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A practical inquiry guide for outcome-based assessment: Supporting assessment professionals at every step of the cycle

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Abstract: Ensuring equitable assessment practices necessitates a robust feedback loop with stakeholders, a critical yet often unmet challenge in higher education assessment. This is one of the pressing challenges in the assessment field, according to a qualitative study conducted by a research team from the Grand Challenges for Assessment in Higher Education project between 2023 and 2024. Twenty-four equity action makers across higher education units shared how they further equity in their assessment practices. This article aims to provide assessment professionals engaged in outcome-based assessment with a practical inquiry guide for each step of the assessment cycle, facilitating critical reflection and informed conversations with stakeholders to enhance more meaningful assessment practices.

Keywords: *assessment, practical inquiry, critical reflection*

Introduction

Over the past two decades, higher education institutions have been under pressure to provide accountability data on the quality of learning, making assessment an integral part of the educational process. Upcraft and Schuh (2001) defined assessment as “any effort to gather, analyze, and interpret evidence which describes institutional, departmental, divisional, or agency effectiveness” (pp. 3-4). Faculty or staff engaged in this work are commonly referred to as assessment professionals or assessment practitioners. As assessment scholarship continues to grow, the terms “assessment professionals” and “assessment practitioners” are used interchangeably. Assessment professionals perform a wide range of roles (Jankowski & Slotnick, 2015). Among their core responsibilities are collaborating with academic programs and student affairs units to collect and analyze data on student learning and program effectiveness. This work supports both demonstrating value and identifying areas for improvement. Based on Nicholas and Slotnick’s (2018) national study on the portrait of assessment professionals who work full-time in assessment at higher education institutions in the United States, the results indicated that this population mainly focused on student learning at the program and institutional levels.

The Grand Challenges for Assessment in Higher Education project (Singer-Freeman & Robinson, 2020), led by faculty and assessment professionals from various higher education disciplines, aims to address large-scale challenges in higher education assessment practices through national collaborations, systematic inquiries, and dissemination of evidence-informed practical solutions. Among the challenges identified is the need to increase the use of assessment to guide rapid and equitable improvement in learning, underscoring the missing piece of considering various student characteristics, particularly those of underserved student populations, in general assessment practices. Assessment professionals often inadvertently perpetuate inequities when their methods overlook students' diverse demographic characteristics or cultural backgrounds. As Montenegro and Jankowski (2017) aptly point out, "If assessment is to be a truly powerful force for improving learning, it must be designed and implemented in ways that are fair and equitable for all students" (p. 17). This critical oversight does not just impact individual students; it disrupts the essential feedback loop in assessment, preventing the holistic understanding needed to genuinely enhance learning for all. When student voices and experiences, particularly those from marginalized groups, are not adequately integrated into the assessment process, decision-making becomes inherently flawed, increasing vulnerability and reducing the agency of student populations (Hartocollis, 2019). Therefore, truly closing the loop in assessment—our central argument—demands that we actively seek out and integrate these diverse perspectives to ensure our practices are not only fair but also genuinely responsive and equitable.

While assessment professionals may vary in their areas of focus, those specializing in outcome-based assessment, whose primary focus is on assessing students' knowledge, skills, or competencies against predefined outcomes in higher education, place a strong emphasis on leveraging data to improve student learning or enhance the effectiveness of institutional programs. Singer-Freeman & Robinson (2020) noted that assessment reports can, at times, inadvertently overlook the performance of various student populations across courses or academic disciplines. This lack of representation in aggregated assessment results can lead to an incomplete understanding of student success and may hinder efforts to address the unique needs of all learners.

This paper aims to provide fundamental guidance for inquiry tailored to the general workflow of assessment professionals. It seeks to examine how several distinguished assessment professionals engage in reflective practice to enhance the significance of their assessment procedures. By fostering deeper inquiry, this paper aspires to enhance the overall quality and impact of assessment activities within higher education.

Literature Review

In the context of shifting political landscapes and institutional leadership instability, the Diversity, Equity, and Inclusion (DEI) initiative provided educators with opportunities to reflect on collected data and identify areas that require further attention. However, since 2023, 65 anti-DEI bills have been introduced (Flannery, 2024), challenging educators' definitions of student success. Student learning outcomes may be modified due to changes in institutional-wide focus, assessment measures may be enhanced through technological advancements, and reporting may be adjusted in response to various demands from stakeholders. Amidst these fluctuations, it is crucial for assessment professionals to

remain the anchors that institutions can rely on for understanding the status of student learning and seeking improvement in learning performance. As a result, assessment professionals must demonstrate exceptional adaptability to uphold good practices for learning improvement.

The following literature review topics also align with our data analysis framework, which is based on the widely used assessment cycle. Within this cycle, we explore the emerging reflection codes that inform our theory-based approach, providing a nuanced understanding of how participants reflect on their practices and engage with their stakeholders.

Assessment Cycle

The assessment cycle is an iterative process that typically begins with the development of outcomes and identification of appropriate measures. This is then followed by data analysis and reporting. Outcomes-based assessment is often employed for program improvement (Hernon et al., 2013; Grauerholz et al., 2020; Driscoll & Wood, 2007). To develop a sustainable assessment culture, assessment professionals typically adopt an assessment cycle in which they collaborate with faculty to collect student learning data that aligns with the intended student learning outcomes and report the results to key stakeholders. Despite assessment professionals having a range of responsibilities and somewhat unclear professional identities (Prendergast et al., 2022), they generally adopt systematic assessment cycles, which are designed to improve student learning and program effectiveness. As such, the assessment cycle has served as a compass for assessment professionals.

