

Data Analytics for Counselor Education

EQUIP Tool for Equity-minded Teaching

This manuscript describes the use of data analytics to promote equity minded pedagogy in counselor education. We offer a new approach, based on the classroom observation tool EQUIP, which provides disaggregated data to counselor educators to help them develop pedagogical skills to address racial and gender inequity in classroom spaces. A case utilizing the EQUIP tool and debriefing sessions in two school counseling courses, with instructor reflections, is described. Implications are discussed for the potential to build greater awareness of systemic inequities, in a practical way that can support future counselor educators to build inclusive practices into their repertoire.

Author Note:

Katheryne T. Leigh-Osroosh ORCID ID: <https://orcid.org/0000-0002-9957-931X>

Daniel L. Reinholz ORCID ID: <https://orcid.org/0000-0003-1258-2805>

Katheryne T. Leigh-Osroosh is now at the Graduate School of Education, University at Buffalo

We have no conflict of interest to disclose. This material is based upon work supported by the National Science Foundation under Grant 1943146.

Correspondence concerning this practice brief should be addressed to Katheryne T. Leigh-Osroosh, University at Buffalo, Graduate School of Education, 401 Baldy Hall, Buffalo, NY 14260 Email: kosroosh@buffalo.edu

KATHERYNE T. LEIGH-OSROOSH¹,
DANIEL L. REINHOLZ², LORENZO M.
SIANEZ JR¹, & NIRAL SHAH³

¹College of Education, San Diego State University

²College of Sciences, San Diego State University

³College of Education, University of Washington

KEYWORDS

counselor education, EQUIP, equity mindedness, case study, autoethnography

Data Analytics for Counselor Education: EQUIP as a Tool for Equity-minded Pedagogy

This manuscript describes the use of the data analytic tool EQUIP (Reinholz & Shah, 2018), in conjunction with debriefing sessions, as a tool for equity-minded pedagogy to address the gap in instructional theory and equity-minded teaching practices in counselor education. A case study using EQUIP (Reinholz & Shah, 2018) in two master's-level school counseling courses is presented. This case study was an interdisciplinary collaboration between an assistant professor of school counseling and a team of STEM (science, technology, engineering, and math) educators led by an associate professor in mathematics education. It occurred during the 2020-2021 academic year within a second-year school counseling curriculum course and a first-year teaching and achievement course.

RELEVANT RESEARCH AND LITERATURE SUPPORT

In this manuscript, we draw broadly on the equity analytics paradigm to support our work (Reinholz & Shah, 2018). In short, equity analytics is concerned with the fair distribution of resources for learning amongst a given group of students. Here, we focused specifically on classroom participation as a resource for learning. After all, classroom participation is a resource both for students to develop disciplinary knowledge (Ing et al., 2015) and a sense of disciplinary identification and belonging (Lewis et al., 2016; Nasir, 2002). For example, a recent study of undergraduate mathematics classrooms found that gender inequities in student outcomes could be predicted by gendered inequities in participation (Reinholz et al., 2022). It follows that disrupting those patterns of inequitable classroom engagement could be a productive avenue for improving inequities in student outcomes. In this way, it is critical that opportunities to participate, and thus learn, are distributed fairly amongst students.

Research shows that opportunities to participate in classrooms tend not to be distributed equitably across a variety of contexts (Reinholz & Wilhelm, 2022; Sadker et al., 2009; Shah et al., 2020). In general, racially-minoritized students and gender/sexual minorities will tend to receive fewer opportunities than their white/male peers. This is further exacerbated when one considers the role of toxic interpersonal microaggressions in the classroom, which create an environment that is hostile and not conducive to learning (Cooper & Brownell, 2016; Ernest et al., 2019; Shah et al., 2020). As counselor educators who are concerned about the well-being of our students, it is essential to interrupt and address these processes of marginalization.

Yet, determining exactly what an equitable classroom should look like is a formidable challenge. To make progress, we draw on the notion of equality as a waypoint to equity (Secada, 1989). Recognizing that most minoritized students get less than an equal proportion of learning opportunities, we can use equality as a necessary but insufficient baseline for participation for minoritized students. Although we cannot define exactly what equity should look like, we

recognize that any version of equity should account for historical injustices (i.e., injustices), and from that viewpoint, equity would mean that minoritized students would most likely get more than an equal share of participation opportunities.

KNOWLEDGE GAP

Inclusive, culturally sustaining teaching practices are becoming essential competencies for counselor educator preparation with greater focus on anti-racist and social justice pedagogies (Ratts et al., 2016; Williams et al., 2021). Historically, counselor education has heavily emphasized counselor development while struggling to incorporate the science of teaching and learning (Minton et al., 2014; Minton et al., 2018). As a result, there is a gap between counselor educator competency in inclusive pedagogies and counselor education training. Accreditation bodies have sought to address this need by including courses on pedagogy within doctoral programs (Council for the Accreditation of Counseling and Related Educational Programs [CACREP], 2016). There is also progression in scholarship addressing pedagogy (Baltrinic, et al., 2016; Fazio-Griffith & Ballard, 2016), doctoral student experience in teaching preparation (Elliot et al, 2019), and evidence-based teaching (Malott et al., 2014); however, to create inclusive classrooms, there remains a need for scholarship exploring practical models and strategies of culturally sustaining teaching pedagogies.

