Board 223: CAREER: Exploring the Intersection of LGBTQ Identities and STEM Disciplines: A Qualitative Narrative Approach

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Abstract

The purpose of this poster paper is to present progress toward reaching the third research aim of an NSF CAREER-funded study, using qualitative methods to explore the intersection of LGBTQ and STEM identities. The overall project purpose is to explore LGBTQ students' engagement in STEM disciplines. LGBTQ students often leave engineering and other STEM fields at a higher rate than their peers due to unwelcoming environments, and engineering educators should tackle issues like heteronormativity and cissexism in the learning environment to promote diversity among future practicing engineers. The past year of the project has been focused on finishing data collection for the first research aim, investigating the influence of LGBTQ students' social networks on non-cognitive STEM outcomes, and securing data access agreements for the second research aim, comparing STEM degree completion rates between LGBTQ students and cisgender, heterosexual peers.

For this poster, we focus on the process of developing a qualitative, narrative study exploring how LGBTQ STEM students experience discipline-based identities. Our poster presents the development of our interview protocol, grounded in engineering identity and possible selves, as well as our methods for collecting and analyzing qualitative data elicited through interviews. We use possible selves as an identity-based motivation framework in developing the interview protocol that focuses on students' anticipated career paths helping to understand how students are motivated to act in ways that are congruent to who they wish to become and wish to avoid becoming with respect to their decision to enter STEM. Development of the instrument began with a review of the literature to find key concepts that need to be covered in the interviews as well as example interview questions to be adapted for this study. In particular, the research team reviewed instruments used in prior research on possible selves to understand how existing procedures could be adapted to fit the purposes of this project.

Following IRB approval, the interview protocol was refined through pilot testing with people who meet the study's criteria for inclusion. Our next step is to recruit students for participation in this phase of the research. Many of these students will be identified through the survey from the first research aim of the project which gathered contact information for participants interested in participating in follow-up research. Others will be identified through recruitment nationally with organizations such as oSTEM. We expect to have preliminary data to discuss at the ASEE 2024 poster session, but data collection is expected to last through much of the coming year. Once these data are collected and analyzed, the overall project will move into a phase focused on completing the project's educational aims and broad dissemination of findings across all three research aims.

Introduction

LGBTQ people, similar to people in other underrepresented groups, often face barriers to their participation in STEM that are unrelated to their interest in or talent for STEM work. Even though LGBTQ people have pioneered major scientific advances, such as Alan Turing's work on the Enigma machine, their exclusion from STEM can ultimately squander their talent and hinder progress. Growing evidence suggests potential factors driving LGBTQ disparities in STEM include bias and discrimination, perceptions that LGBTQ people do not adhere to "stereotypes" of professionalism in STEM, and STEM norms around impersonality that require LGBTQ people to hide or cover their identities [1]. How people experience their LGBTQ identities within highly technical STEM higher education settings remains a compelling yet underexplored area. STEM fields are frequently perceived as domains where personal aspects of one's life do not matter to the practice of engineering and science. Consequently, these fields harbor rigid societal norms and expectations regarding the expression of different gender identities and sexual orientations [2]. Our research considers how insights from engineering identity and future possible selves helps us understand how LGBTQ students experience STEM fields, focusing on the ways how they imagine their future selves shapes their motivation and behavior regarding the decision to persist on a pathway to a career in STEM.

Project overview

The overall purpose of this NSF CAREER-funded project is to explore LGBTQ students' engagement in STEM disciplines. This poster focuses on progress toward meeting the third research aim of the project, using qualitative methods to explore the intersection of LGBTQ and STEM identities. We will present the process of developing a qualitative, narrative study exploring how LGBTQ STEM students experience discipline-based STEM identities. This poster will focus on the methods to achieve our third research aim, including how we developed our interview protocol from the literature on possible selves' theory and engineering and science identity, our approach to identifying a sample and collecting data, and our plan for analyzing transcript data to determine our findings. Data collection for this research aim is underway, and we plan to share a preliminary analysis of available data at the national conference.