To foster an effective learning environment, the footprint of the assessment cycle can be found in educational practices and research, with variations in terminology. For instance, Flynn et al. (2005) emphasize the importance of establishing an assessment culture to ensure continuous improvement and accountability in educational settings. Similarly, Kremer (2023), grounded in the assessment cycle, advocated for the inclusion of student voices as a critical component in the assessment process. Research on how assessment steps promote student learning has also evolved. According to Kuh et al. (2015), the last step in the assessment cycle should be to assess the impact of changes. Gozik (2023) discusses the concept of "closing the loop," which refers to the continuous cycle of assessment, feedback, and improvement, underscoring the dynamic nature of the assessment process.

At many higher education institutions, the steps in the assessment cycle as interpreted by the institution are articulated on the institution's website. For example, at the University of California-Riverside, a public land-grant research university, the assessment cycle follows six steps: (1) Identify Outcomes, (2) Provide Opportunities, (3) Gather Evidence, (4) Analyze Evidence, (5) Share Results, and (6) Use What You Learn. These steps are applied not only in academic programs but also in various student affairs units that conduct program-level assessments. To effectively implement each step, the University of Wisconsin-Madison has created guiding questions for their assessment cycle: (1) What: What are students expected to learn? (2) Where: Where in the curriculum are students expected to learn and apply the knowledge and skills specified as learning outcomes? (3) How: How do program faculty know (what is the evidence) that students are learning what they expect them to? And (4) So What: So what do the results mean for the program? Instead of labeling each step using concrete

actions, this rubric uses questions to guide practices in the assessment cycle, providing clarity and encouraging critical thinking and reflection for assessment professionals. Each step becomes more purposeful, allowing assessment professionals to use questions to engage stakeholders in assessment-related conversations.

Reflection

Numerous significant contributions to educational literature provide valuable insights into the importance of reflection. Moon (1999) emphasizes the critical role of reflection as the cognitive mechanism essential for deriving meaning from complex or unstructured concepts and experiences. Schön (1991) articulates that reflection “in action” (occurring during an experience) can enhance professionals’ abilities to make instantaneous decisions, while reflection “on action” (occurring after the experience) aids in refining understanding and adjusting future behaviors. As suggested by Mezirow (1998, 2000), reflection is integral to facilitating transformative learning. Although the impact of reflective thinking has been widely examined, the nature of reflective thinking and its implementation remain unclear. Rodgers (2002) examined John Dewey’s views of reflective thinking and reviewed years of studies about reflection and argued that the process of reflection should be “rigorous, systematic, and distinct from other less-structured kinds of thinking” (p.22).

Critical reflection, often used to inform future actions, is considered deeper, more intense, and more probing than reflection (Brookfield, 1995) and is widely used in social work (e.g., Heron, 2005), health care (e.g., Aukes, 2008), business, and management (e.g., Wilner et al., 2012). Educators, particularly in teacher education, are also familiar with the term “critical reflection,” as it encourages teachers to engage in independent thinking and to understand the influence of culture (Liu, 2015). Dewey (1933) first introduced the concept of reflective thinking in adult education, and Mezirow (1978) later advocated for critical reflection, exploring the issue of concerns, and considering perceptions, actions, or feelings in relation to personal experiences (Lundgren & Poell, 2016). As a result, critical reflection has become a valuable tool for fostering deep learning, research, and professional development (Zuber-Skerritt & Cendon, 2014). Fook (2010) defines critical reflection as the “ability to understand the social dimensions and political functions of experience and meaning making, and the ability to apply this understanding in working in social contexts” (p. 50).

Several scholars have identified levels of reflection that serve as a foundation for understanding how learning can be developed and what deep thinking looks like. For example, Hatton and Smith (1995) propose four levels in teacher education: (1) Description; (2) Descriptive reflection; (3) Dialogic reflection; and (4) Critical reflection. Moon (1999) later outlines five levels of reflection in professional development: (1) Noticing; (2) Making sense; (3) Making meaning; (4) Working with meaning; and (5) Transformative learning. Continuing to believe that adults can grow through critical dialogue, Mezirow (1991, 1998) differentiates between non-reflective and reflective thinking and action. He also identified the vertical levels of reflection which underscored the importance of making sense and finding meaning in adult life: (1) Habitual Action, defined as non-reflective action; this is based on prior learning and practice, allowing adults to act while focusing their attention elsewhere, similar to riding a bike; (2) Thoughtful Action, which involves higher-order cognitive processes that guide adults in

analyzing and evaluating without necessarily attending to the grounds of justification for their beliefs; (3) Introspection, which entails reflecting on feelings or thoughts about ourselves, whether personal or directed towards others; and (4) Critical Reflection, where individuals make meaning of their world.

Lundgren and Poell (2016) conducted a systematic review of the reflection literature and stated that reflection can be categorized into three levels: (1) Content, (2) Process, and (3) Premise. Content reflection focuses on describing the problem; in other words, it involves reflecting on our perceptions, thoughts, feelings, or actions related to the issue. Process reflection pertains to the strategies used for problem-solving. This level of reflection examines how we perform these functions—perceiving, thinking, feeling, or acting—and evaluates our effectiveness in doing so. Finally, premise reflection involves questioning the underlying assumptions related to the problem. This level of reflection helps us become aware of why we perceive, think, feel, or act as we do, as well as the reasons for and consequences of our habits of quick judgment.

