A Call to Action for More Inclusive STEM

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Teachers have been described as the keystone species of the STEM ecosystem, yet institutions of higher education often struggle to produce enough teachers to meet the demand for K-12 STEM courses (Bergin, 2018; Beyond100K, 2024; Milgrom-Elcott, 2023; Zhang & Zhu, 2023). The only avenues for secondary teaching in STEM fields at many institutions of higher education, including ours, are in mathematics and science (Johnson et al., 2023) rather than integrated STEM (Berisha & Vula, 2023). This means that students major in their content area and take a handful of education courses. Therefore, the majority of preservice secondary teachers' instructional contact hours are spent with professors who may not consider that some of their students are future teachers. Unfortunately, unlike Madison Brown's vignette (this collection), many STEM course instructors pride themselves on "weeding out" so-called weaker students. As teacher educators, we work to counter the weed-out approach most future STEM teachers have experienced during their educational experiences, especially at the university level (McCoy et al., 2017; Weston et al., 2019; Hatfield et al., 2022). We aim for teacher candidates to develop an awareness of how such tracking and sorting mechanisms can marginalize learners, especially those who represent underserved identities (Hung et al., 2020). Our larger goal is to develop teacher candidates who see themselves as advocates for students and their families, for public schools, and for the teaching profession.

This chapter is co-authored by the instructor and students, exploring the ways these future mathematics and science educators responded to a writing project in their multicultural education course. Their reflections on the writing project illuminate how their work deepened their own funds of knowledge; an unanticipated benefit was broadening their instructor's understanding of inclusive STEM. We share this experience with you in the spirit of welcoming further discussion and recommendations from the larger STEM community.

The Multicultural Education Course

With an overarching goal of closing opportunity gaps for learners (Ladson-Billings, 2013), one of the required courses for all K-12 and secondary teacher

education students at Metropolitan State University of Denver (MSU Denver) is Multicultural Education. This course aims to help students develop critical awareness and a multicultural framework for viewing classroom interactions and curricula (Banks & Banks, 2019; Howe & Lisi, 2024). The course addresses *racial and ethnic inequality* and *social stratification* as primary lenses for understanding language, economic class, and other forms of difference in schools. As Ann Fink reminds us later in this section, "Liberatory processes position teachers, students, and their ecologies as companions in scientifically understanding and acting on the world" (this collection). The course syllabus emphasizes the roles teachers as decision-makers play in meeting the educational needs of "learners from diverse backgrounds" (Fink, this collection), though other than a brief introduction to Universal Design for Learning (UDL), disability had not been included in the definition of diversity in the course; all general licensure students are required to take just one course on exceptional learners offered by a different department. Similar to most teacher preparation programs, deep learning about disability seems to be limited to special education majors and segregated from general licensure (Schneiderwind & Johnson, 2021; Shume, 2023). Students in my (Janelle's) classes have often described the exceptional learners course anecdotally as a catalog of disabilities rather than one that helps them develop inclusive pedagogies. Our teacher preparation program has, therefore, reflected a siloed approach to inclusive teaching, counter to our stated social justice-based course objectives (Ogodo, 2024). It was the social justice advocacy by students in the class that raised the awareness of the instructor. This advocacy emerged during one of the key assignments of the multicultural education course, a "Call to Action" (CTA) project that includes both a written paper and a public service announcement. The written portion of the CTA is discussed in the following section.

A Call to Action for Social Justice

The overall goal of the CTA is to help students utilize peer-researched literature as a foundation for improving their self-efficacy for teaching *and* to cultivate their own voices as social justice advocates. While a theoretical framework of educational equity underlies the overall course, I have found that students have varying degrees of awareness of how theory shapes education and their own potential contributions to theory; they overwhelmingly tend to view themselves only as "receivers" of theory (Edelen et al., 2023; Rutten, 2021). The CTA project pushes students to ground a macro-level issue in a specific context at the micro level, planting the seeds of an ethnographic lens meant to cultivate their awareness and empathy with specific communities of students (Moll, 2013; Pérez-Castejón, 2023). Over the course of the CTA project each semester, I have witnessed evidence of a shift in

teacher candidates' mindsets from *student* and *subject* toward *teacher* and *agent*. The introduction to the assignment reads:

> This is a chance for you to connect what you are learning in class to an action research project. Research a topic of interest related to this class, the content you will teach, and your field experience. Learn about it from multicultural perspectives and build your own knowledge for your future educational work.