Description of Equity Minded Framework and EQUIP

Once classroom inequities are identified, how can they be addressed? We draw on the concept of equity mindedness for addressing inequities. Prior work has identified four dimensions for equity mindedness: (1) reflective practice, (2) interpersonal awareness, (3) inclusive pedagogy, and (4) inclusive learning environments (Bensimon, 2006; East Los Angeles College, 2022; Salazar et al., 2010). The four dimensions provide areas of focus for iterative revision to instructional practices. Simply put, the identification of inequities through data analytics provides the impetus for reflection on practice, and the revision of practice offers an opportunity for ameliorating the inequities.

Here we briefly outline the four dimensions. *Reflective practice* focuses on one's knowledge of self. This requires attention to one's own positionality, particular worldview, identity, and biases. In the classroom, educators can make their pedagogy more personal as they teach from their perspective, being mindful that they are not teaching universal truths.

In contrast, *interpersonal awareness* focuses on knowledge and awareness of other individuals, cultures, and ways of knowing and being. By creating dialogue amongst students, it is possible to lean into possible conflicts and contradictions and create better cross-cultural and inter-

group understandings. In doing so, educators help establish that there is not a single way of knowing, being, or participating in a classroom, and help emphasize to students that they need to support one another as co-learners and co-creators of understanding.

Inclusive pedagogy focuses on the ways in which different cultures, perspectives, and ideas are incorporated into the curriculum. Such attention to curriculum is needed to challenge the white, colonial, imperialist ways of thinking that are often implicit in education. It includes techniques and practices educators can use to facilitate discussions, draw out multiple perspectives, and meaningfully include students who otherwise might not be included. Equity analytics often speak most directly to inclusive pedagogies, because they are directly related to participation patterns.

Finally, an *inclusive environment* lays the foundation on which effective pedagogies can be implemented. This requires getting to know students, building trusting, personal relationships, and demonstrating mutual respect. Educators must also act in-the-moment to disrupt microaggressions or other problematic events that arise in the classroom. Below, we use these four dimensions as a framework to understand how equity analytics could build awareness and support more inclusive teaching and learning in counselor education.

APPLICATION OF EQUITY MINDEDNESS AND EQUIP TO COUNSELOR EDUCATION

The case study was part of a larger NSF funded research study, which took place at a research-intensive Hispanic Serving Institution in the United States. Participants were recruited through an open call to the university. The lead author is one of the participants from that open call, an assistant professor of school counseling, who was recruited from Fall 2020 to Spring 2021. She chose to participate in the study to gain mentoring in cultivating inclusive learning environments for her classes with a majority of students identifying with Black, Indigenous, People of Color (BIPOC) communities. The intervention included monthly one-on-one consultations over the course of the year, with the support of the second and third authors. This was a collaborative process, as the lead author was the only expert in counselor education, whereas the collaborators brought expertise and experience in professional development and supporting equitable teaching.

Our professional development model was organized around reflection cycles. In each reflection cycle, the focal instructor/first author was:

1. Observed teaching
2. Teaching observations were coded, and feedback was provided
3. A debrief meeting was held between the first three authors of this manuscript

Each class had a population of 17 students. Student consent and demographics were collected using Google forms at the beginning of the semester and included ethnicity, gender, disability, and language identities. Teaching was observed by the second author who reviewed class

recordings using the Zoom online platform. The second author then coded the recording using the EQUIP platform. The first author was then notified when the coding was complete and viewed the results before the debrief session. The 60-minute debrief provided an opportunity to reflect on the existing data and determine new teaching practices to promote equity in future class sessions. The first author journaled following each debriefing session. Multiple cycles were held each semester to allow the instructor to track changes to practice over time. The Fall 2020 semester included 7 observations and 3 debrief meetings. The Spring 2021 semester included 2 observations and 3 debrief meetings.

SUGGESTED RESOURCES FOR IMPLEMENTATION

Data analytics were practically implemented using the classroom observation tool EQUIP (Reinholz & Shah, 2018). EQUIP can be used through a free, highly customizable web app (<https://www.equip.ninja>), which generates data visualizations that support reflection on inequities in classroom participation. EQUIP provides data at three levels: individual students, groups of students (e.g., race, gender, disability), and entire class. EQUIP has been used in a variety of STEM education settings (Reinholz et al., 2019, 2020) but had not been applied to counselor education. We argue that EQUIP can be used to support counselor educators to equitably prepare graduate students. In this way, the present study allowed us to examine multiple levels of equitable practice simultaneously. Readers who wish to replicate this study need to explore the cited research studies (see Reinholz et al., 2019, 2020) and the EQUIP tool web app (see Reinholz & Shah, 2018).