Engineering identity

The first area of research we reviewed to prepare for this study was literature on engineering identity, much of which developed from prior research on science identity, particularly physics and math identity [3, 4]. Identity provides a lens into the multifaceted process of making meaning of one's experiences, constructing one's sense of self through constant development and self-reflection [5]. It includes the traits and characteristics, social relations, roles, and social group memberships that define who a person is within a particular setting. Engineering identity, especially for students, reflects their acceptance of and recognition as part of the engineering field, influencing their decision to enter and persist in the field [6]. When students possess a strong engineering identity, they tend to perceive themselves as future engineers, fostering their commitment to their pursuit of an engineering career [7]. This identity continues to impact their learning, serving as a guiding force throughout their studies [8].

Morelock synthesized the disperse literature on engineering identity into four main themes [6]. The first theme focused on the dimensions of engineering identity, including aspects such as academic, school, and occupational identities. The second theme encompasses the relationship between perceptions of self and the engineering profession, relative to each other. For example, Beam and colleagues define engineering identity precisely as perceptions of self in relation to the engineering profession [9]. The third theme posits that engineering identity can be defined by multiple components, including cognitive, affective, and performance variables. The fourth describes engineering identity as specific actions or decisions, such as building relationships with the community of practicing engineers [10]. These four themes that emerged from Morelock's synthesis of literature then align well with the perspective we are directly applying to our research which emerged around the same time: Godwin's model for engineering identity [11].

Grounded in Carlone and Johnson's work on science identity [12], Godwin identified engineering identity as observable across three dimensions: recognition as an engineer (especially by important others), interest in the field of engineering, and perceptions of high performance and competence in engineering knowledge and skills [11]. These factors then significantly influence engineering students' persistence in majors and career paths in engineering (and other STEM fields) [13, 14]. Interest centers around students' desire and motivation to engage in engineering activities, design processes, and pursue engineering careers as an integral part of their academic interests in engineering. This dimension tends to be important for predicting whether a student will initially select engineering (or a related STEM field) as a college major. Recognition encompasses the importance of external validation within the academic context, that is, being acknowledged by various respective stakeholders in the student's circle of influence, including engineering professors, friends, and family, as an engineer. The factor encompassing Performance and Competence centers on students' confidence in their ability to succeed in engineering tasks within academic settings. It encompasses their belief in their competence to perform effectively in engineering classes and comprehend the diverse concepts and materials presented in their engineering programs.

Understanding and recognizing engineering identity holds great significance for future engineering aspirants. While experiencing a diminished engineering or science identity may lead students to switch to non-engineering or STEM majors [15], building an identity in engineering or science may increase a person's belonging within engineering or another STEM discipline, promoting their commitment to their chosen field, motivating them to achieve successful academic outcomes, and potentially influencing their career choices following graduation [16]. A significant portion of our data collection thus focuses on how students understand their engineering or other STEM discipline-related identities through the dimensions of interest, recognition, and competence/performance.

Possible selves theory

The second area of research we reviewed to develop our qualitative protocols was research on future possible selves [17]. Possible selves, as a psychological concept, connects cognition and motivation in the process of identity construction through insights gleaned from reflection on who we anticipate becoming in the future. Possible selves is an identity-based

framework for understanding motivation [18], which states that individuals are motivated to act upon the world in ways that are congruent to who they wish to become as well as who they wish to avoid becoming. Students construct future possible selves by analyzing and synthesizing what they know about their own abilities and characteristics, and what they know about the skills needed to attain their future selves. For example, in this study, we would examine how students make sense of their engineering identities now based on their perceptions of future possible selves in setting a goal of becoming an engineer or pursuing a related STEM career. Research has shown that possible selves can motivate students' involvement, commitment, and persistence in school as well as career pathways after graduation [19, 20].

Possible selves brings together cognitive and motivational perspectives on self and self-regulation. According to Oyserman and colleagues, possible selves are like pictures of who we might become in the future [21]. They act as a bridge between our current self and our future self. These future self-images help us stay motivated over an extended duration and show us the way to reach our goals. They are like plans that help us change and grow as a person. The generation of possible selves is an important element in the exploration of identity alternatives, particularly in active identity exploration. Individuals engaged in active identity exploration access and construct more possible selves compared to those who are not exploring. The production of possible selves is thus hypothesized to be a mechanism used in exploring identity alternatives [22]. Other studies have used possible selves, as cognitive representations, playing a mediating role in personal functioning and are intricately connected to the dynamic facets of one's self-concept [23]. The deliberate selection and construction of possible selves empower individuals to actively mold their own identity development. Given prior research on the perceptions of LGBTQ students in STEM about their future pathways through STEM careers [24], we felt this perspective could help us better understand how these images of the future as an LGBTQ person in a STEM career influence how students experience being LGBTQ in STEM now.