As an instructor, I have found this assignment challenging for students for multiple reasons. One tension I consistently observe is that in the content courses for students' majors, they tend to focus on fulfilling the professors' requirements, completing the homework, and scoring well enough to pass exams. The teacher education courses, on the other hand, push the candidates to think as professional teachers rather than students, which can be a difficult transition (Moran et al., 2023). I feel that this dichotomous positioning between subject and agent helps to explain the challenges for teacher candidates' development of their own theoretical lenses. They have been trained to be compliant as students, and developing their own identity-agency seems out of reach to most of them (Berisha & Vula, 2023; Ruohotie-Lyhty & Moate, 2016). To become social justice advocates, they need to recognize the power of their own voice as well as being part of a larger collective that calls attention to marginalization of many students and communities by the educational system (Cochran-Smith et al., 2009; Grant & Agosto, 2008; Picower, 2012).

To cultivate that identity-agency, the CTA asks students to write in a professional tone and to utilize their *own* voice as they write about an issue they are passionate about. The CTA project is also meant to cultivate the future teachers' capacity for social justice advocacy writ large, so, in the written paper, I push them to use the headings I provide not only for clarity but as a strategic move to align with readers or funders who may be reviewing the work. Over time, I have developed what I have found to be an effective approach to supporting students' confidence to tackle this project by providing feedback on drafts at every step and requiring one-on-one meetings with me for coaching.

The sections of the paper (included in the Appendix) are inequity and rationale, sociocultural and sociohistorical roots of the issue, current context, action plan, and self-reflection. I scaffold the project by first inviting students to select and share a possible topic, which we discuss in small groups. Next, they complete a brief written outline that corresponds to the sections of the paper. I give them feedback on the outline to help them better utilize an ethnographic lens (Moll, 2013). I then assign a draft of one section of the paper at a time, starting with the works cited section. This allows me to help them continually narrow their topic and focus as needed. In the inequity and rationale section, students name the issue they are tackling and describe why it is personally significant to them. I have found that

I have to offer many students encouragement to insert themselves in the writing since much of their previous writing has asked them to be "neutral."

The section on the issue's sociocultural and sociohistorical roots allows students to write about policies and practices that have shaped their issue systematically over time. This aligns with course goals of rethinking uneven student learning outcomes as an intergenerational opportunity gap rather than an achievement gap. The current context section asks students to ground their issue locally, tapping into a range of resources, including their own clinical field sites and local news media. This helps students understand the varying scales of social justice issues, grounding them in the community where they will be working as teachers. The action plan of the CTA asks the student to generate ideas about steps they can take that will be appropriate to their position as novice teachers. Some possible avenues for action include creating a class project on the issue, helping students reach out to policy makers, finding ways to engage reciprocally with students' families, advocating at the district level, or writing an op-ed.

The self-reflection section of the CTA has changed over time. When I started assigning this project around ten years ago, I would simply assign it as the final section of the paper. Over time, I learned that I could better help students document their metacognition by having them write reflection and process notes at the bottom of each draft section of the paper as they composed them one by one. They write about being frustrated during their searches, often not finding exactly what they are looking for. This provides us with the opportunity to discuss what is meant by holes in the research and the need for triangulation. What follows are samples of the teacher candidate co-authors' own CTAs.

Future STEM Teachers' Advocacy for More Inclusive STEM: Reflections on the CTA

"Understanding Gender Bias in Disability Presentation" by Science Teacher Candidate Kimmie Bourelle

After many years of working closely with students with severe special needs, I have noticed that students' intelligence and potential for success in STEM subjects is often overlooked. Students with hidden disabilities, including learning disabilities (LDs), emotional disorders, and mental illness, have an entirely different level of potential dangers and bullying than they must consider. Because they do not physically show their disability, they may get teased for being "weird," "awkward," or even "dumb." Engaging in the work during the CTA helped me reflect on my biases when working specifically with girls with disabilities.

Using a lens of intersectionality in the CTA paper, I examined the experiences of girls and women with "invisible" disabilities such as autism or ADHD because they physically appear "neurotypical." The gender bias women and girls face takes

shape through certain social stigmas and assumptions made about them in their education and is undoubtedly amplified in STEM pathways. The implicit bias that favors men in workplaces and within the education system harms *all* females. However, it is crucial to bring the specific issues of women and girls who have a hidden disability into focus if we hope to close opportunity gaps in STEM and beyond.