EQUIP CODING

Each recorded classroom observation was coded using the EQUIP protocol. The basic unit of analysis for EQUIP is called a contribution. A single student contribution consists of all student talk and corresponding teacher talk that is uninterrupted by another student. A single contribution may include multiple rounds of talk between a student and the instructor, but no other students. This definition of a contribution makes it simple to disaggregate different aspects of participation corresponding to different students. Each contribution is coded along a variety of discourse dimensions. In this study, we chose to focus on teacher solicitation, student talk, talk length, teacher response, venue, and solicitation method (Reinholz & Shah, 2018). These dimensions provided insight into the quality and quantity of teacher questions and corresponding student talk.

DATA COLLECTION AND DATA SOURCES

The focal campus offered almost exclusively online education from Fall 2020 to Spring 2021 as a result of the COVID-19 global pandemic. Thus, the target courses were 100% virtual instruction, primarily through synchronous online meetings. These meetings were held through Zoom. The courses were taught through a two-year, 64-credit school counseling program, accredited through the State Commission on Teacher Credentialing. It utilized a cohort model, admitting 18 new students each year.

We used the “record to computer” Zoom function to record classroom observations to capture both whole-class discussions and participation in breakout rooms. This meant that the breakout rooms always followed the instructor. Each video was coded only once to provide actionable data for revision on teaching practices. The EQUIP analytics were automatically generated through the web app, and a report of the findings was shared after each observation.

A secondary source of data came from meetings between the first three authors. All debrief meetings were recorded through Zoom, and summary notes were taken with each session. These notes were used as a reference to track changes in teaching practices across the study. There was also an intake interview with the participating instructor in which she described her goals and teaching practices.

Lastly, the instructor used a journal to record their reflections about their experience of the data analytics process and debrief sessions. These reflections were primarily used to engage in a reflexive process (interpersonal awareness) of evaluating current teaching strategies, the effect on student participation (EQUIP visualizations), the subjective response to the debrief, and action steps for incorporating recommended teaching strategies.

ANALYTIC METHODS

We leveraged a mixed methods approach to better understand the phenomena at hand. We supplemented the qualitative data with quantitative analytics from EQUIP. We also used the participation rate metric to capture proportional participation for different social marker groups. The participation rate for a group is defined as the total number of contributions from the group divided by the number of students in the group. For example, if there were 50 contributions by women in a particular classroom that had 5 women, we would calculate women’s participation rate as 10.

Our overall analytic approach was guided by the four dimensions of equity mindedness (Bensimon, 2006; Bensimon et al, 2016; Salazar et al., 2010). Using these dimensions as a lens, we took multiple passes through the data corpus to locate moments of interest in which these dimensions were pertinent to the discussions of data analytics and revisions to teaching practices. These moments were fully transcribed and used to facilitate instructor reflection on the learning process. The results are organized through an emic approach, which means that we attempt to characterize the instructor’s experience from the inside as much as possible (Berry & Dasen, 1974). Accordingly, we use the instructor’s own words whenever possible, and include reflections below in italics.

ETHICAL CONSIDERATIONS

Obtaining student consent is essential when utilizing the EQUIP tool and debriefing model. Each class was informed about the instructor’s participation in the professional development and debrief sessions. Instructors maintained confidentiality by giving students the option to pause recording and ensure that the classroom data is stored securely, only accessible by the

instructor and debrief team. The use of a data analytics process to improve equity minded teaching is focused on instructor outcomes not student academic performance. Additionally, it is important to consider the positionality of the faculty and dynamics within the debrief/consultation group. BIPOC faculty work in spaces that are exclusionary and unsafe. As such, the debrief/consultation group mentoring the instructor faculty needs to have spent time developing a mutual growth-fostering relationship (Jordan, 2010). Overall, data analytics and the EQUIP model were created as a tool for empowerment but can easily become ones of oppression if instructors and the mentoring team fail to establish trusting relationships, disregard their positionality and bias, and do not consider student safety.

INSTRUCTOR REFLEXIVITY

Instructor reflexivity was central in this process. Before data collection, the debrief team met to discuss their positionalities, expectations, and potential biases that may arise and how they plan to address them when they do. The team was interprofessional and culturally diverse. The instructor/first author identifies as a biracial individual living with a disability and was in their fourth year as an assistant professor. Their positionality often showed up in their desire to engage students in exploring nuance and resist polarized individualistic oppressive ways of being. The debriefing teams provided space and opportunity for the instructor to see the outcomes in student engagement, hear perspectives from colleagues, explain intentions, and explore new teaching strategies. Through this process the instructor became aware of how their practices hindered student engagement in exploring nuance and what strategies to use to facilitate such engagement. The sessions also provided space to foster mutual interprofessional growth when discussing how teacher educators and counselor educators viewed inclusive, culturally-sustaining practices and the unique contexts of their programs. Lastly, the instructor continued to foster a community that is collaborative and mutually growth-fostering while also reflecting and seeking consultation about how to engage in distributive justice practices of reparations, re-distribution, and representation within the classroom where most students identified as Mexican/Chicanx/Latinx (Jordan, 2010).