Narrative approach

This phase of our overall project is intended to uncover the lived experiences of LGBTQ students navigating their pathways into, through, and often out of STEM majors. As such, we selected a narrative approach to our qualitative inquiry as a way of capturing these experiences [25]. A narrative approach is focused on the collection of stories from individuals that help a researcher understand how a person makes sense of events within their lives pertinent to the topic of the study. These stories offer a sense of meaning, chronology, and consequences to the experiences of people, within the context in which these events took place. Narrative inquiry is also relevant to the field of engineering education, and STEM education more broadly, in that narrative inquiry is interdisciplinary as a way that people within different fields make sense of what it is like to learn or practice within those fields [26].

Narrative inquiry is especially helpful for this study in that we want to understand both how participants' experience their science and/or engineering identities currently as well as how their hopes and fears for their future shape their relationship to STEM. The focus on stories that help uncover a sequence of events that lead to meaning-making and material consequences will help us better understand how the process of developing a science or engineering identity has

unfolded and has intersected with minoritized gender and sexual identities. Students' experiences may also unveil new associations and factors which have not yet been explored in research, pointing to new directions to understand identity for LGBTQ students in STEM.

Qualitative instrument development

After reviewing the literature, we constructed an interview protocol based on the extant research. In keeping with the narrative approach to this study, we decided to conduct two interviews with each participant, allowing some time lapse in between. The first interview is focused on engineering (or other STEM discipline) identity and how it is experienced through interest, recognition, and competence/performance [11]. Sample questions from this interview include, "What is it like being an LGBTQ person within [field]?" and "How do you feel about your ability to do [field] work? What kinds of experiences or activities have you engaged in that help you understand your ability?" The second interview will follow a couple months later and focus on possible selves—who the participant hopes to become in their STEM career and who they hope to avoid becoming [17]. Questions from this interview include, "How do you envision being an LGBTQ person will play a role in becoming a [field] professional?" and "What barriers or obstacles do you foresee needing to navigate or overcome in achieving your goal of becoming a [field] professional?". In some cases, participants may even recognize that their future may be outside of STEM.

The protocols were developed in two ways. First, we identified key concepts from each body of literature that informed the content for each interview protocol, and, second, we found examples of questions used in prior research conducted using each perspective. In other words, we designed protocols that covered the content we needed to cover and which incorporated questions from prior research as well. The protocol for the first interview is grounded in Godwin's dimensions of engineering identity: interest, recognition, performance, and competence [11], while the second protocol explores participants' expected, hoped-for, and feared possible selves [17]. The second interview also gives us a chance to ask follow up questions from the first interview to add clarity and further insights to what we are uncovering through this study.

Finally, we developed these protocols for use in a narrative study. Narrative qualitative research encompasses a set of methods used to analyze the narratives people tell to convey how they made meaning of their experiences as well as the phenomenon under study itself [25]. In this study, we are using our protocols to elicit narratives from participants that help us understand the meaning they have made of their experiences being LGBTQ within engineering and other STEM majors. Further, by focusing on two aspects of this experience—current sense of engineering or other STEM discipline-based identity and future possible selves—we are intentionally constructing narratives with participants that tie their current experience of engineering/STEM identity to what they anticipate for themselves in a future engineering or STEM career.

Planned data collection and analysis

After developing our protocol, we pilot tested the interview protocol with people who met the study's criteria for inclusion. We conducted pilot interviews with two students who men the study inclusion criteria, that they identified as LGBTQ in some way and were in a STEM major. Pilot testing encompassed running the interview protocol with students, noting how they respond to the questions and if their responses a) focused on the content that our interviews were designed to focus on and b) reflected that they share a similar understanding of the question as we do. We also invited pilot participants to reflect back to us their feedback on how questions were asked as well as questions they expected to be asked based on the topic of the study.