While several frameworks on reflective practice offer valuable perspectives, many tend to have blurred boundaries among levels, making it difficult to distinguish each stage with clarity. This can be especially challenging for assessment professionals, who often perform tasks based on established routines, such as identifying whether students, on average, achieve our expectations, without pausing to deeply reflect on their practices, especially when those tasks are familiar and part of daily work. Mezirow's ways of distinguishing between reflective and non-reflective thinking, as well as Lundgren and Poell's categorization of critical thinking, provide sharper definitions and practical distinctions between levels of reflection, making it easier to apply them systematically within daily assessment routines.

In a study conducted by Morrow et al. (2022) to identify the skills needed by assessment professionals in higher education, the survey revealed that 95% of participants rated engaging in critical thinking as moderately or very important for assessment professionals in performing their roles. Since assessment is recognized as a critical method for advocating continuous improvement (Secolsky & Denison, 2012; Coates & Seifert, 2011), assessment professionals engage deeply with the assessment process at various stages, thereby understanding the social context and making meaning of it as an inherent aspect of their thinking. To enhance the development of professional identity and help assessment practitioners navigate the concept of student success within higher education, we argue that reflection should be established as a core competency for assessment professionals and integrated into their assessment practices.

Therefore, grounding our approach in Mezirow's (1998) distinction between non-reflective and reflective thinking, we propose that assessment professionals continuously pause and adopt a more intentional, reflective stance, interrogating not just what they do, but also how and why they do it. To facilitate this, we also incorporate Lundgren and Poell's (2016) categorization of reflection (content, process, and premise reflection), structuring the framework to prompt varied modes of critical inquiry.

Guiding Questions

The American philosopher John Dewey viewed inquiry as a natural way of thinking and a fundamental driver of deeper understanding. Even in today's fast-paced environments, professionals are encouraged to look beyond technical tasks and engage in deeper inquiry, leading to meaningful action. Nichols & Cormack (2017) examined the impacts of participation in practitioner inquiry on teachers and found that as teachers developed the habit of thinking more deeply, it helped build a culture of learning and sharing and established a more productive connection with their practice of education. Research also found that guiding questions lead to a deeper understanding of experiences. Clarke (2004) found that teachers began to make connections between what and how they taught, and how their teaching impacted their students, as reflected in their journal entries while the participants were being asked specific questions. These participants were even found to have modified their practice in light of their response to those specific questions. An inquiry guide is also a common practice in various professions that aims to guide professionals in navigating structures and collaborating or leading within their organization. It helps guide learners, researchers, or any users through a process of asking questions, exploring topics, and exploring opportunities.

Integrating inquiry into assessment

To enhance daily assessment practices, Montenegro & Jankowski (2020) outline six actions for equity-minded assessment, encouraging assessment professionals to be mindful of equity and actively working to address inequities: (1) Check biases and ask reflective questions throughout the assessment process to address assumptions and positions of privilege; (2) Use multiple sources of evidence appropriate for the students being assessed and assessment effort; (3) Include student perspectives and take action based on perspectives; (4) Increase transparency in assessment results and actions; (5) Ensure collected data can be meaningfully disaggregated and interrogated; and (6) Make evidence-based changes that address issues of equity that are context-specific. These actions are particularly valuable and remain insightful in current assessment practices. By asking reflective questions, utilizing diverse evidence sources, incorporating student perspectives, ensuring transparency, disaggregating data, and implementing context-specific changes, assessment professionals can continue to address student learning & success comprehensively.

Expanding on the reflective question idea mentioned above, Montenegro et al. (2024) listed various questions that we can ask ourselves during each step of the assessment cycle: (1) Outcome development, (2) Measures, (3) Data analysis and reporting, and (4) Seeking improvement. For example, in the planning stages of Outcome development and Measures, we can ask "How will safe spaces/processes be created to receive honest feedback?"; in the data collection stage, we can ask "Is the language appropriate on all data collection materials (e.g. free of jargon, culturally responsive for the population being studied, free of assumptions)?" during Data analysis and reporting, we can ask "How has the program traditionally treated 'negative' or 'less-flattering' data findings?" In the Seeking improvement stage, we can ask "Which equity gaps will not be addressed via program changes? Why?" The 58 questions listed in Montenegro et al. (2024) provide critical questions that can be addressed when implementing any assessment activity.

The educational research and the institutional practices mentioned above all illustrate the aims of assessment and elucidate the nature of assessment work. Inspired by the University of Wisconsin–Madison’s guiding questions, Mezirow’s (1998) theory on adult critical reflection, and Lundgren and Poell’s (2016) categorization of reflection, we propose an inquiry guide for assessment professionals to use. Designed for assessment professionals who may be at the early stage of their careers in the assessment field, or for those who may be at the senior level in their years of assessment responsibilities, this inquiry guide is rooted in outcome-based assessment work, and provides lower to higher levels of reflective thinking to assist assessment professionals in implementing assessment that includes critical reflection in their regular practices.

