



Section 3: Articulation between Research & Practice in Science, Mathematics and Technology Education (phase 2)
Secção 3: Articulação entre Investigação & Práticas em Educação em Ciência, Matemática e Tecnologia (fase 2)

**TEACHERS, TEACHER EDUCATORS, AND FAMILIES WORKING TOGETHER TOWARDS
A TRANSFORMATIVE EQUITABLE EDUCATION**

**PROFESSORES, FORMADORES DE PROFESSORES E FAMÍLIAS TRABALHANDO EM CONJUNTO
PARA UMA EDUCAÇÃO EQUITATIVA TRANSFORMADORA**

**DOCENTES, FORMADORES DE DOCENTES Y FAMILIAS TRABAJANDO JUNTOS PARA UNA
EDUCACIÓN TRANSFORMADORA Y EQUITATIVA**

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ABSTRACT | In this piece I offer a reflection on the other paper in this section, which in my view presents a call to action in teaching in schools and in teacher preparation programs. As teacher educators and researchers, we have a responsibility towards an inclusive and transformative education. I suggest some possible avenues that center on learning from and working collaboratively with the families and communities we serve.

RESUMO | Ofereço uma reflexão sobre o outro artigo desta secção, que na minha opinião apresenta um apelo à ação no ensino nas escolas e nos programas de formação de professores. Como formadores de professores e investigadores, temos uma responsabilidade no âmbito de uma educação inclusiva e transformadora. Sugiro algumas abordagens que se centram na aprendizagem e no trabalho colaborativo com as famílias e comunidades que servimos.

RESUMEN | Ofrezco una reflexión sobre el otro artículo en esta sección, que desde mi punto de vista presenta una llamada a la acción en la enseñanza en las escuelas y en la formación de docentes. Como formadores de docentes e investigadores tenemos una responsabilidad hacia una educación inclusiva y transformadora. Sugiero algunos enfoques que se centran en aprender y trabajar en colaboración con las familias y comunidades en nuestro entorno.



1. RESEARCH AND EDUCATIONAL PRACTICES FOR AN INCLUSIVE AND EQUITABLE SCIENCE, MATHEMATICS AND TECHNOLOGY (SMT) EDUCATION

The article “research in education and teacher training: commitment for sustainable development” by Cruz (2020) presents a call for action at the level of schools and universities (as institutions responsible for teacher education). If change is going to occur, Cruz argues for the key role that teachers and other school staff as well as teachers’ educators can and should play in this change. In the agenda I articulate here, I first look at the role of teachers / schools and how working with families can be integrated in schools towards the kind of transformative change needed. I then look at the role that universities should play in preparing teachers with a deep understanding of inclusive education.

As Cruz (2020) writes, the teaching experience that most students receive is neither transformative for themselves as individuals, nor prepares them for their future in clear positive ways. I agree that, in general, schooling seems to be about maintaining the status quo and not about preparing the next generation to bring about change. To which extent do schools seek to connect with the communities they serve? Could students engage in relevant problems that could directly impact in positive ways their own communities? For this to happen it seems that working closely with the students’ families as presented in my contribution (Civil, 2020) could provide an avenue. Teachers learning about and from their students’ and their families’ funds of knowledge could lead to the development of transformative learning modules reflecting the community interests, needs, and knowledge in SMT. Teachers learning about their students and their students’ families can help bridge what Cruz describes as a lack of commitment towards students. In my work, I have witnessed teachers’ deep commitment to students but they do not always have the tools and resources necessary to act on this commitment. For this approach to work, it is not only about teachers wanting to engage in this collaborative work with families, but they would need the support of the school administrators to try these potentially quite different learning modules. But, as Cruz notes, schools are subjected to governments’ educational policies. So, for lasting change to occur, we need to find ways and allies to address these issues at the macro level. While universities may be able to help, often they are not in a position to change educational policies. But certainly, universities can do a better job in teacher preparation.

So, what can universities do? Cruz (2020) brings up several characteristics of universities that can interfere with the kind of teacher education needed for preparing teachers to support their students as agents of change towards a more equitable world. In particular, those of us working in universities need to do much better at understanding how the new generations learn and adapt our teaching approaches to these ways of learning. We need to focus on adaptability since even the perhaps novel approaches that we may use in our teacher education courses, may not be what the teachers themselves will need when they embark in their teaching career. It is also the case that often universities put more value on grants and publications than service (in particular community service) and the practice of teaching. But here is where several components in the agenda proposed by Cruz resonate with the research agenda outlined in my piece (Civil, 2020). For example, SMT education groups can play a key role in bringing together research (which universities strongly value) and practice. The context of practice is important as it often involves schools (thus impacting teachers’ practice) and prospective teachers (thus developing a next generation of teachers with the knowledge and understanding to bring about change). What we teach in our teacher preparation programs needs to be both general, in that it can apply to

different contexts, and specific to be applied to our local community, the one where the university is located, as Cruz points out. The work described in my contribution is largely community-based. It involves spending time in the schools and in the community, talking to teachers, parents and students to build rapport as we learn about their views and uses of mathematics. We need to engage more university students, and particularly those who are planning to become teachers, in this kind of research and practice community-based work. It is by listening to and collaborating with the communities in which they are going to teach that we can develop an inclusive, equitable and transformative SMT education.

REFERENCES

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