

Utah State University

DigitalCommons@USU

Instructional Technology and Learning Sciences
Student Research

ITLS Student Works

11-30-2020

Culturally Disruptive Research: A Critical (Re)Engagement with Research Processes and Teaching Practices

Breanne K. Litts
Utah State University

Melissa Tehee
Utah State University

Jennifer Jenkins
Edith Bowen Laboratory School

Stuart Baggaley
Edith Bowen Laboratory School

Devon Isaacs
Utah State University

Megan Hamilton
Utah State University

Follow this and additional works at: https://digitalcommons.usu.edu/itls_stures

 Part of the [Instructional Media Design Commons](#)
See next page for additional authors

Recommended Citation

Litts, B.K., Tehee, M., Jenkins, J., Baggaley, S., Isaacs, D., Hamilton, M.M. and Yan, L. (2020), "Culturally disruptive research: a critical (re)engagement with research processes and teaching practices", Information and Learning Sciences. <https://doi.org/10.1108/ILS-02-2020-0019>

This Article is brought to you for free and open access by the ITLS Student Works at DigitalCommons@USU. It has been accepted for inclusion in Instructional Technology and Learning Sciences Student Research by an authorized administrator of DigitalCommons@USU. For more information, please contact digitalcommons@usu.edu.



Authors

Breanne K. Litts, Melissa Tehee, Jennifer Jenkins, Stuart Baggaley, Devon Isaacs, Megan Hamilton, and Lili Yan



**Culturally Disruptive Research: A Critical (Re)Engagement
with Research Processes and Teaching Practices**

Journal:	<i>Information and Learning Sciences</i>
Manuscript ID	ILS-02-2020-0019.R2
Manuscript Type:	Article
Keywords:	culture, equity, social justice, research methods, teaching practices, partnerships

SCHOLARONE™
Manuscripts

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Information and Learning Science

Culturally Disruptive Research: A Critical (Re)Engagement with Research Processes and Teaching Practices

Breanne K. Litts¹, Melissa Tehee¹, Jennifer Jenkins², Stuart Baggaley², Devon S. Isaacs¹, Megan Hamilton¹, & Lili Yan¹

¹Utah State University
²Edith Bowen Laboratory School

Introduction

As partnership work continues to emerge as a leading methodological approach in education research, particularly in the learning sciences, there is a growing demand to understand how to accomplish this work. Intellectual communities, such as the Research+Practice Collaboratory (researchandpractice.org), who sit at the forefront of this epistemological, ontological, and axiological shift in how we conduct research, advocate for research-practice partnerships (Penuel et al., 2013), design-based implementation research (Coburn & Penuel, 2016), and community-based research approaches (Bang et al., 2016). Learning scientists are actively pushing the bounds of traditional research approaches and methodologies and challenge scholars to conduct work *with* communities rather than about, in, or for communities.

In response, many policymakers and funding agencies are beginning to require genuine community engagement and partnership in research, especially in efforts to broaden participation. Partnering with communities demands an ethical and cultural shift in the research process. Thus, taking a culturally-situated approach to research inherently disrupts conventional notions of engagement in research and enables these kinds of partnerships. This disruption requires “desettling” (Bang et al., 2012) the knowledge and value systems that drive what we do, which often privilege particular ways of knowing and being. As such, historically, research has been a further act of settling or colonizing marginalized communities (e.g., Smith, 2013). Instead, a culturally-situated approach desettles traditional research methods by requiring a disruptive shift in ‘who’ counts as a partner or stakeholder, ‘how’ the work should be conducted, and ‘what’ products are valued. Though practical toolkits and repositories supporting this work are becoming more robust, there is still a critical need to consider the structural and systemic shifts necessary to carry out this work.

1
2
3 To contribute to this need for a deeper understanding, we share our work that involves
4
5 Indigenous and non-Indigenous researchers, designers, and educators collaboratively designing
6
7 culturally-situated experiences for sixth graders. Our current shared project goal is to specifically
8
9 investigate how to design cross-cultural field experiences that develop sixth-graders' cultural
10
11 competence. In this paper, however, we take a step back to answer the question: how do we
12
13 conduct culturally-situated research? We lean on San Pedro's (2018) *culturally disruptive*
14
15 *pedagogy* to frame our research approach. In particular, we highlight the tensions, disruptions,
16
17 and self-discoveries of culturally disruptive pedagogy as a frame to understand our own attempt
18
19 to design for this culturally-situated pedagogical approach. We also specifically share how these
20
21 three elements of our process have led to pedagogical innovations. Our goal is to elucidate and
22
23 nuance culturally disruptive research as a process and how it impacts practitioners. We have
24
25 equally rich examples, which we are preparing to share elsewhere, of how this approach impacts
26
27 researchers and disrupts the inherent hierarchies that exist between researchers and practitioners.
28
29 We seek to help researchers understand what it means to conduct culturally-situated design and
30
31 implementation work with community partners and provide examples from practice that
32
33 elucidate the impact of culturally disruptive work.

34 35 36 37 38 39 40 **Framing**

41
42 Our culturally disruptive research approach is shaped by culturally disruptive pedagogy,
43
44 which seeks to design the "sacred truth spaces" and "zones of contact" where multiple truths,
45
46 "new knowledge and new identities [can] take hold" (San Pedro, 2018, p 1221). Rooted in the
47
48 evolution of culturally relevant (Ladson-Billings, 1995), culturally responsive (Gay, 2010),
49
50 culturally sustaining (Paris, 2012), and culturally revitalizing (McCarty & Lee, 2014)
51
52 pedagogies, culturally disruptive pedagogy builds on these ideas to focus on the disruption of
53
54
55
56
57
58
59
60

1
2
3 privilege, especially Whiteness (San Pedro, 2018). In particular, culturally disruptive pedagogy
4
5 seeks to (1) make visible the socializing of Whiteness, and (2) disrupt hegemonic cultural norms
6
7 (San Pedro, 2018).
8
9

10 Our aims in adopting a culturally-situated approach to research are to disrupt dominant
11
12 cultural practices and make privilege visible by not only raising awareness of others' cultures but
13
14 also recognizing ourselves as cultural beings. Hence, we use culturally disruptive pedagogy to
15
16 investigate these shifts in our own approach. San Pedro (2018) highlights three key tenets of
17
18 culturally disruptive pedagogy: tensions, disruptions, and self-discoveries. Based on his
19
20 application, we interpret this to mean that by making tensions visible, we disrupt norms, and this
21
22 leads to self-discovery, which in turn leads to deeper awareness of tensions and so on. In this
23
24 paper, we apply this frame at the process and design levels, which expands the frame to include
25
26 innovations. Our shared observations and narratives about our experience revealed that self-
27
28 discoveries resulted in innovations in our partnership and practice work.
29
30
31

