Synopsis of June 17, 2025 Webinar, “Process as the Construct: Explorations of AI-empowered Assessment
Panelists: Dr. Xiaoting Huang and Yawen Cheng
Moderators: Dr. Brent Duckor and Dr. Carrie Holmberg

Process as the Construct: Rethinking Assessment in the Age of AI

A New Era of Assessment

When most of today’s teachers took their own exams, the format was simple: pencil, paper, same questions for every student. But as Dr. Xiaoting Huang, an associate professor at Peking University, put it during a recent IAEP Center panel discussion, “The assessment itself was very rigid. It was suitable for curriculum-based knowledge. But that world is changing — fast.”

Moderated by Dr. Brent Duckor and Dr. Carrie Holmberg of San José State University, the conversation featured Dr. Xiaoting Huang and PhD candidate Yawen Cheng from Peking University and explored what they called *“process as the construct”* — the idea that the focus of assessment should shift from static snapshots of knowledge to an ongoing analysis of learning itself.

“Digital learning has changed the game,” Professor Huang explained. “Students can learn at different paces, explore different interests, and even have tailor-made learning paths. Assessment must evolve, too.”

That evolution, she argued, is already underway, thanks to *process mining* — the ability to collect and analyze the data students leave behind as they work through digital platforms. Instead of just seeing whether a student answered correctly, educators can now trace how they got there: how long they lingered, where they hesitated, and what strategies they tried.

Balancing Innovation With Reliability

Yet this promising future brings a persistent challenge: ensuring that the measures remain trustworthy. “We can’t abandon reliability and validity — they’re the baseline foundation,” Dr. Huang cautioned.

She pointed to international programs like PISA that have anchored their digital assessments in strong theory. “Solid theoretical models — evidence models — make different assessments more comparable,” Cheng said. “That’s essential if we want these new forms of assessment to gain legitimacy.”

Professor Duckor noted that professional standards are already catching up: “To my knowledge, the AERA, APA, and NCME testing standards are being updated, and there’s going to be a fairly large portion devoted to AI. We’re all trying to get ahead of what’s coming.”

The Ethics of Data Collection

AI-powered assessments don't just score multiple-choice items; they can collect deeply personal information — eye movements, response times, even physiological and emotional signals.

"This is a gray area," Dr. Huang acknowledged. "There are regulations, but there's still so much we don't know. Who owns the data? Does it belong to the student? Can they retrieve it?"

She compared the situation to early traffic: "We drive cars smoothly because we have traffic laws. We need the same for AI assessment — real rules about what researchers, schools, and companies can do."

Yawen Cheng added a younger researcher's perspective: "When I run experiments, I have to make sure participants are comfortable. They have to believe that the research is academic and educational — not an intrusion into their private lives."

Both panelists warned that teachers, too, must be part of the conversation. "I've seen teachers misuse online data to label or even punish students," Dr. Huang said. "That's dangerous."

Teachers as Companions, Not Authorities

As assessment becomes more embedded in learning, the teacher's role is shifting dramatically. In China, Professor Huang noted, "Teachers were the authority. They told us what was right and wrong. But now, with digital teachers and AI tutors, the human teacher becomes a companion — someone who learns with students, helps them focus, reminds them what to pick up."

Dr. Holmberg connected this shift to professional development in the U.S.: "The track record of PD has been mixed. But there's never been a better time for PD to be individualized by AI. The question is, can we figure out how to make it meaningful?"

Equity at the Center

AI also promises to expand accommodations for students — and expose new dilemmas.

"We've always tried to meet the needs of different learners," Dr. Huang recalled from her time leading the Hong Kong Examinations and Assessment Authority. "We printed larger exams for students with visual impairments. We allowed extra time for students with reading difficulties."

Now, digital platforms can go further: flagging undiagnosed learning issues, adjusting pacing in real time, even tailoring supports. But who decides what's fair?

"Each year, more and more students apply for extra time," Dr. Huang said. "How do we ensure equity — and prevent abuse?"

Duckor, Executive Director at SJSU's IAEP Center, pointed to the promise and peril: "AI might be able to diagnose dyslexia in real time — but if the machine intervenes too much, are we still measuring authentic learning?"

Global Lessons, Local Realities

When it comes to rethinking assessment, the world is watching PISA. Professor Huang called it "a very authoritative and very good reference for researchers and educators," especially for framing new constructs like *collaborative problem solving* and *creative thinking*.

But she added a note of caution: "High-stakes exams like the gaokao won't change overnight. For those, we want stability."

Dr. Duckor observed that PISA and other international frameworks are racing to define AI literacy and digital competencies, but warned that they may not fully capture how students actually develop over time. "There's little attention to learning progressions," he said. "How does a beginner move toward expert practice? That's still missing."

Looking Ahead

The conversation ended on an optimistic — and urgent — note.

"We are going to see more applications of AI in education," Huang predicted. "We should prepare for that — research-wise and philosophically."

Yawen Cheng offered a glimpse of her dissertation: comparing *human-human* collaboration with *human-AI* collaboration in creative problem solving. Her early findings? "Humans perform better in convergent thinking. Human-AI pairs perform better in divergent thinking. The processes — and the outcomes — are different."

For the panel, these insights signal that we're in the middle of what Professor Duckor called "a tectonic shift" in how we think about assessment. The focus is no longer simply on what students know at a single moment in time — but on the *pathways* they take, the strategies they use, and the ways they grow.

As Professor Huang reflected, "We need both the top-down approach — the theory, the constructs, the traditional reliability measures — and the bottom-up approach, the data-driven view that helps us see how students actually learn. We can't rely on only one."

That dual perspective may be the real takeaway: assessment in the age of AI will require both rigor and imagination. And if the panel's discussion is any indication, the future of assessment won't just be about scoring tests — it will be about understanding learning itself.