Evaluation of Effectiveness of the Equity-minded Framework and EQUIP

Autoethnography and quantitative metrics were utilized to evaluate this case study examining the use of an equity-minded framework and EQUIP to create more equitable classrooms. In this section, we provide an autoethnographic description of how EQUIP was experienced as a tool for equity mindedness in counselor education in addition to the participation data included in EQUIP. Autoethnography is a qualitative research methodology that examines “researcher’s personal experience to describe and critique cultural beliefs, practices, and experiences” (Adams et al, 2015, p.1). Autoethnography aligns with the study’s focus on instructional development and

incorporation of inclusive teaching pedagogies. Combining the data analytics and autoethnography approaches provided rich descriptions of the process and outcomes of the case study, leaving space to interrogate the intersections between the instructor, the classroom, and equity-minded teaching (Adams et al, 2015). Essentially, it provided a descriptive understanding of how a consultation model and EQUIP tool increased instructor awareness of inclusive teaching strategies and actions towards redistributive justice within the classroom. To establish trustworthiness the second and third author continued to conduct the coding and EQUIP analysis while the first author documented her personal experience. The quantitative data from EQUIP and the qualitative data (researcher-participant experience) was then shared during the consultation meetings.

The first author's autoethnographic postdebrief reflections are italicized and presented alongside the quantitative metrics provided by EQUIP. We use the equity-minded framework to describe the impact of the equity analytics along the four major dimensions.

REFLECTIVE PRACTICE

Reflecting on one's teaching practices on a regular basis with a supportive community and the support of data analytics provided ample opportunities for developing greater reflective practice. The instructor described this learning experience in depth, as follows:

I often reflected on the many layers of positionality occurring in my classroom, especially my racial and professional identities. My own professional learning was filtered primarily through the lenses of white women and men. As such, I did not have the opportunity to witness how faculty mentors of color approached the layers of positionality in their classrooms. As a bi-racial instructor primarily teaching students experiencing multiple dimensions of marginalization, I wished to break from the Western, Educated, Industrialized, Rich and Democratic (WEIRD) approaches to teaching towards practices that were more inclusive and decolonial but had limited knowledge and skills to do so concretely.

In counselor education, we often talk about parallel processes as a window into the counselor and client relationship and the counseling process. The debriefings were pivotal in bringing awareness to the fact that I was too focused on the process with limited understanding of the strategies necessary for meaningful learning to occur. I became aware that Socratic dialogue and whole group discussions would often be inequitable, especially in online classrooms, without the use of explicit teaching strategies to foster equitable participation in those modalities. Ultimately, through this process, I became aware of my own assumptions, and realized that some of them needed to be abandoned to achieve the type of inclusive environment I desired for my students.

INTERPERSONAL AWARENESS

Drawing on her skills as a counseling educator, the cooperating instructor had already incorporated mechanisms for developing awareness of her students directly into the teaching process. One way that this occurred on a regular basis was through extended check-ins at

the beginning of each class session. The instructor realized that this type of awareness was one of her greatest strengths as an educator. She described,

I felt most confident in this domain because of how closely it aligns with the counseling skills and process. I often questioned if taking 15-20 minutes at the beginning of class to check-in would be viewed as ineffective teaching, and it was helpful to hear from the research team how these intentional spaces benefited the learners. Overall, the debriefings validated my approach and prioritization of interpersonal experiences to support learners.