Often, assessment professionals approach their work by asking questions designed to satisfy minimum accreditation standards, ensuring that outcomes are stated, data is collected, and reports are produced. This process can sometimes become a matter of simply checking boxes to demonstrate that assessment activities are taking place, rather than truly engaging with the substance of student learning. However, to genuinely advance educational quality, it is essential to move beyond these surface-level requirements. We believe assessment professionals can strive to ask deeper, more probing questions that explore the full complexity of student learning. By doing so, they can uncover richer insights, illuminate areas for meaningful improvement, and better support student success in all its dimensions.

Methodology

The methodology employed in this study is rooted in qualitative research, chosen for its ability to provide in-depth insights into participants’ experiences and perspectives. Over the course of 2023–2024, nine interviewers, including five members of this study team under the Grand Challenges for Assessment in Higher Education project, conducted interviews (see Appendix) with assessment professionals across various higher education units and educators who were identified for implementing equity in learning or program assessment. In total, 24 individuals were interviewed, with five participants representing two organizations, resulting in 20 interview transcripts. Among the 24 assessment professionals interviewed, all participants had at least 5 years of assessment experience, with 2 participants having 6–10 years of experience, 11 participants having 11–15 years of experience, and 4 participants having more than 15 years of experience. The participants’ experiences include academic affairs assessment, programmatic assessment, accreditation, assessment as a broader field, classroom-based assessment, general education assessment, institutional-level assessment/effectiveness, research/scholarship of assessment, and student affairs assessment. Interview participants were identified using a snowball sampling technique that encouraged breadth of experiences across higher education rather than depth in one specific area.

Institutional Review Board (IRB) approval for this study was obtained from the primary research host, the University of Wisconsin–Madison (IRB Protocol #2023–1106), ensuring compliance with ethical standards for research involving human participants. In addition, collaborating researchers from other participating universities also secured approval from their respective IRBs prior to data collection.

Each one-hour interview was facilitated by two researchers. This approach allowed ample time to explore the topic in detail and gather rich data. The interviews were conducted using a semi-structured format and were subsequently transcribed for detailed analysis. The dual-interviewer method ensured a comprehensive understanding of the data collected, as two interviewers reviewed the transcripts before analysis. Participants were asked to reflect on their assessment approach by centering on a particular project at their institution, identifying the stakeholders involved, the data collected, and the impact of the work.

Themes were cross-validated within researcher pairs and then reviewed by the entire study team to ensure robustness and reliability. This study analyzes the interview data from 24 participants using thematic analysis to identify patterns of meaning while maintaining the theoretical freedom of this approach (Braun & Clarke, 2006). During the first round of thematic analysis, a theme we called “key questions” frequently emerged across our transcripts. Our research team came together with a guiding research question for ongoing investigation: why do these interviewees often show that they ask themselves or key stakeholders some questions, and what questions help make their practice more equity-minded? Therefore, in the second round of thematic analysis, we focused on those key questions' quotes and used reflection theory to structure our second round of analysis.

The reflection coding themes adopted in this paper are derived from Mezirow (1998) and Lundgren and Poell's (2016) ideas from non-reflective action to reflection (content, process, and premise) as well as a 4-step assessment cycle including: (1) Outcome development; (2) Measures and data collection; (3) Reporting; and (4) Seeking improvement. The matrix of reflection and the four steps of this assessment cycle would indicate the general practices of assessment professionals and cover the current majority of campus practices. To accomplish this goal, we first coded the assessment steps and then used the reflection levels as a framework to code key quotes into appropriate levels of reflection. In the results session, we will present different quotes from the interviews showcasing how different levels of thinking would happen at different assessment steps. At the end of this article, based on the principles of reflection and general practices in assessment, we developed a matrix table that would serve as an inquiry guide for assessment professionals to facilitate their assessment practices. This article aims to simplify the concepts and make them accessible to all assessment professionals.

Results

While the participants share their various experiences from different contexts, such as psychometrics, academic program assessments, student affairs program assessments, or external projects from non-profits directly supporting post-secondary campuses, similarities in the thinking and actions taken emerge from these 20 interviews. Even though the participants' responses were given in response to this study's semi-structured interview questions, all our participants provided their own perspectives and their ways of thinking. We first categorized each participants' responses into the assessment cycle and subsequently coded the quotes by reflection level.

Table 1 indicates how we code our interview data and categorize them into different levels of reflection.

Table 1

Analytical Framework

	Level of Reflection			
	Surface			Deep
	Habitual or Thoughtful Action	Content Reflection	Process Reflection	Premise Reflection
1. Outcome Development				
2. Measures				
3. Data Analysis and Reporting				
4. Seeking Improvement				

Reflective Thinking in Assessment Cycle Stage 1: Outcome Development

When assessment professionals first work on an assessment project, it is normal to ask, “what are the learning outcomes?” either at the course, program, or institutional level; or, “What do faculty expect students to learn?” As strategic planning becomes a critical component and foundation in assessment by aligning outcomes and strategic plans, it also underscores the desire for transparency in teaching and learning. Additionally, this work incorporates the institutional culture and political environment. Therefore, we found the interviewees in this study engaged in more profound thinking when conducting assessment work.

