultimate outcome – in this case, diagnosis.

In an introduction to the situativity issue of *Diagnosis*, Co-Editor Mark L. Graber, MD, identifies three ways that situativity can impact the practice of diagnosis: it creates a more holistic view of contextual forces, offers alternatives for studying the diagnostic process and its outcomes, and emphasizes a broader set of interventions for improvement and error avoidance.<sup>9</sup>

### Situativity’s Academic Roots

The term “situativity” traditionally refers to a unified understanding of four overlapping theories of cognition focused on different aspects of how people think in real situations:<sup>10</sup>

- *Embodied cognition* refers to the role of the human body and its systems of perception and motion. Sight, hearing, touch and smell all contribute information to clinical reasoning.

- *Ecological psychology* adds the idea that human participants bring varying levels of capability and motivation to each project. And on the other side of the equation, the inanimate players (eg, technology) offer opportunities to be used to achieve specific goals.
- *Situated cognition* includes all aspects of the environment – patients, colleagues, time pressures, technology, financial considerations, and more — and the interplay among these forces.
- *Distributed cognition* further acknowledges the role of collaboration – the contributions that people and things make, beyond simply inputting information to shaping the thought process.

The technical details and terminology of these “social cognitive” theories reflect situativity’s roots in academia. The particulars may be most relevant for cognitive scientists and researchers, but the concepts help reveal the richness and complexity of this approach.

Healthcare professionals do not need to be reminded that they work in a complicated, messy world. Situativity is a way to develop a deeper appreciation for the opportunities, challenges and barriers the healthcare ecosystem offers. That appreciation can help clinicians understand, use and influence people and things in their environment to improve diagnosis.

Other approaches to patient safety – sociotechnical systems, systems thinking, human factors engineering, and high reliability – also focus on elements of the environment. In its seminal 2015 report on improving diagnosis,<sup>11</sup> the National Academy of Medicine stressed the importance of teamwork and feedback, technology, the work system and the physical and organizational environment. The situativity model adds another dimension by emphasizing the complex, nonlinear, evolving nature of the thinking and learning that takes place within real-world environments.

True collaboration involves learning from the give and take. In a process referred to as “emergence,” independent inputs to a process build on each other, leading to unexpected outcomes. In other words, the outcome is more than the sum of the parts. The game of Scrabble is often used to illustrate this concept, where individual letters offer different opportunities, each word spelled on the board lays the groundwork for what others may do, and the tiles themselves present a tactile experience that for some aids the thought process. The game evolves collaboratively over time, with the end result impossible to foresee.<sup>7,10</sup>

The effects of people, environment and interactions on diagnosis are, of course, not always positive or benign. Opaque electronic interfaces, language barriers, incommunicative colleagues, burnout and countless other challenge affect clinical reasoning, often in combination. Situativity can be used as a way to dissect or understand why things may have gone well or poorly.

### **Practical Applications**

Situativity provides a new view of how we interact and think in the world; it does not provide a handy tool kit or cookbook solutions. Applying the model to medical practice has more to do with education, mentors and leadership than goal-oriented initiatives.

There are, however, articles in the special issue of *Diagnosis* that provide good examples of principles from the theory of situativity in action:

- In “Teamwork in clinical reasoning – cooperative or parallel play?”<sup>12</sup> Andrew Olson, MD, and his co-authors discuss different kinds of teams used in health care and the advantages of teams working together at the level of emergence. To illustrate, they offer a scenario: A newly admitted patient describes her experience “...differently to the attending, resident, intern, student, and nurse. Each healthcare professional brings unique knowledge to the patient’s

condition which they distribute among one another through conversation which leads to a shared mental model of a given situation.”<sup>12(p309)</sup> The resulting narrative is then entered into the patient’s record where it can be shared with other clinicians.