"The Importance of Math Skills" by Mathematics Teacher Candidate Parker Edingfield

Mathematics is essential for many career pathways. It is, therefore, recognized as a gatekeeper subject for all STEM fields. From arithmetic to linear algebra and beyond, the world functions as a product of math. Teaching students high school math effectively opens the door for any aspirations the student wants to pursue. Basic algebra is a necessary skill for higher education and many trade skills. By not encouraging universal math literacy in the way reading and writing are universally emphasized, students become unable to pursue their passions and career opportunities. Math literacy currently exists within most communities as "optional literacy," while language skills are prioritized as "mandatory literacy." This cultural relationship with mathematics makes it incredibly difficult to reach struggling students and creates generational struggles with mathematics.

Including specific pedagogies in my CTA action plans helped me reflect on how content can be taught in an equitable and fair way for all students. One way to do this is through UDL. UDL operates with the assumption that all students receive instruction differently and deserve a fair chance at participation and assessment. Using UDL as a framework allows flexibility in the thinking, expression, and reflection of learning. This type of flexibility is significant in helping students feel valuable, capable, and confident in the classroom. The CTA started a very new line of thinking for me. It began with reflecting on how my experience as a suburban white student who has gone through an education in mathematics with few obstacles was so different from most students' experience. And the more I investigated, the more I realized that many distinct types of people are marginalized in public schools. How do I, as a teacher, try to put myself in a position to empathize and understand enough to help them with whatever they need to help transition academically, emotionally, socially, or whatever? And so that's disability, equity, and culturally responsive work.

"Autism Spectrum Disorder in the Educational System" by Science Teacher Candidate Mary Coleman

There is a need for a greater understanding of students on the autism spectrum in all fields, but especially in STEM fields. Since the introduction of the Individuals with Disabilities Education Act, many changes and reforms have taken place to better include and serve individuals with autism in the public school system. This same system created to protect and serve these individuals, however, has continued to be

overwhelmed with deficits. My rationale for advocating for a greater understanding of autism spectrum disorder in the education system is that this spectrum is a central challenge in our education system. The funding, necessary steps, and participation of schools are vital to the care and success of individuals on the spectrum. Not only is it essential to recognize that everyone is on a case-by-case basis for programs, but these individuals may also have abilities not generally seen in neurotypical children. In educational history, it has been unintentionally ignored that individuals with disabilities also have power. My STEM teacher preparation coursework needs to address this.

We must focus not just on disability but on learners' *abilities* from a strengths-based perspective. For example, many students may struggle with social interactions but excel in math and science. As a teacher, I may have to use different approaches than I do with neurotypical students, but it is essential to recognize the students' cognitive strengths. My key takeaway from the CTA was developing the perspective that I could combine two things: my passion for becoming a science teacher and my appreciation for individuals who are neurodivergent. This process has helped me create classroom engagement strategies since the accommodations I may make for neurodiverse students are often adequate for a range of learners.

"Challenges of Pandemic Mask Use for Deaf and Hard of Hearing Communities" by Science Teacher Candidate Katie Weaver

Many STEM teachers think they only need to know their content area well to be effective teachers, but they must consider the needs of all their students. Deaf and hard-of-hearing students have historically been underrepresented in STEM fields, and the pandemic surfaced as another contributor to that inequity. My CTA tackles the additional challenges the deaf and hard of hearing experienced with mask use during the COVID-19 pandemic due to the importance of lip-reading skills, facial expression, and body language for comprehensive communication in addition to or instead of using Sign Language. A common misconception that wearing a mask would not affect deaf and hard-of-hearing students because these individuals don't use their mouths to speak is a dangerous and harmful idea that further marginalizes these students and teachers. When signing (ASL), facial cues and expressions are an extremely important component of communication and tone. Overall, deaf and hard-of-hearing individuals face the challenge of putting themselves and others at risk by not wearing masks or facing the stark fact that they cannot communicate effectively. This enormous inequity that deaf and hard-of-hearing students and teachers face increases an already present opportunity gap.

I am incredibly grateful for this process and to have the opportunity to uncover this inequity. Throughout this process, I was expecting to find more information and more research on the effects that this inequity has had on deaf and hard-of-hearing students. However, it is a relatively new inequity, as COVID has only

recently created the masked world we currently live in at the time of this writing. Ultimately, there is no official "research" on the effects of this inequity and if and how deaf and hard-of-hearing students are affected in terms of academic achievement, social disparities, or language loss.