Now that we have completed protocol piloting and refinement, we will recruit a sample of approximately 40-50 people who meet the criteria for inclusion. For this study, though, we intend to construct a sample that is diverse along the lines of STEM fields and demographic backgrounds in order to maximize variation in our sample [25]. We are especially concerned about the inclusion of experiences of people who are most underrepresented among LGBTQ students in STEM: students who are in racial or ethnic groups that are most underrepresented in STEM; students who are transgender, nonbinary, and gender nonconforming; and students with disabilities. We have a list of emails from an earlier phase of our research where students agreed to allow us to follow up with them for this phase of the study, and we plan to recruit through national channels such as sharing our invitation via members of the organization oSTEM. The interview invitation will prompt them to complete a screening survey to provide demographic information to help us construct a diverse sample who will then be prompted to schedule interviews.

Interviews will primarily take place over video conferencing software like Webex or Microsoft Teams, and a recording of the interview will be professionally transcribed. The first interview will be preliminarily analyzed prior to the second interview to identify potential follow-up questions for that second meeting, though our full analysis process will connect across both interviews to identify themes which help relate how students experience identity now to their hopes and fears for the future. Transcripts will be analyzed both deductively and inductively [27]; deductive methods help us identify the elements from our theoretical frameworks that are present in students' accounts while inductive methods help us uncover emergent themes and connections across themes to construct rich narratives regarding the intersections of LGBTQ identities and STEM disciplines [28].

Trustworthiness and limitations

Trustworthiness is the standard by which qualitative research is assessed for quality [25], and to achieve trustworthiness, we take steps to ensure the credibility, consistency, and transferability of our findings [29]. Credibility refers to the extent to which our findings reflect the participants' perceptions of their experiences which we ensure through member checking, or allowing participants to review our findings. Consistency is similar to reliability which we substantiate through documentation of our processes and efforts to utilize common procedures and understandings through all aspects of data collection and analysis, such as comparison of how we coded transcript data. Transferability, which is akin to generalizability in qualitative

research, is the standard by which we can claim our findings are relevant in other settings. Transferability emerges from efforts to maximize diversity in our sample to reflect a wide range of experiences, thick description in which we include context in our findings to fully situate any conclusions, and reflexivity regarding our role as co-constructors of meaning in the research process, revealing our positionality and potential stances on the subject in our dissemination of findings. Our use of a screening questionnaire helps us narrow down our pool of participants so as to include as wide a range of STEM disciplines and LGBTQ identities in the sample as possible, which broadens the applicability of our findings to other settings.

We also acknowledge a few potential limitations we anticipate from this study as well. Foremost among these is that we can only guarantee our findings will reflect the specific people who are included in the sample. Although we as researchers can distill specific findings we find relevant and valuable to the field, it is also incumbent on us to provide adequate context for readers to understand how our findings might be relevant for them as well. Second, in spite of our efforts to maximize the range of experiences in our sample, it would be impossible for us to include this full range, especially among students who left STEM whose experiences would also be important to consider in understanding what it is like to be LGBTQ in STEM. Educational research always aims to include experiences like these, but in many cases individuals with these experiences will be incredibly difficult to locate. Finally, these findings will reflect a snapshot in time for the participants in the study. Although participants can infer cause and effect within their own lives regarding phenomena they have experienced, our data are not longitudinal and thus reflect the best recollection and meaning participants have of their experiences at the time of the interviews.

Implications

The overall project purpose is to explore LGBTQ students' participation in STEM disciplines, and for this poster, we have shown the process of developing a qualitative, narrative study to explore how LGBTQ STEM students experience discipline-based identities. By focusing on two aspects of this experience—current sense of engineering or other STEM discipline-based identity and future possible selves—the study aims to construct narratives that tie participants' current experiences of being LGBTQ in STEM to their anticipated future career paths within these fields. By examining participants' current sense of engineering or STEM discipline-based identity and their future possible selves, the study offers implications for practice. First, our study heightens efforts to support identity development among LGBTQ students in STEM fields. This may involve practices such as providing mentorship, networking opportunities, and resources tailored to the unique needs of LGBTQ individuals. Engineering educators may especially want to consider how they can better equip students to form mentoring relationships on their own to help students develop strategies that help them ask for and organize mentorship based on their own needs such as finding LGBTQ mentors. Second, as our study explored participants anticipated future career paths through how they could imagine their future selves along the intersection of LGBTQ identity within engineering and other STEM disciplines, we anticipate providing further guidance for career development initiatives targeting LGBTQ individuals, informing efforts to provide relevant support and resources to help them achieve their career goals and persist in STEM. Third, our study highlights insight in understanding how

LGBTQ students experience engineering identity. In this way, educators can better support their retention and success in engineering programs.