- In “Understanding context specificity: the effect of contextual factors on clinical reasoning,”<sup>13</sup> Abigail Konopasky, PhD, and her co-authors report on a study of the effect of typical “distracting contextual factors” on resident and attending physicians. In what they describe as a robust experimental framework and a large sample of participants, they found that distracting contextual factors affected diagnosis for one case (angina) but not the other (diabetes). They determine that “...neither case content nor contextual factor is the *sole* predictor of clinical reasoning performance.”<sup>13(p262)</sup>

In a separate *Diagnosis* article, “Towards better metainterpretation: improving the clinicians’ interpretation of the radiology report,” Kevin M. Johnson, MD, urges referring clinicians to talk with radiologists for a better understanding of imaging studies. Johnson casts radiologists in the role of consultants, able to help add information, promote learning and prevent error. Referring to clinicians who rely solely on their own interpretation of a brief radiology report, without consulting the image itself or the radiologist, Johnson warns, “This road can be hazardous if traveled alone”<sup>14(p1)</sup> – a sentiment in keeping with the lessons of situativity.

And finally, a letter to the editor in the special issue of *Diagnosis* applies the situativity model to diagnostic challenges posed by the pandemic. In “Clinical reasoning in the wild: premature closure during the COVID-19 pandemic,”<sup>15</sup> James G. Boyle, MD, and his co-authors develop a (fictionalized) scenario that includes a number of wrenches COVID-19 can throw into the works of the diagnostic process: redeployment to an unfamiliar setting and equipment, awkward personal-protective equipment, patient anxiety, and more. The authors note that COVID-19 “affords a unique opportunity to look beyond the mind of a single clinician and consider how an unprecedented constellation of contextual (situational) factors might impact clinical reasoning performance and lead to error.”<sup>15(p177)</sup>

Describing the scenario’s “ultimate message,”<sup>15(p178)</sup> they go on to say that diagnosis is “an ensemble process requiring collaboration with a diverse cast of actors and props who feature in an inherently complex sequence of narrative episodes.”<sup>15(p178)</sup> Another message from situativity is to not always cast complexity as a problem. There are times and circumstances, including the pandemic, when the complexity of the ensemble – acknowledging all of its risks – can be used to improve the diagnostic process and result, as well as the experience of those involved.

## References

1. Singh H, Thomas EJ, Mani S, et al. Timely follow-up of abnormal diagnostic imaging test results in an outpatient setting: are electronic medical records achieving their potential? *Arch Intern Med.* 2009;169(17):1578-1586.
2. Singh H, Graber ML, Kissam SM, et al. System-related interventions to reduce diagnostic errors: a narrative review. *BMJ Qual Saf.* 2012;21(2):160-170.
3. Schiff GD, Bates DW. Can electronic clinical documentation help prevent diagnostic errors? *N Engl J Med.* 2010;362(12):1066-1069.
4. Croskerry P. A universal model of diagnostic reasoning. *Acad Med.* 2009;84(8):1022-1028.
5. Monteiro S, Sherbino J, Sibbald M, Norman G. Critical thinking, biases and dual processing: the enduring myth of generalisable skills. *Med Educ.* 2020;54(1):66-73.