"Expectancy Effect" by Mathematics Teacher Candidate Joseph Schneiderwind

I live with an extremely difficult and progressive physical disability that was not noticeably prohibitive until after achieving a graduate education; I was ABD (all but dissertation) in an acoustical physics program until the challenges of my disability did not allow me to continue that program. But this makes me think back and realize how little I knew about, or was exposed to, anybody with a disability during my own years as a student.

Social upbringing, the media, and self-reinforcement contribute to the problem of students who are statistically not "supposed" to do well tending not to. This leads to lower test performance, less interest in pursuing studies in science and mathematics, and reduced effort to pursue counter-stereotypic skills, amongst other things. The studies that I have read mentioning the expectancy effect are in relation to racial and ethnic minorities or women in STEM fields. However, such an effect can easily include students with disabilities. However, when viewing this through the expectancy effect lens, none of the research I encountered specifically addressed students with disabilities in STEM. Statistics that I found have primarily been census data and not related to a specific study. Further, many authors write in pedagogical terms about how a classroom or subject should be approached with respect to students with disabilities. However, they do not write about the effects of implementing that approach. The studies that have been done are largely funded by agencies looking at the accessibility of students with disabilities in postsecondary education. The notable lack of research seemed to be indicative of the little importance society places on this issue.

"Collective Action for Educational Inequities" by Science Teacher Candidate Maddie Onstott

More equitable access to quality STEM education for students with disabilities in rural schools matters to me because I believe all students have the right to an education/school system that will support them as they are and not forget about them because of their ability. As a future science educator, I want to help provide my students with learning opportunities to participate in hands-on activities that fire up their critical thinking skills so that they clearly understand a concept, rather than having them look up definitions of science terms online and write them down. I would like to have access to technology and materials that will help my students learn more engagingly, but I may not be able to do so if the school I teach at lacks

adequate access. The importance of access to technology and materials that will help students with disabilities learn in more engaging ways is crucial.

After researching this topic and interviewing key leaders in the state, I feel like I have learned so much. I could fill in gaps in the information I was finding in my research about funding for inclusive STEM education in rural schools. It also seemed like even though the resources are available, not many know about them or are not interested in teaching in rural schools. A large part of this is due to the lack of support networks available to educators in these rural areas. If there were more PD opportunities for rural teachers and strong, localized support networks in these communities, in addition to funding opportunities for schools and teachers, more educators would student-teach in rural areas and continue to teach there. I also learned about a toolkit that provides support and structure for schools to build teams that can better serve students and their communities. This was a great way to give a voice to the local community and students because the people living and working in an area truly know what is going on there.

"Societal Importance of Gaps in the Research" by Science Teacher Candidate Adrian Clifton

I have learned many different things in the process of this CTA project and the work I have done over the last year. As a student with disabilities, I always knew that going through the school system was tough, but I did not realize how widespread this issue was and how little help these kids get until I saw this while working at a public school. These kids were not prioritized, and neither were the workers who were supposed to be helping them. I have not yet seen enough articles and studies directed toward how teachers can equip themselves to reach and teach students with disabilities. Since the amount of research on a topic can often reflect its societal importance, it is apparent that this topic has not been prioritized. Teachers who want to educate themselves will have to do their own digging and will likely have to spend good money to access the content they want (and most teachers are overworked and underpaid as is).

Learning to help kids with disabilities is difficult because there is no one-size-fits-all way to teach kids with disabilities, as each disability is different. The existing resources are buried in journals that most teachers probably have never heard of, much less have access to, since so many of these journals are expensive to access. If I want to advocate for students with disabilities and argue that teachers should be trained to help them, I, too, need to be trained to help students with disabilities. Serving students with disabilities was only addressed during one course in my teacher preparation program. The fact that I am on the autism spectrum and have OCD gives me firsthand knowledge about how to help similar students, but there are many more disabilities out there that I am untrained about. Ultimately, this issue is a systemic failure of the entire structure of society and the schooling system, and there is thus no quick and easy fix to the problem.