Content Reflection

From the interviews, we found that the interviewees engaged in deeper reflection than the basic assessment practice routine. For example, not merely checking whether outcomes, data, or reports were created, but also questioning whether different voices are included or considered in the process. The following quotes illustrate the progression from understanding Mezirow’s thoughtful action- “What are students expected to learn?” which is more at a higher order cognitive process, to guide assessment professionals on what they need to discuss. Interview 20 (ID20) articulated this question “What is it we are trying to alter,” which involves examining and reflecting on assessment professionals’ perceptions and thoughts. While it may be more comfortable to continue with familiar practices and common thoughts when developing learning outcomes, this approach may lead to a sense of compromise. ID20 shared this observation when inviting institutional community members to reflect on their current practices:

Like from the individual self-reflector, who maybe comes to our community of practice—anti-racist community practice and shares a bit about what they're going through as an individual, questioning their workplace, questioning if it's where they want to be, because they feel compromised. All the way to folks that felt empowered and able to approach their leadership, get some buy-in, an endorsement, and activate some work in their local setting (ID20)

ID14, whose project focused on machine learning, expressed the importance of reflecting a single purpose and evaluated the action of adopting machine learning:

Be very mindful and careful of looking at the outcomes of what your machine is predicting. Whether it is for more labeling students for different supports, needing support if they're at risk of dropping out, or if they are going to be labeled in some kind of program, like being very careful about what kind of students are being put in there, and like, for what purpose? And is it because the students really need it? Or is the machine, is the algorithm lacking in some way, or has the wrong kind of data... training it? And so that's why you're getting what you get. (ID14)

These quotes indicate that establishing meaningful learning outcomes requires assessment professionals to reflect on their practices and goals continuously.

Process Reflection

When developing student learning outcomes, it is essential to ensure students are clearly informed about their learning journey. However, researchers have identified a discrepancy between the terminology students use to describe learning outcomes and the language typically employed by institutions (Drew, 1998). A more recent study found that students find the learning outcomes can “restrict their learning and lead to their knowledge being over fragmented” (Brooks et.al, 2014, p.731). Instead of faculty deciding what students need to learn and what artifacts they are confined to presenting for faculty evaluation, ID4 emphasizes the importance of involving students when establishing learning outcomes allowing students to participate in developing or revising learning outcomes and providing them with opportunities to choose how they demonstrate their learning, rather than being confined to traditional methods like writing research papers.

How do we involve students in the process? How do we do a better job of shifting to student-centered learning when they're involved in the development or revision of the outcomes of the content, providing opportunities for students to decide how they want to demonstrate their learning, rather than just saying you have to write this research paper, you know. Can they choose opportunities for doing something else? (ID4)

ID13 expands on engaging students in the process by pointing out the natural bias of prioritizing the needs of those who are already present and engaged. To create sustainable and effective educational practices, it is crucial to consider the needs of those students who are not currently using educational

resources. By identifying and addressing the needs of these students, educators can create a more inclusive and comprehensive learning environment that caters to a diverse student population.

I think people oftentimes forget, or overly prioritize the people who are in the space. It's a natural bias, right? Like you want to make it better for the people who are your users? But I think for things to be sustainable, you need to think about who's not using your product. And if you can figure that out, you actually have a bigger base than you do (ID13)

ID16 echoed the importance of engaging stakeholders from different roles or disciplines in critical conversations and highlighted possible small wins in the workplace.

The reality is that we haven't done necessarily a lot of that work, how are we looking at our curriculum? Are we engaging diverse voices in our curriculum? Are we centering our practice in helping those students understand how it relates to their lives and their communities? [...] It can take varying lengths of time to engage in – to engage in the work of improving that. And I think finding those partners and champions early, and then focusing on small wins first. (ID16)

Premise Reflection

Premise reflection involves examining the underlying reasons behind thoughts or actions, helping assessment professionals understand the purposes and consequences of each assessment practice. Therefore, delving deeper into our regular practices and developing a more thoughtful and informed approach to outcome development may help us discover hidden issues. For example, ID10 shared that taking time to pause and reflect on one's needs and context promotes self-awareness and personal growth, as well as professional competence:

In our conversations with programs it has been a lot of just pause and reflect and think about what it is that you need. And part of that is this guided discussion on what's your state context? And how does that impact what you can say and how you can say it? But looking beyond that, how did that translate to your program, how you operate within it? (ID10)

One of the critical components in premise reflection is reviewing shared values, understanding cultural context, challenging assumptions, or addressing bias. Some interviewees demonstrated this level of thinking:

Where those representatives of different groups look at the [assessment] items and weigh in on whether they see any kind of bias or sensitivity issue. [state name] decided they weren't just going to bring in token people of color, they were going to bring in people who had expertise in their cultures or who were activists in their issues, whatever it was (ID7)

Even though[...] [State name] has a really progressive identity, you know your faculty is still a mix, all of your administrators are still a mix of identities. So I want to say, yes, this was in the DNA of the community because of where the college was situated — But it's interesting in thinking about the identity of the institution itself... the college was progressive, and that probably came from the surrounding community. But, we were really in line and responding to a larger call. (ID11)

From years of experience in the assessment field, ID4 observed the need to move beyond unbiased assessment towards actively addressing inequities:

Assessment has changed, not just of documenting what's going on, but actually to move towards change. And I think that's a big shift for a lot of us doing assessment because we still feel like we need to be neutral. We need to be unbiased. But I think if we're going to use assessment for equity, we need to be thinking about ourselves as change agents, of course, protecting the idea that we don't want to look for you know what we want to find. But I think there are ways to manage that. But really thinking about it from the very beginning, if our focus is to address inequitable student outcomes on campus, how do we really design assessment for that end? And so I think that's a big shift as well. (ID4)

Reflective Thinking in Assessment Cycle Stage 2: Measures

When assessment professionals seek appropriate measures, they often ask instructors or program coordinators where in the curriculum or program students are expected to learn and apply knowledge or skills that align with the learning or program outcomes. It is also common to find measures for the established outcomes by asking, “What student learning outcomes data is available or should be available?”