6. Holmboe ES, Durning SJ. Understanding the social in diagnosis and error: a family of theories known as situativity to better inform diagnosis and error. *Diagnosis (Berl)*. 2020.
  7. Durning SJ, Artino AR. Situativity theory: a perspective on how participants and the environment can interact: AMEE Guide no. 52. *Med Teach*. 2011;33(3):188-199.
  8. Torre D, Durning SJ, Rencic J, Lang V, Holmboe E, Daniel M. Widening the lens on teaching and assessing clinical reasoning: from "in the head" to "out in the world". *Diagnosis (Berl)*. 2020;7(3):181-190.
  9. Graber ML. Progress understanding diagnosis and diagnostic errors: thoughts at year 10. *Diagnosis (Berl)*. 2020;7(3):151-159.
  10. Merkebu J, Battistone M, McMains K, et al. Situativity: a family of social cognitive theories of understanding clinical reasoning and diagnostic error. *Diagnosis (Berl)*. 2020:169-176.
  11. Balogh EP, Miller BT, Ball JR. *Improving Diagnosis in Health Care*. National Academies Press; 2015.
  12. Olson APJ, Durning SJ, Fernandez Branson C, Sick B, Lane KP, Rencic JJ. Teamwork in clinical reasoning - cooperative or parallel play? *Diagnosis (Berl)*. 2020;7(3):307-312.
  13. Konopasky A, Artino AR, Battista A, et al. Understanding context specificity: the effect of contextual factors on clinical reasoning. *Diagnosis (Berl)*. 2020;7(3):257-264.
  14. Johnson KM. Towards better metainterpretation: improving the clinician's interpretation of the radiology report. *Diagnosis (Berl)*. 2020.
  15. Boyle JG, Walters MR, Jamieson S, Durning SJ. Clinical reasoning in the wild: premature closure during the COVID-19 pandemic. *Diagnosis (Berl)*. 2020;7(3):177-179.
- 

## Society to Improve Diagnosis in Medicine Annual Conference Goes Virtual

The Society to improve Diagnosis in Medicine (SIDM) is hosting the Diagnostic Error in Medicine 13th Annual International Conference (SIDM2020) virtually on October 19-21, 2020. The theme of the conference is *Transforming Education and Practice to Improve Diagnosis*, bringing together physicians, patients, nurses, healthcare professionals, researchers, institutional leaders, policymakers, educators, students, and residents to learn about the latest work to drive diagnostic quality and safety. The conference offers continuing education credit for attendees who register as professionals.

"The SIDM2020 meeting is an incredible opportunity for our community to come together to forward the science of diagnostic safety and quality, gain new skills, and build relationships. Our work is more important than ever, and I am grateful for the opportunity for us to come together to improve diagnosis," said Andrew P.J. Olson, MD, Chair of the SIDM2020 Conference.

SIDM2020 will showcase the latest research and innovations in diagnostic quality and safety, just like in years past. Virtual education events will be presented in the form of breakout sessions, oral abstracts, poster sessions, and a virtual [Patient Summit](#). View the [conference schedule](#).

Featured speakers include:

- **Kevin Eva, PhD, Hon. FAcadMEd**, Associate Director and Senior Scientist in the Centre for Health Education Scholarship and Professor and Director of Educational Research and Scholarship in the Department of Medicine at the University of British Columbia.

Session Title: “From Psychology to Medicine and Back: How Research on Clinical Reasoning is Informing the Use of Judgment-Based Assessment Practices.”

- **Kimberly D. Manning, MD, FACP, FAAP**, Professor of Medicine and Associate Vice Chair of Diversity, Equity, and Inclusion at Emory Department of Medicine.  
Session Title: “When Grief and Crises Intersect: Perspective of a Black Physician in the Time of Two Pandemics.”
- **Gurpreet Dhaliwal, MD**, Professor of Medicine at the University of California San Francisco, joined by **Verity Schaye, MD, MHPE**, Assistant Professor, NYU School of Medicine.  
Session Title: “Clinical Problem Solving: Watch in Real Time as a Clinician Analyzes an Unknown Case to Reach a Final Diagnosis in Real Time.”

“Because we are virtual this year, people from all over the world will have the opportunity to exchange ideas about improving diagnosis and network with each other without worrying about the usual inconveniences of travel. With this virtual format, we have a great opportunity to involve more people and expand our community,” said Ashley Meyer, PhD, SIDM2020 Co-Chair.

The Patient Summit will take place on Tuesday, October 20, 2020, at 5:30 PM ET and is free to the public and all SIDM2020 attendees. The Patient Summit will focus on *Disparities in Diagnosis in the Time of COVID-19: A Multicultural Perspective*, and will feature **Ron Wyatt, MD**, Vice President and Patient Safety Officer, MCIC Vermont, and **Victor Montori, MD**, Professor of Medicine and Head of the KER Unit, Mayo Clinic (Rochester).