An Instructor Learning from Their Students and the Process

From an instructor's perspective, utilizing this CTA as one of my course's key assignments has been an incredible source of learning on multiple levels. It has certainly been an effective approach to supporting future teachers' social justice identity-agency (Jacobs & Perez, 2023), but it has also had a profound effect on my own thinking. I describe my entire career trajectory as having a focus on STEM equity, but that focus had not included disability until I learned from my own students and their CTA projects. As a teacher and an academic, I shied away from any topic I did not have recognized expertise in; I had minimal background in so-called special education. But I faced the harsh realization that I was underserving students with disabilities in my own classes by ignoring the topic. And I underprepared all my students as future educators by not including learning about disability as an integral part of the equity lens. Luis Moll (2013) writes about Vygotsky's call to understand that all students are part of a continuous spectrum. As these future educators tackled topics related to disability in STEM in their CTA research, I learned with and from them. It has been a humbling and consciousness-raising experience. It has helped me be transparent with my own students about the value of ongoing learning as a teacher and recognizing our students' funds of knowledge (Gonzalez et al., 2006). I genuinely learn from my students' CTAs every semester. Reflections of this nature on centering the needs of our own students are also reflected in the chapter by Jennifer Newell-Caito (this collection).

I would like to encourage instructors in other higher education contexts to experiment with creating a CTA in their own courses. The scaffolded structure certainly makes it more approachable for instructors to adapt this writing project. Start with an open discussion of inequities in your field of study. What are students passionate about? What experiences with this issue do they bring with them into your classroom community? You can capture students' initial ideas about possible topics with an online poll, for example. Help them build out their ideas a bit more, writing bullet points or short paragraphs for each of the sections—history of the issue, where they see it locally, some ideas they have to tackle it, and any resources they find that may support their learning. Make sure to give yourself time to give them feedback each step of the way and coaching as needed. We stretch out this project over more than half of the semester; students see the coherence of the work since the topics they choose overlap with the content of the course. While this chapter focused on the written portion of the CTA, students also create a public service announcement (PSA) once they have finalized their written papers. The PSA is a wonderful opportunity for the students to publicly present their work and get feedback from their peers. We've had success with the PSAs both in person in a "gallery walk" style and shared remotely through an online platform such as Padlet. Students learn from each other and have yet another opportunity to cultivate their identity-agency.

References

Banks, J. A., & Banks, C. A. M. (Eds.). (2019). *Multicultural education: Issues and perspectives*. John Wiley & Sons.

Bergin, K. (July 18, 2018). Remarks during 2018 AAAS/Noyce Summit, *Towards a 2026 STEM education: Implications of convergent science for K–12 STEM teacher preparation in the face of changing student demographics.* Washington, D.C. https://tinyurl.com/26mejwnd

Berisha, F., & Vula, E. (2023). Introduction of integrated STEM education to pre-service teachers through collaborative action research practices. *International Journal of Science and Mathematics Education*, 1–24.

Beyond100K. (2024). 2024 trends report: Trends and predictions that are defining STEM in 2024. https://tinyurl.com/y4kprxp8

Cochran-Smith, M., Shakman, K., Jong, C., Terrell, D. G., Barnatt, J., & McQuillan, P. (2009). Good and just teaching: The case for social justice in teacher education. *American Journal of Education, 115*(3), 347–377.

Edelen, D., Cox Jr., R., Bush, S. B., & Cook, K. (2023). Centering students in transdisciplinary STEAM using positioning theory. *Electronic Journal for Research in Science & Mathematics Education*, *26*(4), 111–129.

González, N., Moll, L. C., & Amanti, C. (Eds.). (2006). *Funds of knowledge: Theorizing practices in households, communities, and classrooms*. Routledge.

Grant, C. A., & Agosto, V. (2008). Teacher capacity and social justice in teacher education. In *Handbook of research on teacher education* (pp. 175-200). Routledge.

Hatfield, N., Brown, N., & Topaz, C. M. (2022). Do introductory courses disproportionately drive minoritized students out of STEM pathways?. *PNAS nexus*, *1*(4), 167.

Howe, W. A., & Lisi, P. L. (2024). *Becoming a multicultural educator: Developing awareness, gaining skills, and taking action* (4th ed.). Sage Publications.

Hung, M., Smith, W. A., Voss, M. W., Franklin, J. D., Gu, Y., & Bounsanga, J. (2020). Exploring student achievement gaps in school districts across the United States. *Education and Urban Society*, *52*(2), 175–193. https://doi.org/10.1177/0013124519833442

Jacobs, J., & Perez, J. I. (2023). A qualitative metasynthesis of teacher educator self-studies on social justice: Articulating a social justice pedagogy. *Teaching and Teacher Education*, *123*, 103994. https://doi.org/10.1016/j.tate.2022.103994

Johnson, J. M., Konuk, N., & Koester, M. (2023). Using lesson study to build interdisciplinary STEM collaborations at an urban commuter university. In S. Dotger, G. Matney, J. Heckathorn, K. Chandler-Olcott, & M. Fox (Eds.), *Lesson study with mathematics and science preservice teachers* (pp. 137–147). Routledge. https://doi.org/10.4324/9781003326434

Ladson-Billings, G. (2013). Lack of achievement or loss of opportunity. In P. L. Carter & K. G. Welner (Eds.), *Closing the opportunity gap: What America must do to give every child an even chance* (pp. 11–22). Oxford University Press.