Content Reflection

To establish a more meaningful process, ID2 emphasizes the importance of analyzing student performance to identify potential equity gaps. By examining whether existing measures are contributing to student performance gaps, educators can gain insight into how different assessment methods impact student success.

I think the first thing is that you have to go beyond grades in classes. ... looking at grades on particular types of assignments to identify what's driving the difference within a class. And I think that that reveals [a] much more nuanced picture than that students are passing or failing the class. Is it that multiple choice testing is driving all of your equity gaps? Or is it that it's distributed evenly across all of your assignments? And you respond really differently as a teacher depending on what that situation is, or even within a test. What are the questions that are driving the equity gap? Because oftentimes there's poor alignment, right? So the questions that you might have-- all of your underserved students getting incorrect might have some cultural bias that the faculty member isn't even aware. So I think one first big thing that I bring to my work and try to encourage other people to

do is to go beyond that final grade and think a lot more about micro moments within a class. (ID2)

Process Reflection

Process reflection involves assessment professionals actively examining how assessment practices were conducted and how we act in different assessment activities. ID15 shared their observation on a survey form they used in a student affairs unit, and for which they later developed a review timeline:

I've seen momentum and progress, and that has been very exciting, because well, what I've learned from my teams is, if students don't see themselves in even the application process, it leaves some feeling kind of— even our staff, “Oh, you don't recognize me”, and “I don't even know how to answer this question, because my options, not there” and so that has been something that continues to be part of our conversations as well as we break down our silos, we've been [able] to collaborate more. We can have those conversations and work together a little bit more in those areas. ...we finally in 2019, developed a set of approved questions that we felt would elicit the right information for our offices to be and make actionable... And that has become quite, just norm[al]. And we are actually up to review those again to make sure that as trends change, and because 2019 was a long time ago when it comes to identity development and the space where we are. (ID15)

Premise Reflection

To decide appropriate measures, the relationship between assessment professionals and faculty can be intense, as the balance between requirements and autonomy may be challenging to achieve. ID12 addressed the trust issue during our interviews:

Change happens at the speed of trust. And so you don't build trust in a day, usually. Sometimes you do. But that's pretty rare, particularly with populations who have been marginalized. They have a big deficit of trust, understandably. And so that takes work. So what? The other thing that doesn't work is going in and telling professors, “You must measure this because we need an accreditation report.” I had this idea when I first started at [institution]. Oh, look, right? ABET- the engineering accreditation body- says you must have global competence. And I'm going to be able to say, “Look, here's how you can meet your ABET” and like nobody cares. (ID12)

Therefore, reflecting on the feelings towards assessment at the early stage, and developing trust is valuable when creating a meaningful assessment practice. In addition, when developing measures or deciding artifacts for assessment activity, questioning the existing measures by asking a question: “why you're getting what you get” (ID14). By answering this question, it may be helpful to discover potential issues in current practices. ID14 further expanded on this reflection when sharing a project about developing testing items:

We know kids don't do well on them, regardless of their background. And so, and the certain kids are from different background, who are from minority backgrounds are even more penalized with some of these kinds of items. So why wouldn't we think about how to write these items more interestingly or more... where they're more engaging to the students, or more support for the students. (ID14)

Reflective Thinking in Assessment Cycle Stage 3: Data Analysis and Reporting

One of the essential duties of assessment professionals is analyzing assessment data and reporting the results. The results of students' performance for each learning outcome or program outcome attract the attention of stakeholders.

Content Reflection

During the data analysis and reporting step, assessment professionals consider the kind of data collected and the analysis techniques used. ID10 described approaching data differently depending on the comfort level of program directors in answering more challenging questions:

It's important to make the argument and connect why the program exists with some of the potential benefits and outcomes. [...] So then, after doing that, I had to go and slowly talk to program directors that [...] were in their in their positions for a long time [...] ones that were a little bit more comfortable, felt a little bit more secure in their jobs, to really want to open up and share what some of the challenges were. (ID10)

ID11 also emphasized the importance of sensitivity and skill sets needed with data for being able to ask insightful questions and look beyond standard reports to uncover deeper insights.

Looking at patterns of where students changed majors, too, and then looking at different kinds of needs across those groups. [...] You have to have somebody skilled in your IR office who's curious [about] things to want to pull these sorts of things to go, "Well, what if we also looked at this?" So it stinks that it's never just one report, and it's probably not across your commonly looked at or just regularly looked at data. It really does come down to having somebody who's skilled to be able to pull things together and get curious about it. (ID11)

Our interviewees took a further step by suggesting a deep dive into data analysis and reporting, demonstrating that any stakeholders can ask these questions. ID3 emphasizes the importance of evaluating whether current educational practices are effective in different contexts. This critical examination helps educators understand students' overall performance and identify areas for improvement. By questioning the effectiveness of these practices, educators can begin to uncover potential disparities in student success.

