

COMMUNITY ETHNOGRAPHY AS PEDAGOGY



THE CHALLENGE

Connecting with youth and family wisdom

Youth and their families have a wealth of familial and community knowledge and wisdom. However, oftentimes their ideas and perspectives are not taken up in engineering design, even when the challenges addressed by engineers are grounded in the community. There are also a wide range of sustainability challenges facing young people and their communities today, such as poverty, racism, climate change, and affordable energy. Engineers and communities need approaches to working together, and to drawing upon a diverse and distributed set of expertise, to understand and address these challenges at both the local and global level. A Community Ethnography as Pedagogy approach supports these challenges by connecting engineering practice to communities.

OUR RESPONSE

What it is & Why it Matters

Community ethnography is using research methods like observations, interviews and surveys to learn more about one's community members, their wants and needs. Students using community ethnography can leverage multiple forms of expertise as they engage in defining problems and designing solutions that transform their community to be a more just place. Integrating community ethnography supports more equity-oriented science teaching by supporting students in learning with and for their community.

Community ethnography supports students in deeply engaging in the NGSS-outlined engineering practices of defining problems and designing solutions. To effectively define practices, students ask questions and gather information to determine specific challenges that need to be addressed. In this process, they gather and analyze information to properly define the dimensions of a problem. While students engage in designing

For more information:
Edna Tan
e_tan@uncg.edu
Angela Calabrese Barton
angiecb@umich.edu

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solutions, they determine and balance different constraints for their science and engineering design. Community ethnography supports students in optimizing their solutions to be responsive to community wants and needs.

Community Ethnography as Pedagogy

1 A **stance** that community knowledge is a valuable part of disciplinary knowing and necessary for effectively engaging in the practices of defining problems and designing solutions. This is the starting motivation for supporting students using community ethnography.

2 **Pedagogical moves** which support multiple forms of and purposes for interactions and interactional spaces for students, teachers and community members; and help teachers to notice, value and respond to students' cultural knowledge/practice as important forms of epistemic authority.

3 **Tools** which position students and teachers as co-learners of community concerns and their intersections with disciplinary knowing and classroom activity. The main tools we have used in our classroom have been making participant observations, administering surveys, and conducting interviews.

These tools support students in defining problems by soliciting information from their community, and designing and optimizing their designs by gathering more community feedback. Teachers and students can collaboratively decide which communities are most salient to their investigation, and focus using their ethnographic tools with those communities.

COMMUNITY ETHNOGRAPHY AS PEDAGOGY

When introducing community ethnography, ask students to explore why including other people's perspectives matter in engineering.

How to Get Started

Teachers can plan for using community ethnography in multiple forms throughout a unit. Students can be supported to use community ethnography in formal ways by designing/administering surveys or interviewing others during a formal feedback cycle. However, students can also engage in community ethnography in more informal ways, too. We recommend that teachers plan for both informal and formal community ethnography opportunities. This approach allows for students to use community ethnography tools in a systematic way to make decisions throughout the engineering design cycle.

When introducing community ethnography, ask students to explore why including other people's perspectives matter in engineering. Teachers can do this by talking about engineering projects in their community, and why community voices have mattered to the projects. Additionally, ask students to brainstorm what different community stakeholders should be included in the engineering process.

A first step to plan for community ethnography in a unit is for teachers to ask, "How does this unit connect to my students and their community's lives?", and "In what ways might students be able to use their new science knowledge and practices with other forms of expertise, with their community during this unit?" Generate a list of answers to these ideas. We recommend asking students for ideas because they are experts about their own lives. Then, teachers can look across the lessons in the unit and build in formal opportunities for community ethnography. Additionally, develop procedures in the class community to support students' in engaging in informal community ethnography when they decide they need to leverage it as a tool. For example, consistently ask students to share participant observations when they are brainstorm ideas or if students ask for feedback on their design solutions ask, pose this question back to them: "Who else could you talk to for more ideas?" Teachers can display anchor charts with these and other prompting questions to support themselves and their students in remembering to engage in community ethnography to better define problems and design solutions.

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Community Ethnography Tools

1 Participant Observations Students can make participant observations to support their efforts throughout a science and engineering unit. Participant observations pay attention to the culture, norms/practices and people and how they interact within a space. For example, teachers can support students in making observations of, and discerning patterns in how classroom community members use electrical energy and its impact in an energy unit. Students' participant observations may include that students seem more relaxed when the lights are dim and the class always remembers to turn the light off when they leave the room. Teachers would support students in two steps: 1) making participant observations; 2) analyzing the observations to discern patterns and build evidence-based explanations of what the patterns indicate about energy usage.

2 Surveys Students can administer surveys as they are working to define problems that they want to solve with their community. Teachers and students can collaboratively design the surveys. Teachers could ask students what type of questions they want to ask as they work to understand the technical and social aspects of a problem. Additionally, surveys can be used to gather community members' ideas about what some possible solutions are for defined problems as well as highlight community assets that can be used when designing the solution. Students can administer surveys in school and at home to gain a range of perspectives.

3 Interviews Teachers can have students use interviews to better understand the technical and social dimensions of the problems they are defining and addressing. Students need to design, conduct and analyze their interviews.

Table 1: Examples of community ethnography

Stances	Pedagogical Moves	Tools
Community knowledge matters in defining problems and designing solutions	Asking students to share the evidence they used in defining problems and designing solutions	Participant observations Surveys Interviews
Multiple community members' input supports defining problems and designing solutions	Emphasizing the importance of understanding/addressing both the technical and social dimensions of community problems and solutions	
Students are experts about their communities and should shape how they engage in community ethnography	Supporting students in analyzing their generated data Encouraging students to seek more community feedback as needed	