32 **Intellectual Foundation**

33
34
35 We conceptualize our inquiry as building on a rich intellectual foundation of existing
36
37 scholarship around partnership-based and community-based research approaches. The roots of
38
39 research-practice partnerships (RPPs) are inherently disruptive to privilege, process, and practice
40
41 (see collection of work edited by Bevan & Penuel, 2017). In partnership-building processes,
42
43 scholars recognize the inherent epistemological tensions and hierarchies that exist in multi-
44
45 sector, interdisciplinary, and cross-cultural partnerships. This includes both critically
46
47 (re)conceptualizing how knowledge is built and what outputs are valued and shared. Strategies
48
49 such as participatory knowledge building (Santo et al., 2017) argue for a disruption of privilege
50
51 in our knowledge building process by attempting to flatten the knowledge inherent in the
52
53
54
55
56
57
58
59
60

1
2
3 structural and systemic hierarchies in which we conduct our work. As part of this
4
5 reconceptualization, it also demands that we critically consider what products of our scholarship
6
7 we value and seek to produce outputs that are mutually beneficial (Bevan, 2017).
8
9

10 In the learning sciences, scholars are calling to further situate this work in cultural,
11
12 historical, and political contexts. Special issues from the *Journal of the Learning Sciences*
13
14 (O'Neill, 2016) and *Cognition & Instruction* (Bang & Vossoughi, 2016) argue for critically
15
16 resituating our work to this end. In response, scholars present new methodological approaches
17
18 and framings to partnership work such as community-based design research (Bang et al., 2016)
19
20 and social design experiments (Gutiérrez & Jurrow, 2016). Other work (re)conceptualizes
21
22 research practice partnerships through critical lenses such as Cultural Historical Activity Theory
23
24 (CHAT; Severance et al., 2016). Our work is heavily informed by this collection of empirical
25
26 studies and lived experiences of researchers and educators. We seek to extend this prior
27
28 scholarship by leveraging a culturally disruptive frame to critically re(examine) how culturally-
29
30 situating this work disrupts practice by making privilege visible. Hence, while our work has
31
32 deeply disrupted traditional hierarchies between researchers and practitioners, in this paper we
33
34 share two cases of how our approach disrupted our practice-partners' (Authors 3 & 4)
35
36 understanding of culture and had immediate and direct impacts on their pedagogical approaches.
37
38
39
40
41

42 **Method**

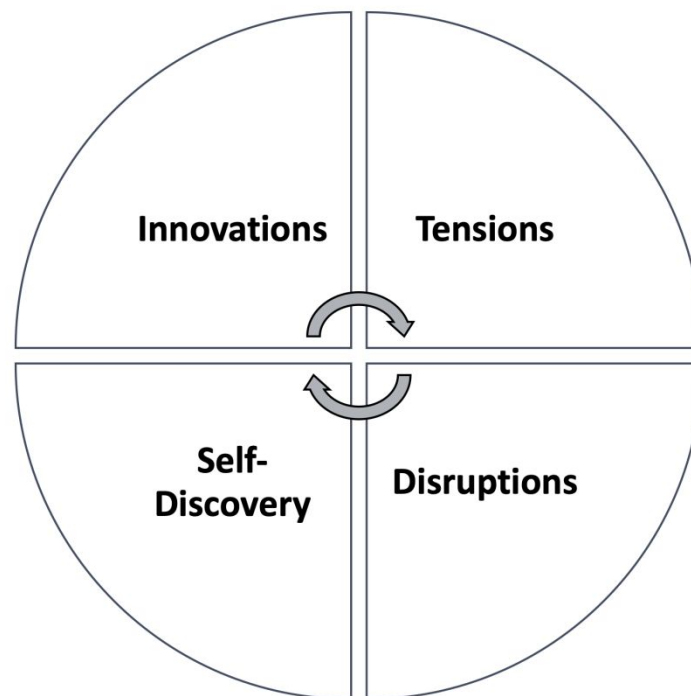
43
44 Our RPP (Coburn & Penuel, 2016) of twelve Indigenous and non-Indigenous scholars
45
46 and designers and four K-12 educators and administrators is driven by a shared goal to connect
47
48 disciplines through centering culture with the broad aim to develop sixth-graders' cultural
49
50 competence (Litts, Tehee, Jenkins, & Baggaley, 2020). We understand culture to be "highly
51
52 variable systems of meaning which are learned and shared by a people or an identifiable segment
53
54
55
56
57
58
59
60

1
2
3 of the population. It represents designs and ways of life that are normally transmitted from one
4 generation to another” (Betancourt & López, 1993; Rohner, 1984). In this paper, we share our
5 culturally-situated approach to our collaborative process of redesigning the sixth-grade
6 curriculum in a way that builds awareness of others and self as cultural beings. In alignment with
7 our RPP approach, we employ a design-based implementation research methodology (DBIR;
8 Fishman et al., 2013). For us, this means that our RPP operates in iterative cycles to
9 collaboratively work toward our overarching shared goal. Practically, we iteratively design,
10 implement, and evaluate culturally-situated lessons and outcomes throughout the school year.
11
12
13
14
15
16
17
18
19
20
21

22 We document our process of partnership-building, design, and implementation through
23 recording meetings, capturing and reflecting on key design decisions, conducting formal debrief
24 interviews after implementations, and collecting all project-developed and project-related
25 artifacts. Our data are in the form of audio and video recordings, written field notes and memos,
26 and design artifacts. In addition to ongoing reconceptualization and reconsideration of the
27 current curriculum, we have implemented five classroom curricular units ranging from two-hours
28 to two-weeks long, depending on the unit and teacher needs. Moreover, teacher partners’
29 (Authors 3 and 4) analytic insights are integrated as transcriptions from debrief interviews and a
30 recorded data analysis meeting, in which they made their contributions to the writing of this
31 manuscript. Research authors transcribed their insights and drafted a re-telling of their
32 experience, and teachers reviewed the manuscript and these re-tellings prior to submission. This
33 is the way in which the teacher-partner authors on the team elected to participate in the academic
34 writing process.
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

51 Our collaborative and iterative analysis is guided by the three core tenets of culturally
52 disruptive pedagogy: tensions, disruption, and self-discoveries. Through our analysis, we
53
54
55
56
57
58
59
60

1
2
3 recognized that the self-discoveries further resulted in innovations, so we added this additional
4 tenet into our analysis (see Figure 1). To best illustrate our culturally-situated research approach,
5
6
7 we build and present two cases (Stake, 2008) where we trace each of these four tenets. Hence,
8
9
10 the cases are bound by these key tenets, such that we trace how critical tensions led to
11
12
13 disruptions, self-discoveries, and innovations. The authors of this paper, representing all
14
15 perspectives and demographics of our research team, met and reached consensus that these two
16
17 cases best illustrate the nuances of how carrying out a culturally-situated research approach
18
19 affects our practice in the classroom. Collectively, the two cases provide critical insights into
20
21
22 how tensions evolve over time.
23



48 Figure 1. Analytic frame informed by culturally disruptive pedagogy (San Pedro, 2018).
49

50 *Establishing shared values and goals*

51

52 Our RPP team consists of several different stakeholders, but in this section, we only
53
54 introduce those who are authors on this paper to help provide more context for the cases and
55
56
57
58
59
60

1
2
3 findings we present. Author 1, of Portuguese and other European ancestries, is an assistant
4 professor in the learning sciences and serves as a principal investigator on the project. Author 2,
5 a citizen of the Cherokee Nation, is an assistant professor in psychology and serves as a principal
6 investigator on the project. Author 3, of European ancestry, is a sixth-grade teacher who
7 specializes in teaching science and mathematics at The Experiential Learning School. Author 4,
8 of European ancestry, is a sixth-grade teacher who specializes in English language arts and social
9 studies at The Experiential Learning School¹ (ELS). Author 3 and Author 4 have co-taught sixth
10 grade for three years together. Author 5, a citizen of the Cherokee Nation, is a doctoral student in
11 clinical and counseling psychology. Author 6, a citizen of the Minnesota White Earth Nation, is a
12 doctoral student in the learning sciences. Author 7, a Han Chinese from the Wu region of
13 southeast China, is a doctoral student in the learning sciences.