McCoy, D. L., Luedke, C. L., & Winkle-Wagner, R. (2017). Encouraged or weeded out: Perspectives of students of color in the STEM disciplines on faculty interactions. *Journal of College Student Development*, 58(5), 657–673.

Milgrom-Elcott, T. (2023, September 27). *Ending the STEM teacher shortage*. STEMM Opportunity Alliance. https://tinyurl.com/5832fxps

Moll, L. C. (2013). *L.S. Vygotsky and education*. Routledge.

Moran, R. M., Robertson, L., Tai, C., Ward, N. A., & Price, J. (2023). Developing pre-service teachers' adaptive expertise through STEM-CT integration in professional development and residency placements. *Frontiers in Education, 8*. https://doi.org/10.3389/feduc.2023.1267459

Ogodo, J. A. (2024). Culturally responsive pedagogical knowledge: An integrative teacher knowledge base for diversified STEM classrooms. *Education Sciences*, *14*(2), 124.

Pérez-Castejón, D. (2023). Practices and intellectual requirements for attaining inclusive education and social justice in initial teacher education: Ethnography. *Ethnography and Education*, *18*(1), 112–126.

Picower, B. (2012). Teacher activism: Enacting a vision for social justice. *Equity & Excellence in Education*, *45*(4), 561–574.

Ruohotie-Lyhty, M., & Moate, J. (2016). Who and how? Preservice teachers as active agents developing professional identities. *Teaching and Teacher Education*, *55*, 318-327. https://doi.org/10.1016/j.tate.2016.01.022

Rutten, L. (2021). Toward a theory of action for practitioner inquiry as professional development in preservice teacher education. *Teaching and Teacher Education*, *97*, 103–194. https://doi.org/10.1016/j.tate.2020.103194

Schneiderwind, J., & Johnson, J. M. (2021). Broadening the equity lens for STEM teacher education: The invisibility of disability. *AAAS Bulletin*. https://tinyurl.com/h625zhff

Shume, T. J. (2023). Conceptualising disability: a critical discourse analysis of a teacher education textbook. *International Journal of Inclusive Education*, *27*(3), 257–272. https://doi.org/10.1080/13603116.2020.1839796

Weston, T. J., Seymour, E., Koch, A. K., & Drake, B. M. (2019). Weed-out classes and their consequences. In E. Seymour & A.B. Hunter (Eds.), *Talking about leaving revisited: Persistence, relocation, and loss in undergraduate STEM education* (pp. 197–243). Springer.

Zhang, Y., & Zhu, J. (2023). STEM pre-service teacher education: A review of research trends in the past ten years. *Eurasia Journal of Mathematics, Science and Technology Education*, *19*(7), em2292. https://doi.org/10.29333/ejmste/13300

Appendix: Colorado Call to Action Project: EDS 3150: Multicultural Education, by Dr. Janelle M. Johnson

This is a chance for you to connect what you are learning in class to an action research project. Research a topic of interest related to this class, the content you are going to teach, and your field experience. Learn about it from multicultural perspectives and build your own knowledge for your future educational work. Some ideas include: teen homelessness, the foster care system, unequal school funding, transgender student rights, inclusion of students with disabilities, educational access for English Language Learners, school choice, school discipline, equity of school lunch programs, funding for the arts, immigration, girls in STEM fields,

poverty in schools, desegregation policies, bullying, overrepresentation in special education; the need for art and music as core classes, bias in the curriculum, etc.

Steps of the assignment:

1. Clearly identify an **educational inequity**. It must be something specific we can see evidence of in schools or classrooms, including challenges and problems of students and their families.
2. Research the issue using multicultural lenses (race, ethnicity, language, culture, disability, sexual orientation, etc.). Think of how the needs of different populations of students may be **underserved in a specific context**. What have been the institutional and educational blind spots?
3. Write a 10-12 pages total (double-spaced) paper on the topic with 5-10 references and reflection. **You must include page numbers and the provided headings.**
4. Create a public service announcement (PSA) that raises awareness about the educational inequity you researched.
5. Share your PSA with the class and the world.