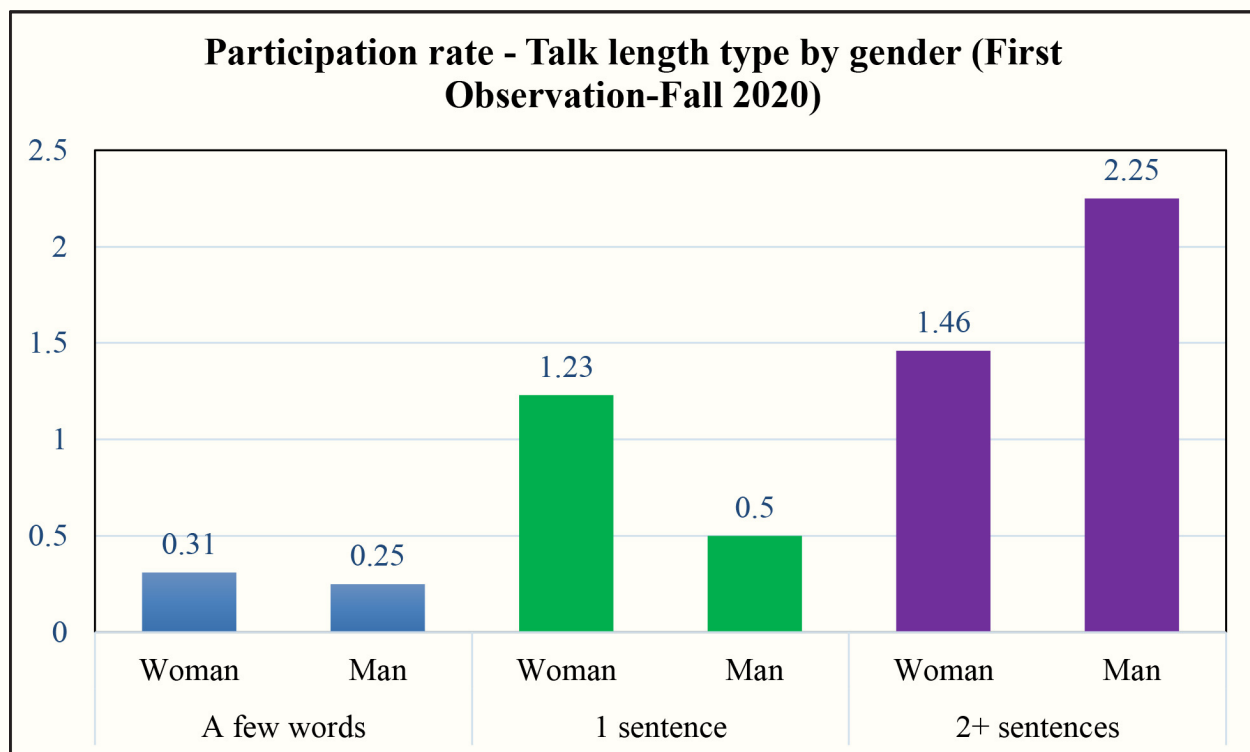
INCLUSIVE PEDAGOGY

Equity analytics often speak most directly to inclusive pedagogies because they are directly related to participation patterns. Counselor educators can use the EQUIP analytics tool to understand patterns of instruction and student participation. Discussions around teaching practices could then focus on teacher moves needed to shift these patterns.

One of the first patterns observed in Fall 2020 was disparities in participation rates for talk length by gender.¹ Figure 1 shows data from one of the four class sessions coded by the analysis team.

Figure 1

Talk Length Type by Gender-first Observation (Fall 2020)



¹ The participation rate is a metric that was developed to account for the different sizes of social marker groups and allow for easier comparison. For example, if there were 20 turns from Black students in an observation, and 4 Black students in that classroom, the participation rate for Black students in that classroom would be 5. See Reinholz & Wilhelm (2022) for more details.

The data demonstrated discrepancies in the participation by gender. During the first debrief meeting, the team discussed how men were having longer contributions—more frequent participations of 2 or more sentences—than women. After identifying this pattern that was less equitable than desired, the instructor implemented a few interventions that allowed students of all genders to have similar participation rates in time length type of contributions the remainder of the semester. These interventions included: smaller breakout groups, specifically calling upon a representative from each breakout group to summarize group dialogue, and providing more opportunities for students to participate in activities via Google documents.

Another major shift in practice related to the types of questions asked. Here, the instructor contrasts the types of questions that might be used in a therapy setting with something that would be used in a classroom setting. She continued:

This domain most clearly represents my mistaken belief that counseling skills were directly transferable to teaching. This misunderstanding led to less equitable teaching practices. One would think that this would be obvious, but shifts from clinical supervision to content courses made it more likely to blend approaches to supervision with those of instruction. I quickly realized that eliciting change in counselor intrapersonal and interpersonal skills to produce competent clinicians differs from mediating content knowledge with cognitive skills and cultural knowledge to promote learner development. As a clinician my training was heavily influenced by solution-focused and cognitive theories where questions were intended to elicit reflection and action with a present orientation. This is what led to my tendency to ask “what” questions more than “why” questions, which clashed with fostering greater depth in student responses. When I did ask “why” questions I often did so in a whole group, which often generated silence because students were less comfortable sharing out. Overall, pedagogical practices required the most growth and where I gained the most from this research process.

Table 1 shows how questioning patterns shifted from Fall 2020 semester to Spring 2021. The percentage of “why” and “how” solicitation increased from 6.75% (why) and 11.20% (how) in the fall, to 19.51% (both why and how) in the spring.

Table 1

Teacher Solicitation Type

Teacher Solicitation Type – Number of Contributions (% of total)						
	Why	How	What	Other	N/A	Total
Fall 2020	6.78%	11.20%	34.22%	23.6%	24.2%	100%
Spring 2021	19.51%	19.51%	51.22%	3.66%	6.10%	100%

INCLUSIVE ENVIRONMENT

Finally, the classroom environment provides the context for other aspects of inclusive teaching. One challenge, and potential opportunity, is that the program followed a cohort model. This meant that some students had fallen into entrenched roles. In retrospect, the instructor further reflected upon the cohort model and entrenched roles students had.

The cohort model contributed to how students participated in class. Both cohorts had established group norms and roles. As a new teacher, I was hesitant to cold call students because I believed that doing so would cause discomfort rather than inclusion in the discourse. I also wanted to respect their boundaries if the topic was not one they felt safe discussing in the group. The debriefings with the research team shined a light on how my desire to protect students was in fact creating environments, which were exclusive and maintained the cohort member roles. For example, during Fall 2020, Mary, a White woman, shared with the class that she didn't want to take up space in class. Even though she tried to give other students the opportunity to participate more in the discussions, her total contributions at the end of the semester were at least 10% of the total participation of the class. Thus, despite her awareness that she was in fact taking up space, and her verbalized desire not to, it was still difficult for her to step back and allow other students to speak up. This example highlights the complexities of how classroom interactions are racialized and gendered (in this case, through white femininity), and how some instances may require explicit instructor intervention.