14
15 The ELS, where Author 3 and Author 4 teach, identifies as a place-based school and, as a
16 result, offers students rich field experiences. The culminating field experience for students
17 happens in sixth grade and is structured as a three-day river rafting trip on the San Juan River,
18 which serves as a natural border with the Navajo Nation. The significance of this proximity was
19 not something that was explicitly acknowledged in previous years and the educators felt they
20 were missing an opportunity for culturally-situated, place-based learning.

21
22 Our team began working together in Fall 2018 with the collective motivation to educate
23 sixth graders about Indigenous peoples in relation to their field experience. Through partnership-
24 building meetings, we established a shared vision with shared goals and clarified our respective
25 roles. Through value mapping (Ryoo & Shea, 2015), we established our shared values that
26 anchor our work: situating learning and knowledge in place, sharing cross-cultural knowledge,

27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
¹ Anonymized school name.

1
2
3 and respecting different perspectives. Through several meetings, we identified a shared
4
5 overarching goal of building connections across cultures, disciplines, and partners through
6
7 learning and development at the experiential, knowledge and skills, and psycho-social
8
9 development levels. This resulted in the development of an internal grant at [University], which
10
11 currently funds our work.
12
13

14 ***Cultural competence training***

15
16 One strategy of disruption we employed to culturally-situate our research was for the
17
18 entire project team to complete a cultural competence (CC) course (Tehee, et al., 2020). The
19
20 course was designed by a Native American psychologist and Native graduate students based on
21
22 Sue's tripartite model of CC (Sue, 2001). The course was originally designed to nurture
23
24 awareness (of self and others) as cultural beings, knowledge, and skills for faculty, staff, and
25
26 graduate students working with Native American students in higher education. We adapted the
27
28 training to focus more on K-12 teaching and learning. All members of the RPP participated in
29
30 the course, which entailed four hours of online modules geared toward each facet of Sue's model
31
32 followed by an in-person skills-building session to develop perspective-taking. The course
33
34 provided a shared learning experience, language, and foundation for cultural knowledge for all
35
36 partners in the RPP. Based on responses from the course, considering oneself as a cultural being
37
38 was disruptive in and of itself, as many White researchers and educators had not considered
39
40 themselves as having a culture. This new awareness opened doors for acknowledging how
41
42 culture influences pedagogical practice.
43
44
45
46
47
48

49 **Findings**

50
51 In this section, we share two illustrative cases that demonstrate how our culturally-
52
53 situated research approach disrupts systemic and structural elements by making Whiteness
54
55
56
57
58
59
60

1
2
3 transparent and disrupting hegemonic cultural norms. While we experienced multiple forms of
4
5 disruptions as researchers, designers, and educators, we focus here on tracing two powerful cases
6
7 of how culturally disruptive research directly and immediately resulted in pedagogical
8
9 innovations. The two cases trace Mrs. Jenkins' (Author 3) and Mr. Baggaley's (Author 4) shifts
10
11 in recognizing oneself as a cultural being and gaining awareness of others' culture, respectively.
12
13 Together the cases illustrate a broader shift toward interdependence that our team experienced
14
15 over the course of the school year.
16
17

18 19 ***Case 1: Inviting others' cultural knowledge*** 20

21
22 Interpersonal growth for us as individuals, as well as for the students, is an underlying
23
24 motivation for our participation in this work across members of our project team. A key area of
25
26 interpersonal growth for our team has been through recognizing ourselves as cultural beings. As
27
28 a result, we found our culturally-situated research approach to deeply impact each of us on an
29
30 intimate level. To illustrate this, Mrs. Jenkins shares her personal tensions, disruptions, and self-
31
32 discoveries that she experienced over the course of the past year (see Figure 2). More
33
34 specifically, through Mrs. Jenkins' story, we highlight the shifts in her own cultural knowledge
35
36 and how these shifts impacted her on an individual level and resulted in innovations in her
37
38 teaching practice. While all project team members experienced similar shifts, we developed Mrs.
39
40 Jenkins' experience as a case of how it directly and immediately impacted her pedagogy in a
41
42 tangible way.
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

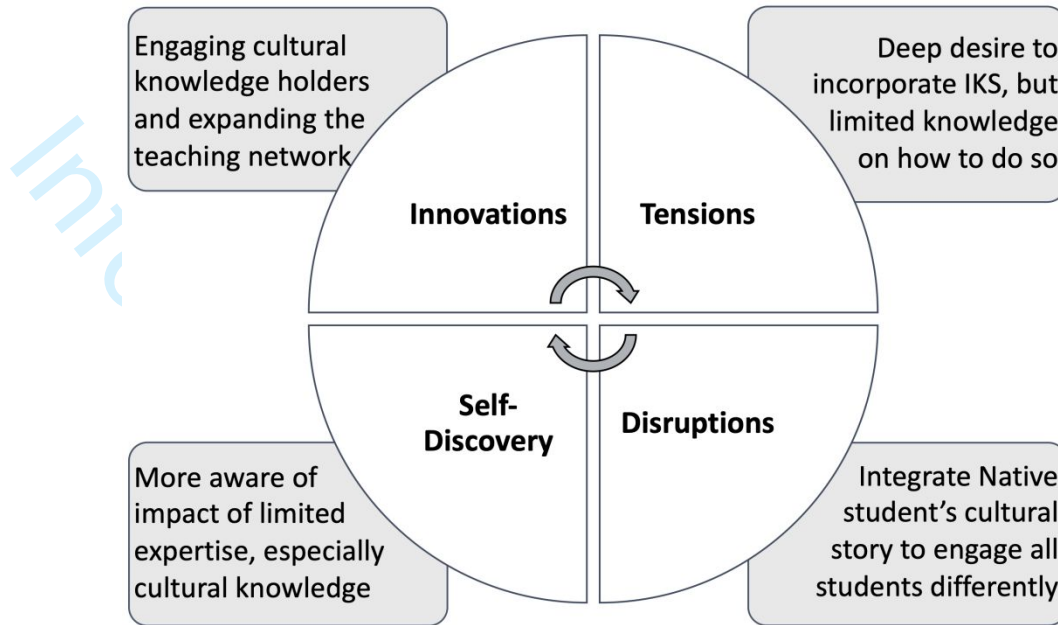


Figure 2. Jennifer's culturally disruptive approach to inviting others' cultural knowledge.