Part I: Specifics for the PAPER (50 points)

Your document should be no more than 12 pages total (**number your pages**), including a works cited page, with appropriate referencing for your content area. **You must use the following as your section headings, and you can add additional headings or subheadings if you choose:**

Educational Inequity and Rationale (minimum one page)

[Examine the effects of **bias, prejudice, and/or discrimination** and how they have affected a**ccess and opportunity to academic success** of one or more of the groups of color in United States society. (TQS 2.B, 2.C, 2.D, 3.A, 3.D, 4.C)]

What is your rationale for advocating this particular issue over others? **WHO** is suffering because of this inequity? Be specific. Here, you want to make as strong a case as possible for WHY this is a central challenge. Include your own voice. Why does this matter to YOU? Relate the issue to educational issues facing Colorado and your current or past field placement school. To the extent possible, lay out your "thinking/decision-making" process. Cite any references. (10/50 points)

Sociocultural/Sociohistorical Roots of the Inequity (2-3 pages)

[Examine structures of power, control, and governance in schools in relation to race, ability, age, ethnicity, gender identity/expression, religion, sexual orientation, and socioeconomic status. (TQS 1.C, 2.B, 2.C, 4.C, 4.D)]

In other words, what do we need to understand, contextually, in order to make sense of this project? What is the macro context of this issue? These roots can be *economic, political, social,* and/or *demographic*. What policies shaped this issue? How has it changed over time? **Use references.** (10/50 points)

Current Context (2-3 pages)

[Analyze the impact that race, ability, age, ethnicity, gender identity/expression, religion, sexual orientation, and socioeconomic status have upon learning, and explain the roles of teachers, administrators, parents, and the community in the pursuit of multicultural goals in education. (TQS 2.A, 2.B, 2.C, 2.D, 3.A, 4.A, 4.C, 4.D)]

What is the current state of events (*economic, political, social, demographic, environmental.* . . .) that needs to be understood to address this challenge? Use any statistics you can find, especially if you are discussing a challenge in a specific school or district. News stories are an excellent source for this section. Feel free to describe conditions you have observed firsthand. Cite any references, including conversations. (10/50 points)

Action Plan (2-3 pages)

[Develop strategies/methods that lead to the formation of and continuation of multicultural education in schools. (TQS 2.A, 2.B, 3.A, 3.D, 4.A, 4.B, 4.C, 4.D) Identify methods of reducing prejudice and racism in the classroom. (TQS 2.A, 2.B, 2.C, 2.D, 3.A, 3.D, 3.E)]

What will be the most useful actions YOU can take as an educational advocate? You do not need to "solve" the problem but need to find a way to address it. This can include raising awareness about the issue. Try to ALIGN the actions with the problem—if it's funding, how could you advocate for funding to try to write grants? If it's an issue faced by families, can you organize some kind of parent group that brings these issues to the table? Defend your choice based on the specifics of your field, the nature of the educational equity issue, and based on your own self-reflection about what you will actually USE. Include the Teacher Quality Standards this issue addresses. (10/50 points)

Resource: https://tinyurl.com/mvcfe8yj

Self-Reflection (1 page)

[Explain how personal views and experiences may influence attitudes and behaviors as an educator. (TQS 4.A, 4.B, 4.C)]

Your own voice should come through most clearly in this section. Apply critical thinking dispositions to your own thinking, especially concerning issues of race, ethnicity, language, culture, sexual orientation, and/or disability. Describe what challenges you had tackling this topic and what kind of information you did or did not find. What have you learned? (5/50 points)

Works Cited (1 page)

Whole paper must be spell checked with formatting that reflects professionalism. Must include page numbers, headings, works cited page (5/50 points) [Use technology to access, organize, interpret and present information. (TQS 3.C, 3.F)]

Some Resources:

- Colorado school data http://highered.colorado.gov/Data/DistrictHS-Summary.aspx
- Teaching Tolerance.org
- Colorado Public Radio
- Chalk Beat
- Denver Post
- The equality of opportunity project http://www.equality-of-opportunity.org
- Annie E. Casey – Kids count data http://datacenter.kidscount.org/data#CO/2/0
- Multicultural education: Issues and perspectives http://www.slideshare.net/mariaferc/0470483288multicul
- NEA Grant writing http://www.nea.org/home/10476.htm