Future work

As this qualitative phase marks the third research aim of three guiding the overall CAREER-funded study, for the most part, the conclusion of this qualitative phase is the conclusion of the research activities on the CAREER grant. That said, research on the first and second phases is still ongoing as data collection on the first phase has only recently concluded and data access for the second phase is still being negotiated. However, much of the focus of the project will move to emphasize the educational aims of the grant, which include developing resources for STEM faculty to create learning environments that are more LGBTQ-inclusive, institutional researchers and policymakers to learn about how to collect and utilize data on LGBTQ identities, and graduate students to incorporate social network analysis into their educational research.

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References

[1] J. B. Freeman, "Measuring and resolving LGBTQ disparities in STEM," *Policy Insights from the Behavioral and Brain Sciences,* vol. 7, no. 2, pp. 141-148, 2020, doi: 10.1177/2372732220943232.

[2] A. Mattheis, D. C.-R. De Arellano, and J. B. Yoder, "A model of queer STEM identity in the workplace," *J. Homosex.,* pp. 1-25, 2019, doi: 10.1080/00918369.2019.1610632.

[3] C. A. P. Cass, Z. Hazari, J. Cribbs, P. M. Sadler, and G. Sonnert, "Examining the impact of mathematics identity on the choice of engineering careers for male and female students," in *ASEE/IEEE Frontiers in Education Annual Conference*, 2011: ASEE/IEEE, in Proceedings - Frontiers in Education Conference, FIE, doi: 10.1109/FIE.2011.6142881. [Online]. Available: http://dx.doi.org/10.1109/FIE.2011.6142881

[4] Z. Hazari, G. Sonnert, P. M. Sadler, and M.-C. Shanahan, "Connecting high school physics experiences, outcome expectations, physics identity, and physics career choice: A gender study," *J. Res. Sci. Teach.,* pp. n/a-n/a, 2010, doi: 10.1002/tea.20363.

[5] A. Johnson, J. Brown, H. Carlone, and A. K. Cuevas, "Authoring identity amidst the treacherous terrain of science: A multiracial feminist examination of the journeys of three women of color in science," *J. Res. Sci. Teach.,* vol. 48, no. 4, pp. 339-366, 2011, doi: 10.1002/tea.20411.

[6] J. R. Morelock, "A systematic literature review of engineering identity: definitions, factors, and interventions affecting development, and means of measurement," *European Journal of Engineering Education,* vol. 42, no. 6, pp. 1240-1262, 2017, doi: 10.1080/03043797.2017.1287664.

[7] H. M. Matusovich, R. A. Streveler, and R. L. Miller, "Why Do Students Choose Engineering? A Qualitative, Longitudinal Investigation of Students' Motivational Values," *Journal of Engineering Education,* vol. 99, no. 4, pp. 289-303, 2010, doi: 10.1002/j.2168-9830.2010.tb01064.x.

[8] R. Stevens, K. O'Connor, L. Garrison, A. Jocuns, and D. M. Amos, "Becoming an engineer: Toward a three dimensional view of engineering learning," *Journal of Engineering Education,* vol. 97, no. 3, pp. 355-368, 2008.

[9] T. K. Beam, O. Pierrakos, J. Constantz, A. Johri, and R. Anderson, "Preliminary findings on freshman engineering students' professional identity: Implications for recruitment and retention," in *ASEE Annual Conference and Exposition*, Austin, TX, June 2009: American Society for Engineering Education. [Online]. Available: peer.asee.org. [Online]. Available: peer.asee.org

[10] A. Peters and A. Pears, "Engagement in Computer Science and IT -- What! A Matter of Identity?," in *2013 Learning and Teaching in Computing and Engineering*, March 2013, pp. 114-121, doi: 10.1109/LaTiCE.2013.42.

[11] A. Godwin, "The development of a measure of engineering identity," presented at the ASEE Annual Conference and Exposition, New Orleans, Louisiana, June 26, 2016. [Online]. Available: https://peer.asee.org/26122.