Tension: The Awareness of boundaries of cultural knowledge

On a personal level, Mrs. Jenkins has a deep desire to incorporate Indigenous knowledge systems (IKS), but recognized her own limitations in personal, practical, and cultural knowledge of how to do this. She is heavily influenced by the work her father did with an Indian Boarding School², which was one of the last Indian boarding schools to close in the United States. Mrs. Jenkins describes:

“I have a deep appreciation... because my Dad taught over there... He would help drive the bus to pick them up off the reservation and bring them to the... Indian [boarding] school... and he would talk about it a lot and some of [the Native American students] came to our house to stay with us.” (Interview, 11/18/19)

From these experiences, Mrs. Jenkins maintains both a personal conviction to learn more about Indigenous histories and cultures as well as a desire to impart such knowledge to her students. In

² Anonymized name.

1
2
3 particular, as a teacher, she recognizes the importance of allowing educators to teach diverse
4
5 cultures. She adds:

6
7
8 “...it’s [about] teaching value and respect and honoring all, and treating all with...equity,
9
10 because not one child is favored over another child and not one situation is more
11
12 important than another situation. All are appreciated equally because all cultures are
13
14 important.” (Interview, 11/18/19)
15

16
17 With this conviction, Mrs. Jenkins also experiences ongoing tensions regarding her abilities to
18
19 accurately and respectfully teach about other cultures in her classroom. Mrs. Jenkins explained:

20
21 “the [cultural] competence training was excellent, but that was just a dipstick. I still feel
22
23 underprepared. I still feel like I need more... I would love to learn more about it, so I
24
25 could drive it home better... I would like a little bit more, personally.” (Data Analysis
26
27 Meeting, 1/15/20).
28
29

30
31 In addition to feeling underprepared to teach others’ perspectives, Mrs. Jenkins stated: “I don’t
32
33 want to be disrespectful...and I don’t know all of the boundaries,” such as appropriate seasons to
34
35 tell certain stories (Data Analysis Meeting, 1/15/20). Therefore, because there remains such a
36
37 disconnect between the content knowledge she is required to teach and her desire to increase
38
39 students’ cultural competence, Mrs. Jenkins is reimagining her teaching by weaving together
40
41 cultural competence skills and scientific phenomena she must address.
42
43

44 *Disruption: Inviting a cultural story*

45
46
47 For Mrs. Jenkins, designing place-based experiences that are related to scientific
48
49 phenomena is important for her students because “it means something to them so it’s something
50
51 real and tangible...which is so powerful because they remember. The retention rate is so much
52
53 better when they experience it” (Interview, 11/18/19). Not only does Mrs. Jenkins want to design
54
55
56
57
58
59
60

1
2
3 a learning experience tied to a variety of scientific phenomena, but she also wants to anchor
4 science through feeling, or what she refers to as “creating the atmosphere” for her students (Data
5 Analysis Meeting, 1/15/2020). This goal drives her place-based, experiential pedagogy.
6
7

8
9
10 Furthermore, Mrs. Jenkins has always been intrigued by the rich and culturally-
11 significant stories of Indigenous peoples. Mrs. Jenkins especially finds that sharing stories is “an
12 incredible tool” that serves as “an avenue to get the point across” (Interview, 11/18/19). In an
13 attempt to address some of the before-mentioned tensions and anchor her science teachings
14 through emotion, Mrs. Jenkins reached out to a former student of Indigenous heritage, and asked
15 her to share a meaningful story connecting her Diné (Navajo) culture with where students would
16 be visiting as part of an upcoming field trip near the Navajo Nation. Mrs. Jenkins explains,
17
18

19
20
21 “I just wanted a first-hand experience. I wanted to share a first-hand story...from a child,
22 a peer, that they could connect to. And they know her because she was here with
23 them...You know when you’re here [at school] you’re family.” (Data Analysis Meeting,
24 1/15/20).
25

26
27
28 This sharing of cultural knowledge not only resulted in a disruption of what had been previously
29 taught during this particular field experience over the past few years, but it allowed for Mrs.
30 Jenkins to further engage her students and create an atmosphere of importance for others’
31 cultural knowledge and voice. In this instance, Mrs. Jenkins chose to grapple with the tension of
32 her own limitations as a cultural being and as a result, she states:
33
34

35
36
37 “It showed respect to [the previous student] and respect to the culture through [the
38 previous student]. And then not only did she write it, she also drew the picture behind it.
39 The picture was incredible... And I never knew she could draw like that until I saw the
40 picture. ... And, [the previous student] said, ‘This means a lot to me that you would ask
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 me.' And then [the previous student] e-mailed it back and then I shared it with the
4
5 children [current students]. And it captured their attention even more because it was a
6
7 peer... And so they perked right up. But the story was very accurate. It was good. It was
8
9 more detailed than any I found...on the web or through other sources.” (Data Analysis
10
11 Meeting, 1/15/20).
12
13

14
15 *Self-discovery: Respectfully sharing*

16
17 “I feel like I did a better job this year, because of our preparedness and I was more aware,
18
19 but I would like a little bit more, personally. Whether I read a book or whether I go talk
20
21 with [a Native person] ...” (Data Analysis Meeting, 1/15/20).
22
23

24 While Mrs. Jenkins continues to demonstrate her growing awareness of self as a cultural being,
25
26 she also recognizes her own limitations, especially with regard to her own limited knowledge of
27
28 IKS. For Mrs. Jenkins, the ongoing redesign of curriculum is significant because she is
29
30 concerned that many students are not given the opportunity to learn about other, especially
31
32 Indigenous, ways of knowing until they are older, if at all. Therefore, part of her motivation for
33
34 taking part in this project was to provide opportunities for her students to gain a greater
35
36 appreciation for others’ cultures and values. Mrs. Jenkins states:
37
38

39
40 “I wanted a real story. I wanted a real deal. I wanted a first-hand version...I loved the
41
42 books that we had, but I learn personally through other people better and so I thought,
43
44 ‘Who would know an authentic story better than an authentic child herself who has
45
46 learned it from her grandmother?’... I knew [the previous student] would be an excellent
47
48 source.” (Data Analysis Meeting, 1/15/20).
49
50

51 Not only does Mrs. Jenkins want students to know more, but she also wants to demonstrate
52
53 respect of IKS for her students as exemplified in the sharing of her previous student’s story with
54
55
56
57
58
59
60

1
2
3 her current students. Furthermore, Mrs. Jenkins has become more intentional about how she
4 weaves the teaching of different perspectives into her everyday curriculum stating, “it becomes
5 part of what we teach rather than an interruption.” (Data Analysis Meeting, 1/15/20).
6
7