[Registration is now open](#) for SIDM2020. Non-SIDM members who register for the full conference will receive a SIDM membership through June 30, 2021. Ticket bundles are available for multiple registrations with significant discounts. For questions about bundles, contact Tina Huff at [tina.huff@improvediagnosis.org](mailto:tina.huff@improvediagnosis.org).

Thanks to the Gordon and Betty Moore Foundation and the Agency for Healthcare Research and Quality (AHRQ) who have provided grants to support the conference.

*Funding for this conference was made possible, in part, by grant number 1R13HS027529-01 from the Agency for Healthcare Research and Quality (AHRQ). The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.*

*This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Med-IQ and Society to Improve Diagnosis in Medicine. Med-IQ is accredited by the ACCME to provide continuing medical education for physicians.*

*Med-IQ is accredited as a provider of nursing continuing professional development by the American Nurses Credentialing Center's Commission on Accreditation. This activity is jointly provided by Med-IQ and the Society to Improve Diagnosis in Medicine.*

## SIDM Releases New PFAC Guides

Last month, the Society to Improve Diagnosis in Medicine (SIDM) released [two new guides](#) for hospitals and health systems to help in the reduction of harm from diagnostic errors. Each guide leverages the lived-experience, insights and expertise of Patient Family Advisory Councils (PFACs) to help drive change to improve diagnostic quality and safety. These new resources were unveiled during *Boots on the Ground: How Patient and Family Advisors Are Turning Stories of Harm into Positive Change*, a breakout session at the [2020 Institute for Patient- and Family-Centered Care's international conference](#) held virtually in August and September.

Each guide is targeted for a specific audience, with strategies for improving diagnosis in their institutions:

- *Patient and Family Advisory Council Leader's Guide for Diagnostic Quality and Safety* is a compendium of best and promising practices for use by PFAC members and those interested in joining or forming a PFAC. While PFACs work on a variety of quality and safety issues, this guide is focused specifically on an often overlooked, but significant, challenge in health care: diagnostic errors.
- *The Guide for Hospital and Health System Leaders for Diagnostic Quality and Safety* focuses uniquely on preparing hospital and health system leaders to partner with patients, families, and PFACs to pursue diagnostic safety and quality improvement activities.

"The lived experience of patients and families is a tremendously rich source of data and learning," said Suz Schrandt, JD, SIDM's Senior Patient Engagement Advisor. "Given the growing ubiquity of PFACs, the question is not *whether* to work with PFACs to tackle diagnostic quality and safety, it is *how* to do it and how to do it most efficaciously."

Both guides were developed based on insights and knowledge shared at a joint SIDM and National Academy of Medicine convening in December 2019 that included PFAC leadership made up of patient and family members impacted by diagnostic error. The recommendations also build on the [Improving Diagnosis in Medicine Change Package](#) developed by SIDM and the Health Research & Educational Trust's Hospital Improvement Innovation Network.

"SIDM has developed a thoughtful pair of resources for leaders of health systems and for leaders of PFACs," said Beverley H. Johnson, BSN, FAAN, President and Chief Executive Officer of the Institute for Patient- and Family-Centered Care. "The parallel format of these documents will facilitate collaboration between patient leaders and hospital and health systems executives, which is essential if we are to reduce diagnostic error."

SIDM's new guides were made possible with support from The Mont Fund.



SOCIETY<sup>to</sup>  
IMPROVE  
DIAGNOSIS<sup>in</sup>  
MEDICINE

© 2020 Society to Improve Diagnosis in Medicine  
909 Davis St. Suite 500  
Evanston, IL 60201  
[info@improvediagnosis.org](mailto:info@improvediagnosis.org)