Rubric for Colorado Call to Action Part I

	Exceeds Expectations	Meets Expectations	Partially Meets Expectations	Does Not Meet Expectations
Inequity and rationale: 1 page (TQS 2.B, 2.C, 2.D, 3.A, 3.D, 4.C,)	Clear explanation of one major educational equity challenge. Clear explanation of which aspects are most important to this challenge. Clearly argues why this is an important inequity. 9-10	Adequate explanation of one major educational equity challenge. Indicates which aspects are most important to this challenge. Argues why this is an important inequity. 7-8	States one major educational equity challenge. Confusing or not compelling reason why this is an important inequity. 5-6	Does not clearly state one major educational inequity. Lack of rationale provided. 4-0
Roots of the inequity: 2-3 pages (TQS 1.C, 2.B, 2.C, 4.C, 4.D)	Clear explanation of roots (economic, political, social, demographic, environmental…) of this inequity. 9-10	Adequate explanation of roots (economic, political, social, demographic, environmental…) of this inequity. 7-8	Minimal explanation of roots (economic, political, social, demographic, environmental…) of this inequity. 5-6	Does not address roots (economic, political, social, demographic, environmental…) of this inequity. 4-0

	Exceeds Expectations	Meets Expectations	Partially Meets Expectations	Does Not Meet Expectations
Current Context: 2-3 pages (TQS 2.A, 2.B, 2.C, 2.D, 3.A, 4.A, 4.C, 4.D	Clear explanation of current conditions (economic, political, social, demographic, environmental) that affect this inequity. 9-10	Adequate explanation of current conditions (economic, political, social, demographic, environmental) that affect this inequity. 7-8	Addresses only one current condition (economic, political, social, demographic, environmental) that affect this inequity. 5-6	Does not address current conditions (economic, political, social, demographic, environmental) that affect this inequity. 4-0
Action Plan: 2-3 pages (TQS 2.A, 2.B, 2.C, 2.D, 3.A, 3.D, 3.E, 4.A, 4.B, 4.C, 4.D)	Well-aligned action plan to address the situation. 9-10	Action plan fairly well aligned. 7-8	Minimally aligned action plan. 5-6	Action plan not aligned to inequity. 4-0
Self-reflection: 1 page (TQS 4.A, 4.B, 4.C)	Clear explanation of choice of topic and process. 5	Adequate explanation of choice of topic and process. 4	Lack of explanation of choice of topic and process. 3	Limited to no explanation of topic and process. 2-0
Headings, Numbering, Spelling, Citations (TQS 3.C, 3.F)	Headings correct, pages numbered, no misspelled words, proper citations. 5	Most headings correct, 1-2 misspelled words or improper citations. 4	Some headings correct, 3-5 misspelled words minor citation errors. 3	No headings and/or page numbers, Many misspelled words, major citation errors. 2-0

Part II: Specifics for the PSA (30 points)
Public Service Announcement and Q & A session

1. Choose a format for your PSA: television (30-60 second animated PowerPoint with recorded audio); radio (30-60 seconds); two-sided brochure; billboard or bus stop ad.
2. This PSA should NOT be an oral recitation of your written report. It should be designed to raise awareness about your educational inequity issue and **encourage some specific action**. You are encouraged to use a variety of media formats and to include photos and "voices" from the field.
3. Include charts or data in the PSA.
4. Ask friends and colleagues – to watch/listen and provide feedback on how professional it is.
5. Prepare for the Q & A session.

Rubric for the Colorado Call to Action Part II: PSA

	Exceeds Expectations	Meets Expectations	Partially Meets Expectations	Does Not Meet Expectations
Clarity of Educational Inequity	Clear explanation of one major educational inequity. Clear explanation of which aspects of diversity are most important to this challenge. Excellent use of charts and data 9-10	Adequate explanation of one major educational inequity. Indicates which aspects of diversity are most important to this challenge. Good use of charts and data. 7-8	States one major educational inequity. Confusing or not compelling reason why this is an important equity challenge. Charts and data included but do not support call. 5-6	Does not clearly state one major educational inequity. Minimal or no charts and data. 4-0
Call to Action	Very clear call to action to address the situation. 9-10	Somewhat clear call to action. 7-8	Unclear call to action. 5-6	Minimal or no call to action. 4-0
Professional	Extremely professional quality in selected medium. No misspelled words, no obvious grammatical errors. 9-10	Professional quality in selected medium. 1-2 misspelled words or obvious grammatical errors. 7-8	Somewhat professional quality in selected medium. 3-5 misspelled words or obvious grammatical errors. 5-6	Unprofessional quality in selected medium. Many misspelled words and obvious grammatical errors. 4-0