8
9
10 *Innovations: Collectivistic cultural teaching*

11
12 Mrs. Jenkins’ decision to respond to engage the tensions between developing an
13 awareness of herself cultural being and the inherent limitations of this growing awareness
14 impacted her on an individual level, which resulted in innovations in her teaching practice and
15 overall shift in her pedagogical approach. With these tensions, disruptions, and self-discoveries
16 in mind, Mrs. Jenkins chose to expand her network of teaching by reaching out to community
17 experts and knowledge holders (e.g., her previous student). Mrs. Jenkins chose to move beyond
18 strict reliance on textbooks, which may or may not contain accurate information, and instead
19 discovered that she could reach out for consultations with cultural and community knowledge
20 holders.
21
22
23
24
25
26
27
28
29
30
31

32
33 Mrs. Jenkins further explains how the tensions and disruptions have encouraged her to
34 include more authentic stories for her curriculum next year and she built efficacy in consulting,
35 stating: “It was so fun for me! I have other sources too that I’ve reached out for next year.” (Data
36 Analysis Meeting, 1/15/20). In this way, Mrs. Jenkins is leveraging other people’s perspectives
37 and experiences as a means to further disrupt her previous notions of how culture could be taught
38 in her classroom. This act marks a broader shift we’ve noted across our team from
39 individualistic, independent notions of pedagogy to collectivistic, dependent notions of pedagogy
40 where dependence on others’ knowledge is encouraged.
41
42
43
44
45
46
47
48
49
50

51 *Case 2: Developing perspective-taking skills*
52
53
54
55
56
57
58
59
60

Building from the foundational support of shared language and understanding developed through the cultural competence training, our team worked together to redesign an existing curricular unit around argument writing for English Language Arts and Social Studies classes. In this particular iteration, we focused on developing students' perspective-taking skills, a key standard Mr. Baggaley must address and a core skill of cultural competence. Since one of our broader shared goals is to connect cultures, particularly Indigenous and Western culture, we selected the Bear's Ears land controversy, which includes Indigenous and non-Indigenous stakeholders. Most of the students had also visited the Bear's Ears area in southern Utah as part of the class field experience. We present Mr. Baggaley's experience as a case of how our culturally-situated goals caused tensions in his teaching practice, which ultimately led to disruption, self-discovery, and innovation throughout this redesign iteration (see Figure 3).

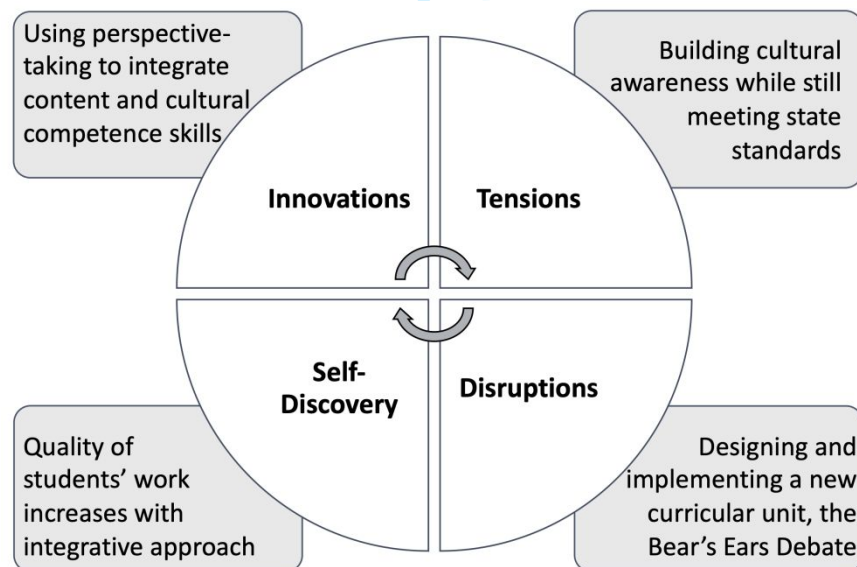


Figure 3. Mr. Baggaley's culturally disruptive approach to developing perspective-taking skills.

Tension: Culture and standards

1
2
3 We situated culture at the center of our redesign of the argument writing curriculum unit. While
4 this aligned with our goal to connect cultures, it was at odds with the typical flow of the course
5 that centered content and disciplinary standards. Mr. Baggaley's participation as a member of
6 our project team is driven by a deep desire to engage his students in different perspectives and
7 different cultures. He explains that sharing of each other's culture is like the experience of
8 "visiting someone's house... knocking on someone's front door and being invited inside"
9 (Interview, 11/13/19). Mr. Baggaley shares more about how he thinks about culture in his
10 teaching:
11
12
13
14
15
16
17
18
19
20

21 "Teaching is a very personal thing and you have to use what you know in order to project
22 things to the kids. Culture does play a huge role in how I teach. It's super beneficial to me
23 to widen my horizon and look to other cultures to see how other people teach and be able
24 to introduce and incorporate those things in how I teach. Because I'm going to teach how
25 I was taught... and so I think it's important for teachers to understand yes you're going to
26 be culturally influenced in how you teach your students, but also you're a teacher and
27 there are many other cultures who teach better than you... and that's where I... from this
28 experience working with you guys it has kind of opened up my eyes to how are other
29 people and how are other cultures teaching and how can I bring those in to make my
30 experiences that much more inclusive."
31
32
33
34
35
36
37
38
39
40
41
42
43

44 Ultimately, though, like every teacher, Mr. Baggaley is accountable to ensure his students gain
45 skills according to particular curriculum standards. The pressure that comes with this
46 accountability combined with his recognition of the limitations of his own knowledge system, in
47 part from participating in the cultural competence training, makes it difficult for Mr. Baggaley to
48 navigate this tension alone. He explains:
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 “As an elementary school teacher, we don’t have specific content knowledge that we
4 went to college for. It is up to us to learn the basics on our own before we teach any given
5 topic. I loved that I could rely on the team to get that content knowledge that I was
6 lacking. I knew the skills that I wanted to teach and the team helped me to collect and
7 organize the content that the students would use” (Written Contribution, 1/30/20).

8
9
10 Here Mr. Baggaley is referring specifically to culture as the content of the curriculum.

11
12
13
14
15
16
17 *Disruption: Bear’s Ears debate*

18
19 “Honestly the Bears Ears thing we did was awesome. Like I loved it. But yeah it was a
20 huge disruption... I’m like two weeks behind now on where I was last year with
21 everything.” (Mr. Baggaley’s Reflection, Data Analysis Meeting, 1/15/2020)

22
23
24
25
26 In response to the tension between supporting cultural content and developing argument writing
27 skills, we collaboratively designed and implemented a new curricular unit, which included a
28 team-based structured debate about different perspectives of the Bear’s Ears controversy as well
29 as individual letters to the Governor. As Mr. Baggaley mentions, this was a new approach
30 focusing on cultural content in his argument writing unit, which disrupted the timeline he
31 typically kept to ensure he meets all of the necessary standards. The new unit further disrupted
32 Mr. Baggaley’s teaching practice, in that he had never conducted a debate before. Though it had
33 been something he desired, it was technically part of the seventh-grade standards, so it wasn’t
34 something he had attempted yet with his sixth graders.