Through this process I learned strategies that enabled me to reverse the exclusionary conditions of the classroom and work towards creating an inclusive classroom environment. Ultimately, inclusive classrooms are like a symphony, and this study provided the pedagogical tools and mentoring necessary to effectively facilitate the harmonizing of student voices.

Assessment Tools Used to Assess Student Learning

Student learning outcomes were not measured in this case study. However, other work from this same project, situated in engineering classrooms, showed that instructors were able to shift participation patterns, and the participation patterns were a significant predictor of student outcomes (Verbyla et al., under review). Moreover, the link between participation and learning has been well-established in the research literature (Ing et al., 2015; Reinholz et al., 2022; Walshaw & Anthony, 2008). Thus, it is not a stretch to infer that changes to instruction that resulted in more equitable participation in the classroom would lead to more equitable outcomes, although this particular study was not designed as an experimental study to test such a hypothesis.

To understand the impact of this work in counselor education, we relied upon informal in-class debriefing and an ungraded evaluation to understand the impact of the intervention on students' experience of the course. This aligned with our overall goal of the manuscript to focus on processes of learning. The class discussed their personal experience of the instructor's use of the equity-minded teaching strategies. Additionally, the instructor shared the class participation metrics via the EQUIP platform with students.

After sharing the EQUIP data analytics, students were asked to reflect on their experience of the course and how they would use the EQUIP data analytics tool in their school counseling practice. Student responses were collected using an anonymous Google survey. Table 2.1 and 2.2 include student responses to two of the survey items.

Table 2.1

Student Reflection of Intersections Between Classroom Engagement Practices and Cultural Identity

<i>Question: How did classroom engagement/inclusion practices connect with your cultural identity?</i>	
STUDENT	REFLECTION
Student twelve	With my cultural identity not always being welcomed in certain spaces, I recognize the importance to integrate [sic] inclusive practices so that all students can feel welcomed and supported so that they do not encounter the same feelings of exclusion that I feel in some spaces.
Student nine	I personally thrive off of small group discussions and forming trusting relationships with peers and teachers. I come from a Mexican background, so interdependence, humility, and mentorship is highly valued. I've always appreciated knowing that I can depend on others to work through things within my graduate program, and if this engagement/inclusion practice wasn't implemented by most/all of my professors, I know I would have struggled so much in making it this far.
Student six	Latinx students are often not included in learning environments because "the culture doesn't value education" or because of the language barrier or for whatever other reason. This software sheds a light on explicit or implicit bias that may show the exclusion of Latinx students and can help make their inclusion more intentional.
Student two	As an Asian woman, we are generally quieter/less comfortable speaking in front of the group than our white and/or male counterparts so being cognizant of this and not cold calling would have been something I appreciated as a student.
Student ten	Using these practices help to create a safe space where I feel empowered to participate irregardless [sic] of my cultural identity and if I'm the only student that looks like me.

Students reflected on how the instructors use of equity-minded teaching strategies and use of the EQUIP quantitative metrics created spaces for their voice to be recognized and worldview represented. Specifically, the instructors increased use in small group discussions increased students' engagement in class discussion versus the prior technique of large group discussion. Future studies using the EQUIP tool and professional development model should include measures of student learning outcomes specific to counselor education (e.g., key performance indicators, classroom climate survey).

Table 2.2*Student Reflection of EQUIP Tool for School Counseling Practice*

<i>Question: Describe one way that you can use EQUIP in your school counseling Practice?</i>	
STUDENT	REFLECTION
Student three	I can definitely use the software to assess for participation for guidance lessons and determine how different styles of presenting or different questions elicit responses for specific groups of people.
Student nine	I think EQUIP would be helpful for understanding what population of students I am supporting most vs. the students I need to reach out more to. I think everyone has a population of students they naturally connect to, so it's important to have this background information monitored to assure that school counselors are being equitable with their practices.
Student ten	I think this would be a great resource to use with teachers to advocate for more inclusive classroom practices. This can be helpful to show their practices are not "color blind" as they think. Also showing teachers those engagement patterns they may not be aware of [sic].
Student thirteen	I could use EQUIP to learn how I can change the teaching strategies to be more inclusive of students that usually do not take as much space in class and discussions. I really like that you can see the differences in questions and how that can affect the engagement from participants.

Students reflected on how using data analytics and EQUIP in their school counseling practice can foster equity-minded practices. Additionally, students remarked on the utility of EQUIP to collect data in multiple areas and provide visual representations of the classroom/group dynamics. Overall, students noted the potential value of data analytics in school counseling practice to inform their data driven classroom guidance lessons and teacher consultation.