They're coming to us with like questions and [...] they're asking like, What are the trends? What are you seeing? What would make a difference? That's the questions we center,

like, what would make a difference, right?.... Really understanding and investigating practices and policies on campuses that are intended to support basic and secure basic needs. Are they working? Are they working in this context? And maybe not in this context? (ID3)

At the content reflection level, ID1 also challenges us to consider the responsibility of assessment professionals to constantly reflect on the data received, and critically think about its relevance to student learning instead of providing only the information that external requestors are looking for:

I think we also have a responsibility as a profession. [...]So if I need to try to figure out how to tell your story in a box that looks like this and fits these things, and I can't tell the story of your program with the data that is important to you and your students in that way, because some external body has been like, "Yeah, but not that data." Like, "That's not of interest to us." We need to be pushing back on that, using storytelling and narrative, and all of those pieces about why this matters, and how that relates to learning, and how this connects to our mission, and, and, and, those, those bits, so that we are not constrained by external pieces, because we haven't done that feedback loop push to an external bod[y] that that's the wrong thing to look at. (ID1)

Process Reflection

To generate an outcome report, assessment professionals are used to aggregating different data sources into reports to provide a high-level understanding of students' performance. However, disaggregating data provides insights that may not be observed in aggregated data. ID19 calls disaggregation of data an essential component to demonstrate the reliability of testing data. ID19 goes on to provide the following example from the psychometrician's perspective.

Differential item performance [DIP] [...] in its most basic sense is that we control for the ability levels between students in different student groups and see [...] if there's any kind of bias with that item that students from different groups are performing differently on this item. And we do that by race, gender, English learners. [...] States sometimes have different requests. And so we can include things like free and reduced lunch students versus students who aren't free and reduced lunch to see if there's some kind of performance difference. (ID19)

Participants used several analogies to demonstrate the utility and value of disaggregation. Developing reliable data and crafting a clear story may require some time in the data collection phase, addressed by ID10:

In terms of data collection, so not trying to boil the ocean, but take small bites [from] the apple, one chunk at a time, and then start to build a good data repository that down the line, maybe five years, you have pretty good solid standing to then make those larger

comparison points to track those data, and have a better sense of in house, of how those other populations are going and doing while reporting outside of your safe bubble. (ID10)

Premise Reflection

Premise reflection involves exploring assumptions; ID10 builds on their idea of leveraging data by discussing the importance of using inclusive language when addressing equity. ID10 suggests that selection of variables matter and can cut across various demographics and help highlight equity issues without directly mentioning specific racial or ethnic groups. This approach allows educators to address equity metrics in a way that may be more palatable and be less likely to cause resistance. By focusing on these broader categories, educators can begin to see patterns and trends that may indicate inequities in student performance.

What are some of the terms that you can use to talk about? Equity still gets at those equity metrics without directly saying it's equity. Right? So we have to have those conversations of if you talk about low-income students, that's going to cut across a lot of demographics. If you talk about first gen students, it is gonna cut across our demographics. So maybe you don't at the beginning of it mention black Latinx students. (ID10)

Reflective Thinking in Assessment Cycle Stage 4: Seeking Improvement

Without a doubt, the value of conducting assessments is to obtain data for teaching or learning improvement. To “close the loop,” assessment professionals commonly review assessment data with key stakeholders and develop improvement action plans before examining the effectiveness of the actions. It is common practice to ask questions such as “Which student performance is under set thresholds, and how can we help?” However, it may take a village to see improvement, as many factors can play critical roles in students' learning journeys. ID10 describes that in order to let people use data, it is necessary to have people trust and understand the value first and “allowing people to see the reason that we're trying to give you this resource is to help you improve and advocate for yourself through data. They've been a little bit more open to having those conversations.” The interviewees' reflective questions at the Seeking Improvement step are addressed below.

Content Reflection

To make an assessment project meaningful, it is important to have a shared value, as ID15 described:

What can we do to support our students in a meaningful way that our staff and faculty also don't perceive as just another QEP [Quality Enhancement Plan] to add work to their plate for 3 years, and then die off? Because that's what we don't want. We're trying to utilize this QEP experience as something that really allows us to dig into the student experience. What is it that is needed to help them be successful, to make part of the [institution] experience? And it's just part of our culture, of how we do things to improve things. (ID15)

ID17 faces their internal conflict by evaluating their actions and decisions, and considers whether changes are necessary to align their professional knowledge or institutional goals: “The challenge is would I change what I'm doing? Knowing what I should do, and what I want to do is two different things” (ID17).

Process Reflection

To think about ways for a better process of seeking improvement, ID7 emphasized the importance of collaboration and partnership.

I would like to see more leadership at all levels of people having to sit down and think hard about what do we want kids to learn? What do we want students to learn at all levels? And that is work. But it's at the university level, it could be department work. At the K-12 level, it could be school level or department level. But being clear about what is it that we want them to learn and what does it look like would be a really important step for people to take. (ID7)

Developing an improvement plan is not the responsibility of a single person; fully addressing student learning outcomes requires the collective effort of several people. ID1 asked critical questions to help key stakeholders reflect on the expectation of building consensus.