35
36
37
38
39
40
41
42
43
44
45
46
47 *Self-Discoveries: Time is worth it*

48
49 “But you know it was definitely worth it, because not only did we stretch their minds and
50 look at those different perspectives, but we actually focused on a writing skill, argument
51 writing, that I could have done with any content. So, in reality, I think I’m probably
52
53
54
55
56
57
58
59
60

1
2
3 further ahead skills-wise by doing that than had I just stayed and done my curriculum
4
5 from last year.” (Mr. Baggaley’s Reflection, Data Analysis Meeting, 1/15/2020).
6

7
8 Mr. Baggaley had a personal self-discovery where he realizes that as a team, we can design a
9
10 unit that achieves both the cultural content and the necessary skills he is required to teach. This
11
12 self-discovery appeared to resolve a more practical tension between time and quality of work. By
13
14 this, we mean that Mr. Baggaley recognized that by being a bit more flexible with timing in the
15
16 face of disruption, the quality of his students’ work notably increases. He further explains:
17

18
19 “If something is planned based on the standards as far as like skill-wise of what I want to
20
21 teach them that way, I don’t care what the content is. So I think being flexible in that
22
23 aspect was really good, because now the kids are really great at looking at a bunch of
24
25 research. We just did another follow up project about the Black Plague, and their writing
26
27 was excellent and we modeled it off of the Bear’s Ears project we did with you. We just
28
29 finished it up and their writing was excellent. You know they had wonderful paragraphs
30
31 and different points of views. It was much better than what I’ve done last year...” (Data
32
33 Analysis Meeting, 1/15/2020)”
34
35
36

37
38 *Innovation: Embracing new teaching practices*
39

40 A key pedagogical innovation was how to teach argument writing through debate in a
41
42 way that simultaneously respected different perspectives and centered culture. Mr. Baggaley
43
44 remixed a Fishbowl-style debate from a similar version offered by the Cult of Pedagogy
45
46 (Gonzalez, 2015), a blogger and podcaster whom he follows. This further demonstrates how Mr.
47
48 Baggaley integrates others’ ways of teaching to his own culture of teaching. The name of the
49
50 activity “Fishbowl” is a metaphor for the debate structure. All the students sit in a big circle with
51
52 a small group of students sitting in the middle and reporting from different perspectives. Each
53
54
55
56
57
58
59
60

1
2
3 student has the opportunity to speak as well as work in groups. This structure allows students to
4
5 hear and respond to all possible perspectives throughout the debate.
6

7
8 In reflecting on and analyzing his own teaching practice, Mr. Baggaley re-highlights his
9
10 self-discovery that, while in tension, skill and content can actually work well together and with a
11
12 little extra time, he can achieve his complementary goals of teaching culture, perspective-taking,
13
14 and argument writing. Although this redesigned curricular unit includes elements that are not
15
16 required in the standards and it is more time consuming than the previous practice, the
17
18 innovation, for Mr. Baggaley, contributes to the improvement of the students' learning not just
19
20 academic skills but also life skills.
21
22

23 24 **Discussion**

25
26 Our RPP continues to recognize that rooting our research in a culturally disruptive
27
28 approach inherently desettles conventional notions of engagement with research and teaching,
29
30 which can result in pedagogical innovations. Here we discuss how our team has critically
31
32 (re)engaged with research processes and teaching practices by *disrupting power and privilege*
33
34 and *shifting to interdependence*.
35
36

37 38 ***Disrupting power and privilege***

39
40 In our work, we intentionally disrupt the “usual” process and practices involved in
41
42 education research by recognizing and challenging the power and privilege status quo. This
43
44 approach is guided by the goals of culturally disruptive pedagogy to make Whiteness visible and
45
46 disrupt hegemonic cultural norms (San Pedro, 2018). Our team composition reflects the
47
48 demographics, values, and knowledges that our work aims to empower. In an effort to build
49
50 connections across our diverse project team, we collectively decided to develop a shared
51
52 language across our project team through engaging in a cultural competence training. Through
53
54
55
56
57
58
59
60

1
2
3 this vulnerable personal development of becoming more aware of ourselves and others as
4
5 cultural beings, we have more critically engaged our research and teaching crafts. In this paper,
6
7 we highlight how this (re)engagement disrupted the systems in which we work and resulted in
8
9 pedagogical innovations.
10

11
12 Of particular note, Mrs. Jenkins and Mr. Baggaley took steps toward decolonizing the
13
14 historical and systemically colonized curricula that national test standards often privilege
15
16 (Brayboy, 2005; Pinar et al., 1995; Weenie, 2008). To this end, both teachers began to “desettle”
17
18 (Bang et al., 2012) their expectations of students learning in their classroom and reimagine their
19
20 pedagogical approaches altogether. Through our work, “cultural knowledge bearer” has become
21
22 a position of privilege for Indigenous members of our team, which restores a sense of value to
23
24 IKS as a legitimate worldview. At the same time, White members must acknowledge their own
25
26 privileges and step back to make space for Indigenous members as experts. As a collective, our
27
28 team made significant shifts both as researchers and teachers in response to this effort to make
29
30 Whiteness visible and disrupt cultural norms, especially in regard to the kinds of knowledge that
31
32 are valuable. Mrs. Jenkins and Mr. Baggaley applied this frame to their own teaching by
33
34 disrupting the notion that teachers have to know everything and by inviting cultural knowledge
35
36 bearers to share new perspectives outside of typical textbooks or curricula, which privilege
37
38 colonial perspectives (Brayboy, 2005; Pinar et al., 1995; Weenie, 2008).
39
40
41
42
43

44 ***Recognizing the innovation in interdependence***

45
46 Our culturally disruptive approach led to a shared growth and understanding that we are a
47
48 collective. We did this through building the generative “sacred truth spaces” of this approach
49
50 (San Pedro, 2018). As we intentionally step in and out of our own implicit privilege or lack
51
52 thereof by vulnerably sharing knowledge with each other, we become more aware of our need
53
54
55
56
57
58
59
60

1
2
3 for a communal effort toward our conventionally individualized work. This shift from
4
5 independence to interdependence affords more sustainable innovations in new ways as
6
7 demonstrated by the pedagogical innovations in the cases we present in this paper.
8
9

10 Just as San Pedro (2018) explained that sacred truth spaces are where “new knowledge
11
12 and new identities take hold”, we observed this phenomenon in our own truth spaces. This
13
14 illustrates the exponential growth when the hierarchy of different power systems are broken
15
16 down, everyone is valued, and all contributions are welcomed. For example, the teacher-partners
17
18 on our team reflected on this interdependence and compared it to prior relationships with the
19
20 university.
21
22

23
24 Mr. Baggaley: “If you have anybody extra in the room, it adds a level of anxiety, so that’s
25
26 a disruption... so it is an extra stress, *however*, it’s a good stress when you’re done,
27
28 because it’s like look at all they’ve [the students] gained....”
29