Implications

The equity mindedness framework and EQUIP analytic tool can be utilized by counselor educators to create more inclusive classrooms. The EQUIP debriefing team worked with the faculty for a year focusing on two master's level courses. Class data were analyzed and incorporated within debriefings to increase the instructor's use of inclusive teaching strategies. Debriefings also provided the instructor the opportunity to receive mentoring to better understand their positionality in relation to their pedagogy. The intervention increased the instructor's competencies in each of the four dimensions of the equity-minded framework. Classroom data showed the increase in participation from minoritized students over the course of the semester. Lastly, the inclusion of EQUIP as a learning activity within one of the class sessions provided further evidence to support its use as a teaching tool to increase student competency and skills in equity-minded practices.

UNANSWERED QUESTIONS AND LIMITATIONS

The use of data analytics and the EQUIP tool are not without limitations. Specifically, the positionality of the lead author made it difficult at times to bracket out bias, especially as it related to their perspectives as a counselor and their subjective instructional experience. As such, the EQUIP metrics and observations played a significant role in focusing on the specific objective strategies the instructor utilized and how those strategies impacted student participation. It would be the onus of the instructor and the debriefing team to discuss external and interpersonal factors, which may impact student participation. The cohort structure presented unique conditions where the students already had roles that contributed to their level and type of participation. It is difficult to determine what role the cohort culture played in the outcomes and effectiveness of the new instructional strategies. Additionally, the impact of the instructor's pre-established relationships with both cohorts was not captured, which limits the generalizability to educators who already have some relationship to their students versus brand new educators. Additionally, the frequency and length of participation does not always mean quality. What takes some individuals several sentences to describe can take another a few words. As such, it is essential that the debriefing team considers the qualitative contexts of what is being said alongside the quantitative data provided by EQUIP.

Furthermore, this project was a study within a larger NSF grant-funded research project examining equity minded practices in STEM education. This context created design limitations to evaluate the use of data analytics and EQUIP in counselor education, specifically the impact on student learning outcomes. Although the use of autoethnography provided an in-depth subjective description of the instructor's development, it limited its generalizability. Therefore, future studies should include participation metrics using the EQUIP together with formal and summative evaluations of student learning outcomes specific to experiences of equity in the classroom to triangulate with instructor pedagogical skill development using a quantitative metric that evaluates specific teaching techniques beyond solicitation type.

FUTURE DIRECTIONS FOR PRACTICE AND RESEARCH

Data analytics and equity mindedness provide counselor educators the necessary foundation to address the structural and curricular inequalities within their classrooms. The EQUIP tool provides counselor educators with the opportunity to measure teaching skills and strategies in a similar way to counseling skill development. Debriefing sessions provide instructors with an opportunity to evaluate their teaching and receive formal mentoring. Future research can examine the impact of such practices on student learning outcomes and classroom climate through a controlled experiment. Overall, data analytics provides counselor educators with the ability to create more inclusive classrooms and has the potential to build greater awareness of systemic inequities, in a practical way, that can support future counselor educators to build equity-minded practices into their repertoire.

References

- Adams, Holman Jones, S. L., & Ellis, C. (2015). *Autoethnography*. Oxford University Press.
- Baltrinic, E. R., Jencius, M., & McGlothlin, J. (2016). Co-teaching in counselor education: Preparing doctoral students for future teaching. *Counselor Education & Supervision, 55*, 31–45.
- Bensimon, E. M. (2006). Learning equity-mindedness: Equality in educational outcomes. *The Academic Workplace, 1*(17), 2–21.
- Bensimon, E. M., Dowd, A. C., Witham, K. (2016). Five principles for enacting equity by design. *Diversity and democracy: The equity imperative, (19)*1.
- Berry, J. W., & Dasen, P. R. (1974). Introduction: On emic/etic. In J. W. Berry & P. R. Dasen (Eds.), *Culture and cognition*. Butler & Tanner Ltd.
- Cooper, K. M., & Brownell, S. E. (2016). Coming out in class: Challenges and benefits of active learning in a biology classroom for LGBTQIA students. *CBE—Life Sciences Education, 15*(3), Article 37. <https://doi.org/10.1187/cbe.16-01-0074>
- Council for the Accreditation of Counseling and Related Educational Programs (2016). *2016 CACREP standards*. Retrieved from:

 East Los Angeles College. (November, 2022). *Equity minded resources*. <https://www.elac.edu/Faculty-Staff/Professional-Development/Activist-Leadership/Equity-minded-Resources>
- Ernest, J. B., Reinholz, D. L., & Shah, N. (2019). Hidden competence: Women's mathematical participation in public and private classroom spaces. *Educational Studies in Mathematics, 102*(2), 153–172. <https://doi.org/10.1007/s10649-019-09910-w>
- Fazio-Griffith, L., & Ballard, M. B. (2016). Transformational learning theory and transformative teaching: A creative strategy for understanding the helping relationship. *Journal of Creativity in Mental Health, 11*(2), 225–234.
- Ing, M., Webb, N. M., Franke, M. L., Turrou, A. C., Wong, J., Shin, N., & Fernandez, C. H. (2015). Student participation in elementary mathematics classrooms: The missing link between teacher practices and student achievement? *Educational Studies in Mathematics, 90*(3), 341–356.
- Jordan, J. (2010). *Relational-Cultural Therapy* (1st ed.). American Psychological Association.
- Lewis, K. L., Stout, J. G., Pollock, S. J., Finkelstein, N., & Ito, T. A. (2016). Fitting in or opting out: A review of key social-psychological factors influencing a sense of belonging for women in physics. *Physical Review Physics Education Research, 12*(2). <https://doi.org/10.1103/PhysRevPhysEducRes.12.020110>
- Malott, K. M., Hall, K. H., Sheely-Moore, A., Krell, M. M., & Cardaciotto, L. (2014). Evidence-based teaching in higher education: Application to counselor education. *Counselor Education and Supervision, 53*, 294–305. doi: 10.1002/j.1556-6978.2014.00064.x.
- Minton, C. A. B., Morris, C. A. W., & Yaites, L. D. (2014). Pedagogy in counselor education: A 10-Year content analysis of journals. *Counselor Education and Supervision, 53*(3), 162–177. <https://doi.org/10.1002/j.1556-6978.2014.00055.x>
- Minton, C. A. B., Morris, C. W., & Bruner, S. L. (2018). Pedagogy in counselor education: 2011–2015 update. *Counselor Education and Supervision, 57*(3), 227–236. <https://doi.org/10.1002/ceas.12112>
- Nasir, N. S. (2002). Identity, goals, and learning: Mathematics in cultural practice. *Mathematical Thinking and Learning, 4*(2–3), 213–247. https://doi.org/10.1207/S15327833MTL04023_6
- Ratts, M. J., Singh, A. A., Nassar-McMillan, S., Butler, S. K., & McCullough, J. R. (2016). Multicultural and social justice counseling competencies: Guidelines for the counseling profession. *Journal of Multicultural Counseling and Development, 44*(1), 28–48.
- Reinholz, D. L., Alves, T., Mileti c, M., Kouzi, S., Reid, A., Shah, N., & Verbyla, M. (under review). Using data analytics and learning to attenuate inequities in a virtual engineering classroom.
- Reinholz, D. L., & Shah, N. (2018). Equity analytics: A methodological approach for quantifying participation patterns in mathematics classroom discourse. *Journal for Research in Mathematics Education, 49*(2), 140–177.
- Reinholz, D. L., Stone-Johnstone, A., & Shah, N. (2019). Walking the walk: Using classroom analytics to support instructors to address implicit bias in teaching. *International Journal for Academic Development, 0*(0), 1–14. <https://doi.org/10.1080/1360144X.2019.1692211>

- Reinholz, D. L., Stone-Johnstone, A., White, I., Sianez, L. M., & Shah, N. (2020). A pandemic crash course: Learning to teach equitably in synchronous online classes. *CBE—Life Sciences Education*, 19(4), ar60. <https://doi.org/10.1187/cbe.20-06-0126>
- Reinholz, D. L., Johnson, E., Andrews-Larson, C., Stone-Johnstone, A., Smith, J., Mullins, B., Fortune, N., Keene, K., & Shah, N. (2022). When active learning is inequitable: Women's participation predicts gender inequities in mathematical performance. *Journal for Research in Mathematics Education*, 53(3), 204–226. <https://doi.org/10.5951/jresmetheduc-2020-0143>
- Reinholz, D. L., & Wilhelm, A. G. (2022). Race-gender d/discourses in mathematics education: (Re)-producing inequitable participation patterns across a diverse, instructionally-advanced urban district. *Urban Education*, 1–31. <https://doi.org/10.1177/00420859221107614>
- Sadker, D., Sadker, M., & Zittleman, K. R. (2009). *Still failing at fairness: How gender bias cheats girls and boys in school and what we can do about it*. Simon and Schuster.
- Salazar, M. del C., Norton, A. S., & Tuitt, F. A. (2010). 12: Weaving promising practices for inclusive excellence into the higher education classroom. *To Improve the Academy*, 28(1), 208–226. <https://doi.org/10.1002/j.2334-4822.2010.tb00604.x>
- Secada, W. G. (1989). Educational equity versus equality of education: An alternative conception. In W. G. Secada (Ed.), *Equity in education* (pp. 68–88). Falmer.
- Shah, N., Christensen, J. A., Ortiz, N. A., Nguyen, A., Byun, S., Stroupe, D., & Reinholz, D. L. (2020). Racial hierarchy and masculine space: Participatory in/equity in computational physics classrooms. *Computer Science Education*, 0(0), 1–25. <https://doi.org/10.1080/08993408.2020.1805285>
- Walshaw, M., & Anthony, G. (2008). The teacher's role in classroom discourse: A review of recent research into mathematics classrooms. *Review of Educational Research*, 78(3), 516–551. <https://doi.org/10.3102/0034654308320292>
- Williams, J. M., Byrd, J. A., & Washington, A. R. (2021). Challenges in implementing antiracist pedagogy into counselor education programs: A collective self-study. *Counselor Education and Supervision*, 60(4), 254–273. <https://doi.org/10.1002/ceas.12215>