Where do I want us to end up? And how am I strategically moving us there? And it might not be that we have a written-out strategic plan that I say, “In 3 to 5 years, we're going to be here,” you know, and that people can argue about it. But like, do we have in our heads, where do we want to go? (ID1)

When the results may not reflect what administrators expect, it is also critical to reflect on the discrepancy. ID3 provided an example, resulting in the following discussion:

If that's not true for me as an administrator, or whatever, it's true for my students, and I need to really understand how it's true for them and then really dive deep into what would be the systemic barriers that are there that need to be addressed institutionally? (ID3)

Premise Reflection

ID17 discussed the challenges of articulating the need for resources from an equity perspective by questioning why certain student organizations or populations have access to resources while others do not, underscoring the importance of equitable resource distribution. This perspective shifts the focus from the overall program results to the specific needs of different student populations, ensuring that all students have the support they need to succeed.

There are some challenges when you're looking at trying to articulate need for resources. And, well, your population's never needed this before. Why do they need it now? Well,

let's look at [it] from an aspect of equity. If all these other student orgs can have this, why can't our student org have it? If these populations can have this, then why can't the military-connected student population have it? (ID17)

Discussion and the Development of the Inquiry Guide

Just like the assessment cycle, many of the key questions we found from our coding need to be asked repeatedly. Assessment professionals may need to continue to ask fundamental questions for a period of time and continue to move on to a deeper level of questions. However, we believe that answering these critical questions would help each assessment project develop its own shared values, which will eventually lead to meaningful assessment. By infusing reflective questions as a foundation when implementing each step of the assessment cycle, assessment professionals can have a framework to thoroughly examine their practices or embark on a conversation on meaningful topics. Educators will also be able to understand and address the unique needs of various student populations. This approach ensures that program results are not only evaluated in terms of overall success but also in terms of their impact on various groups of students, leading to a more supportive educational environment.

By aligning assessment practices to reflection levels, assessment professionals would be equipped with a clear, actionable guideline that resonates with the diversity and complexity of their duties. This nuanced approach would not only support intentional reflective practice but also ensure that professional growth and decision-making are grounded in critical inquiry and meaningful self-assessment, ultimately enhancing the effectiveness of assessment work in dynamic educational environments.

When writing this Inquiry Guide (Table 2), we tried to use simple, concise, and unembellished sentences to convey the crucial questions in equity practices in assessment. We presented good examples from our study participants and analyzed their thought processes using our study framework. We then later include our interpretation and experiences to create the inquiry guide matrix. The questions listed in this guide are inspired by the ways of thinking our interviewees demonstrated during their conversations. Their reflective approaches informed not only the selection of questions but also how these could be expanded and deepened at each level of reflection. To help assessment professionals have a more hands-on framework for daily use, the following inquiry guide within the assessment cycle was developed from interview results and researchers' assessment experiences.

Table 2

The Inquiry Guide

	Habitual/Thoughtful Action	Content Reflection	Process Reflection	Premise Reflection
1. Outcome Development	What do faculty expect students to learn?	What is it we're trying to alter?	How do you engage faculty/students in the process?	Why do we think these learning outcomes are important to students?
		What do you think about the relevance of these learning outcomes to every student?	How well do our faculty/students understand these learning outcomes?	Why do we engage different voices in outcome development?
			How do these learning outcomes align with the institutional mission?	
2. Measures	What student learning outcomes data is available or should be available?	What other data can be used?	How did students' different experiences affect their performance under the measures we chose?	Why do we choose these specific strategies?
		What implicit bias may affect the result?		Why do I have to break the data down and try to track that information?
		What questions need to be asked about this data?	How can the main ideas of the learning outcomes be effectively measured?	
3. Data Analysis and Reporting	What are the overall results?	What are the limitations when you report the results?	How will stakeholders understand the results?	What brings us to do this work?
		What would disaggregating this data reveal?	Anyone who might wish to use the results?	What is your state context? And how does that impact what you can say and how you can say it?
		What resources are working?	How does student performance look when data is disaggregated?	
			How do program faculty know (what is the evidence) that students are learning what they expect them to?	Why was the report trusted or not?
4. Seeking Improvement	What do we need to do to improve the results?	Which interventions are working or not?	Which points in the curriculum or the program are students struggling with?	Why are some resources distributed to one group but not to another?
		What do we need to do to support faculty/students?	How to engage key stakeholders in improvement plan conversations?	What actions can be supported by the institution or the society, and what are not?
		How satisfied are we with the results and the improvement plan?	How positive are we that we can do this?	Why do the results matter to the target audience?
		Who needs to be consulted before action?		

Conclusion

This study offers a practical inquiry guideline for higher education assessment professionals, designed to foster culturally responsive and equitable practices—a critical need in today's complex political landscape. Drawing on research in reflective thinking and established assessment cycles, we interviewed expert assessment professionals to identify common strategies for integrating equity. Our findings reveal the imperative of deep reflection throughout the assessment process, underscoring the necessity of considering diverse student populations at every stage. We present concrete, reflective questions—inspired by Montenegro et al. (2024)—for planning, data collection, analysis, and closing the loop, such as "How will safe spaces be created to receive honest feedback?" and "Which equity gaps will not be addressed via program changes? Why?"

This adaptable framework, also informed by Mezirow (1998) and Lundgren and Poell (2016) on levels of reflection, empowers professionals to move beyond routine. By intentionally scrutinizing how and why assessments are conducted, practitioners can break free from unexamined assumptions, make more intentional decisions, and ultimately drive transformative learning and equitable student success in their institutions.

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