30
31 Mrs. Jenkins: “... I like what you’re saying, because that’s kind of how our interactions
32
33 between the university and us you know? You guys have been really great at coming in
34
35 and saying what do you guys think, how can we add this into what you’re already doing,
36
37 and we were actually part of that decision-making team.”
38

39
40 Mr. Baggaley: “Mhmm, I agree”
41

42
43 Mrs. Jenkins: “Whereas in other situations, it’s like ‘this is what we’re doing’...and it’s
44
45 like well, okay?...”
46

47
48 Mr. Baggaley: “You do know that’s not part of our curriculum... but okay.”
49

50
51 Mrs. Jenkins: “Yeah [laughter], it’s a lot different. But with you guys we got to be part of
52
53 that creation process and the teachers really respect that... we will put in the time... if we
54
55 are part of that process.” (Data Analysis Meeting, 1/15/20)
56
57
58
59
60

1
2
3 In this conversation, we agreed that this equity in contribution of knowledge and practice
4
5 itself is a disruption to the typical positionality in research relationships. Even more, this
6
7 approach inherently disrupts conventional roles and hierarchies such as blurring boundaries
8
9 between who is a researcher and a participant or an academic and a practitioner. We believe this
10
11 type of research relationship results in more sustainable innovation as demonstrated through our
12
13 integration of knowledge and expertise at the practice-level in the cases of Mrs. Jenkins and Mr.
14
15 Baggaley's curricular and pedagogical shifts. For example, Mrs. Jenkins' reliance on a former
16
17 students' cultural knowledge could be interpreted as signaling limitations to their abilities as
18
19 teachers whereas in the context of our project it is simply an act of recognizing the strength in the
20
21 collective and Mr. Baggaley's reliance on other members of our team to complement his
22
23 teaching. The same is true for team members identifying as researchers, who do not have
24
25 experience teaching in a K-12 context and rely heavily on team members identifying as
26
27 practitioners' expertise such as with classroom management or aligning with standards, which is
28
29 an equally rich story we will share elsewhere. This sharing of culturally-situated knowledge and
30
31 expertise creates a generative interdependency in our partnership.
32
33
34
35
36

37 ***Conclusion***

38
39 Our main focus in this paper is to elucidate and nuance the pedagogical innovations that result
40
41 from employing a culturally disruptive research approach. Through our critical engagement with
42
43 the tensions and disruptions of culturally-situating not only our work but also ourselves as
44
45 researchers and practitioners, we continue to recognize the opportunity for innovation through
46
47 the interdependencies inherent to our culturally disruptive research approach. Thus, there are
48
49 several critical pieces of our work that we cannot share here and, therefore, limit the
50
51 understandings we contribute. Of significant note, we share only two cases from our project team
52
53
54
55
56
57
58
59
60

1
2
3 and both are from practitioners. This move is meant to provide space to these practice-partners to
4
5 share their experiences. In future work, we will share parallel cases from the research members
6
7 of our team and more details on our strategies for desettling the conventional notions of
8
9 conducting research. Moreover, this paper captures a snapshot of what is meant to be an ongoing,
10
11 iterative, and evolving approach to research and practice. This means that the insights we share
12
13 highlight our present state of being as a team and we will continue to enter new states of being as
14
15 we grow and learn together moving forward.
16
17
18

19 The growth and progress we share in this paper advances our current knowledge base of
20
21 how to work out culturally-situated research in practice. While scholars agree that partnership
22
23 work is fundamentally relational and argue for the deep need to disrupt hierarchies inherent in
24
25 these relationships (e.g, Bang, Faber, Gunneau, Marin, & Soto, 2016; Bang, & Vossoughi, 2016;
26
27 Penuel, Allen, Coburn, & Farrell, 2015), our work contributes a unique culturally disruptive
28
29 foundation for how to cultivate partnership relationships. We build this previous work by
30
31 proposing a culturally-situated approach for how to invite participation from all team members in
32
33 the face of historical and political systemic inequities. Culturally disruptive research resists
34
35 historical and political inequities of research and instead embraces an uncomfortable, yet
36
37 generative interdependency that not only yields pedagogical innovations but also demands an
38
39 enduring disruption of power and privilege.
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

References

- Aikenhead, G.S., and Ogawa, M. (2007). Indigenous knowledge and science revisited. *Cultural Studies of Science Education*, 2(3), pp. 539–620. doi:10.1007/s11422-007-9067-8.
- Bang, M., Faber, L., Gurneau, J., Marin, A., and Soto, C. (2016). Community-based design research: Learning across generations and strategic transformations of institutional relations toward axiological innovations. *Mind, Culture, and Activity*, 23(1), pp. 28-41.
- Bang, M., and Medin, D. (2010). Cultural processes in science education: Supporting the navigation of multiple epistemologies. *Science Education*, 94(6), pp. 1008-1026. doi:10.1002/sce.20392.
- Bang, M. and Vossoughi, S. (2016). Participatory Design Research and Educational Justice: Studying Learning and Relations Within Social Change Making, *Cognition and Instruction*, 34(3), pp. 173-193. doi: 10.1080/07370008.2016.1181879
- Bang, M., Warren, B., Rosebery, A.S., and Medin, D. (2012). Desettling expectations in science education. *Human Development*, 55(5-6), pp. 302-318.
- Barnhardt, R., and Kawagley, A.O. (2005). Indigenous knowledge systems and Alaska Native ways of knowing. *Anthropology & Education Quarterly*, 36(1), pp. 8–23. doi:10.1525/aeq.2005.36.1.008.
- Battiste, M. (2002). *Indigenous knowledge and pedagogy in First Nations education: A literature review with recommendations*. Ottawa, ON: Indian and Northern Affairs Canada.
- Betancourt, H., & López, S. R. (1993). The study of culture, ethnicity, and race in American psychology. *American Psychologist*, 48(6), 629–637. <https://doi.org/10.1037/0003-066X.48.6.629>

- 1
2
3 Bevan, B. (2017). Research and Practice: One way, two way, no way, or new way?. *Curator:*
4
5 *The Museum Journal*, 60(2), pp. 133-141.
6
7
8 Bevan, B., and Penuel, W.R. (2017). *Connecting research and practice for educational*
9
10 *improvement: Ethical and equitable approaches*. Routledge.
11
12 Brayboy, B.M.J. (2005). Toward a Tribal Critical Race Theory in education. *The Urban Review*,
13
14 37(5), pp. 425–446. doi:10.1007/s11256-005-0018-y.
15
16
17 Brayboy, B.M.J. and Maughan, E. (2009). Indigenous knowledges and the story of the bean.
18
19 *Harvard Educational Review*, 79(1), pp. 1-21.
20
21 doi:10.17763/haer.79.1.10u6435086352229
22
23
24 Coburn, C.E., and Penuel, W.R. (2016). Research–practice partnerships in education: Outcomes,
25
26 dynamics, and open questions. *Educational Researcher*, 45(1), pp. 48-54.
27
28
29 Fishman, B.J., Penuel, W.R., Allen, A.R., Cheng, B.H., and Sabelli, N.O.R.A. (2013). Design-
30
31 based implementation research: An emerging model for transforming the relationship of
32
33 research and practice. *National society for the study of education*, 112(2), pp. 136-156.
34
35
36 Gay, G. (2010). *Culturally responsive teaching: Theory, research, and practice* (2nd ed.). New
37
38 York, NY: Teachers College Press.
39
40 Gonzalez, J. (2015). The Big List of Class Discussion Strategies [Blog Post]. *Cult of Pedagogy*.
41
42
43 Gutiérrez, K.D., and Jurow, A.S. (2016). Social design experiments: Toward equity by design.
44
45 *Journal of the Learning Sciences*, 25(4), pp. 565-598.
46
47
48 Kovach, M. (2009). *Indigenous methodologies: Characteristics, conversations and contexts*.
49
50 Toronto: University of Toronto Press.
51
52 Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American*
53
54 *educational research journal*, 32(3), pp. 465-491. doi:10.3102/00028312032003465.
55
56
57
58
59
60