[12] H. B. Carlone and A. C. Johnson, "Understanding the science experiences of successful women of color: Science identity as an analytic lens," *J. Res. Sci. Teach.,* vol. 44, no. 8, pp. 1187-1218, 2007, doi: 10.1002/tea.20237.

[13] B. E. Hughes, W. J. Schell, B. Tallman, R. Beigel, E. Annand, and M. Kwapisz, "Do I Think I'm an Engineer? Understanding the Impact of Engineering Identity on Retention," in *ASEE Annual Conference and Exposition*, Tampa, Florida, 2019/06/15 2019: ASEE Conferences. [Online]. Available: https://peer.asee.org/32674. [Online]. Available: https://peer.asee.org/32674

[14] A. Godwin, G. Potvin, Z. Hazari, and R. Lock, "Identity, critical agency, and engineering: An affective model for predicting engineering as a career choice," *Journal of Engineering Education,* vol. 105, no. 2, pp. 312-340, 2016, doi: 10.1002/jee.20118.

[15] K. L. Tonso, "Engineering Identity," in *Cambridge handbook of engineering education research*, A. Johri and B. M. Olds Eds., A. Johri and B. M. Olds, Eds.: Cambridge University Press, 2014, ch. 14, pp. 267-282.

[16] G. Downey and J. Lucena, "When students resist: Ethnography of a senior design experience in engineering education," *International Journal of Engineering Education,* vol. 19, no. 1, pp. 168-176, 2003.

[17] H. Markus and P. Nurius, "Possible selves," *American Psychologist,* vol. 41, no. 9, pp. 954-969, 1986, doi: 10.1037/0003-066x.41.9.954.

[18] D. Oyserman, *Pathways to success through identity-based motivation*. New York: Oxford University Press, 2015, pp. xiv, 295 pages.

[19] L. N. Fleming, K. Engerman, and D. G. Williams, "Why Students Leave Engineering: The Unexpected Bond," in *2006 ASEE Annual Conference and Exhibition*, Chicago, IL, 2006, doi: 10.18260/1-2--375. [Online]. Available: https://peer.asee.org/375

[20] D. Verdin, A. Godwin, G. Sonnert, and P. M. Sadler, "Understanding how First-Generation College Students' Out-of-School Experiences, Physics and STEM Identities Relate to Engineering Possible Selves and Certainty of Career Path," presented at the 2018 IEEE Frontiers in Education Conference (FIE), 2018.

[21] D. Oyserman, D. Bybee, K. Terry, and T. Hart-Johnson, "Possible selves as roadmaps," *Journal of Research in Personality,* vol. 38, no. 2, pp. 130-149, 2004, doi: 10.1016/s0092-6566(03)00057-6.

[22] C. Dunkel, D. Kelts, and B. Coon, "Possible selves as mechanisms of change in therapy," in *Possible selves: Theory, research and applications*, C. Dunkel and J. Kerpelman Eds. New York: Nova Science Publishers, 2006, pp. 187-204.

[23] D. Hamman, K. Gosselin, J. Romano, and R. Bunuan, "Using possible-selves theory to understand the identity development of new teachers," *Teaching and Teacher Education,* vol. 26, no. 7, pp. 1349-1361, 2010, doi: 10.1016/j.tate.2010.03.005.

[24] R. E. Friedensen, E. Kimball, A. Vaccaro, R. A. Miller, and R. Forester, "Queer science: Temporality and futurity for queer students in STEM," *Time & Society,* vol. 30, no. 3, pp. 332-354, 2021, doi: 10.1177/0961463x211008138.

[25] J. W. Creswell and C. N. Poth, *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications, 2017.

[26] J.-H. Kim, *Understanding narrative inquiry: The crafting and analysis of stories as research*. Los Angeles: SAGE, 2016, pp. xx, 341 pages.

[27] J. Saldaña, *The coding manual for qualitative researchers*, 2nd ed. Thousand Oaks, CA: SAGE (in English), 2013.

[28] M. B. Miles, A. M. Huberman, and J. Saldaña, *Qualitative data analysis: A methods sourcebook*, 3rd ed. Thousand Oaks, CA: SAGE (in English), 2014.

[29] S. B. Merriam, *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass (in English), 2009.