- 1
2
3 Litts, B.K., Tehee, M., Jenkins, J., & Baggaley, S., (2020). Developing Sixth Graders' Cultural
4
5 Competence Across the Curriculum: A Collaborative Redesign Process. In M. Gresalfi,
6
7 M. & I. S. Horn (Eds.). *The Interdisciplinarity of the Learning Sciences, 14th International*
8
9 *Conference of the Learning Sciences (ICLS) 2020, Volume 3*, Nashville, TN:
10
11 International Society of the Learning Sciences, pp.1625-1628.
12
13
14
15 McCarty, T., and Lee, T. (2014). Critical culturally sustaining/revitalizing pedagogy and
16
17 Indigenous education sovereignty. *Harvard Educational Review, 84*(1), pp. 101–124.
18
19 doi:10.17763/haer.84.1.q83746nl5pj34216.
20
21
22 Mercurieff, L., and Roderick, L. (2013). *Stop talking: Indigenous ways of teaching and learning*
23
24 *and difficult dialogues in higher education*. Anchorage, AK: University of Alaska
25
26 Anchorage.
27
28
29 O'Neill, D.K. (2016). Understanding Design Research–Practice Partnerships in Context and
30
31 Time: Why Learning Sciences Scholars Should Learn From Cultural-Historical Activity
32
33 Theory Approaches to Design-Based Research, *Journal of the Learning Sciences, 25*(4),
34
35 pp. 497-502. doi: [10.1080/10508406.2016.1226835](https://doi.org/10.1080/10508406.2016.1226835)
36
37
38 Ogawa, M. (1995). Science education in a multiscience perspective. *Science Education, 79*(5),
39
40 pp. 583-593. doi:10.1002/sce.3730790507.
41
42
43 Paris, D. (2012). Culturally sustaining pedagogy: A needed change in stance, terminology, and
44
45 practice. *Educational Researcher, 41*(3), pp. 93–97. doi:10.3102/0013189X12441244.
46
47
48 Penuel, W. R., Allen, A. R., Coburn, C. E., & Farrell, C. (2015). Conceptualizing research–
49
50 practice partnerships as joint work at boundaries. *Journal of Education for Students*
51
52 *Placed at Risk (JESPAR), 20*(1-2), 182-197.
53
54
55
56
57
58
59
60

- 1
2
3 Penuel, W.R., Coburn, C.E., and Gallagher, D.J. (2013). Negotiating problems of practice in
4
5 research–practice design partnerships. *National Society for the Study of Education*
6
7 *Yearbook*, 112(2), pp. 237-255.
- 8
9
10 Pinar, W. F., Reynolds, W. M., Slattery, P., & Taubman, P. M. (1995). *Understanding*
11
12 *curriculum: An introduction to the study of historical and contemporary curriculum*
13
14 *discourses* (Vol. 17). New York: Peter Lang
- 15
16
17 Rohner, R. P. (1984). Toward a conception of culture for cross-cultural psychology. *Journal of*
18
19 *Cross-Cultural Psychology*, 15(2), 111-138. doi: 10.1177/0022002184015002002
- 20
21
22 Ryoo, J. and Shea, M. (2015). Activity: Mapping shared goals and outcomes in a partnership.
23
24 <http://researchandpractice.org/resource/value-mapping>
- 25
26
27 San Pedro, T. (2018). Abby as Ally: An argument for culturally disruptive pedagogy. *American*
28
29 *Educational Research Journal*, 55(6), pp. 1193–1232.
30
31 <https://doi.org/10.3102/0002831218773488>
- 32
33
34 Santo, R., Ching, D., Pepler, K., and Hoadley, C. (2017). *Participatory knowledge building*
35
36 *within research-practice partnerships in education*. SAGE Publications Ltd.
- 37
38
39 Severance, S., Penuel, W.R., Sumner, T., and Leary, H. (2016). Organizing for teacher agency in
40
41 curricular co-design. *Journal of the Learning Sciences*, 25, pp. 531–564.
42
43 doi:10.1080/10508406.2016.1207541
- 44
45
46 Smith, L. T. (2013). *Decolonizing methodologies: Research and indigenous peoples*.
47
48 London and New York: Zed Books Ltd
- 49
50
51 Stake, R.E. (2008). Qualitative case studies. In N.K. Denzin and Y.S. Lincoln (Eds.), *Strategies*
52
53 *of qualitative inquiry* (3rd ed.). Thousand Oaks, CA: Sage, pp. 119–150.
54
55
56
57
58
59
60

- 1
2
3 Sue, D.W. (2001). Multidimensional facets of cultural competence. *The Counseling*
4
5 *Psychologist*, 29(6), pp. 790–821. <https://doi.org/10.1177/0011000001296002>
6
7
8 Sue, D.W., Bernier, J.E., Durrant, A., Feinberg, L., Pedersen, P., Smith, E.J., and Vasquez-
9
10 Nuttall, E. (1982). Position paper: Cross-cultural counseling competencies. *The*
11
12 *Counseling Psychologist*, 10(2), pp. 45-52.
13
14
15 Tehee, M., Isaacs, D. S, Ficklin, E., & Hicks, E. T. (2020). TEACH for Native Students: Cultural
16
17 competence training for faculty, staff, and students working with Native American
18
19 students in higher education. *Open Science Framework*. Retrieved from osf.io/zk7vt
20
21
22 Ukpokodu, O. (2011). Developing teachers' cultural competence: One teacher educator's practice
23
24 of unpacking student culturelessness, *Action in Teacher Education*, 33(5-6), pp. 432-454,
25
26 doi: 10.1080/01626620.2011.627033
27
28
29 Watson-Verran, H., and Turnbull, D. (1995). Science and other indigenous knowledge systems.
30
31 *Handbook of Science and Technology Studies*, pp. 115-139.
32
33 doi:10.4135/9781412990127.n6.
34
35
36 Weenie, A. (2008). Curricular theorizing from the periphery. *Curriculum Inquiry*, 38(5), 545-
37
38 557.
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60