Promoting Data Literacy to Increase Culturally Responsive Pedagogy

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Stewards Observing and Advocating Relational Responsiveness (SOARR) is a community-university initiative created to promote data literacy at a high school with a large Indigenous, mostly Navajo student body, intending to create a framework for K-12 educators to engage. Through effective analysis, stakeholders aim to increase rigorous relationships and active learning for Indigenous students specifically and for all students generally. This initiative seeks to address the mismatch between massive data collection and the absence of using data to frame decision-making toward plans to improve or maintain relationships and learning in a southwestern high school. SOARR aims to promote data literacy among teachers, counselors, and administrators in order for them to acquire the capacity and expertise to engage in data analysis that is context conscious and responsive to evidence. Through effective data analysis, stakeholders become empowered to co-constructively critique and compliment practices informed by the data, and to identify evidence-based action plan items to more responsibly engage in classrooms, schools and communities.

Data become the center of any school improvement plan. Educators are increasingly encouraged to effectively use data to inform best practices in their instructional decision-making and ongoing reform. However, schools often collect massive amounts of data that remain overlooked and unutilized in analyzing how they may improve or maintain their teaching and learning practices. Stewards Observing and Advocating Relational Responsiveness (SOARR) is a community-university initiative designed to promote data literacy at a high school, intending to create a framework for K-12 educators to engage. Through effective data analysis, stakeholders aim to increase active learning for Indigenous students specifically and all students generally.

This initiative seeks to target the mismatch between data collection and the absence of using that data to impact decision-making around plans to improve or maintain rigorous relationships and active learning. Rigorous relationships have intention and purpose connected to a Culturally Responsive Pedagogy of Relations (CRPR), with the goal of building relationships among and between site participants, Indigenous and non-Indigenous administrators, teachers, counselors, parent/guardians and students (Bishop & Berryman, 2007; Bishop, O'Sullivan, & Berryman, 2010). One example of this involved the principal putting together a Strategic Community Leadership Team (SCLT) consisting of both school and community members in a Southwest US public high school. The SCLT included: (a) Indigenous district personnel, (b) Indigenous dormitory

director, (c) Indigenous and non-Indigenous counselors, (d) Indigenous Parents or Parents of Color, and (e) Non-Indigenous high school teachers, university faculty administrators, and university faculty. Intentionally chosen to represent inclusivity, the SCLT worked to center Indigenous and non-Indigenous voices, to learn from and with each other's ways of knowing and ways of being. A second example was when the principal sat down with a teacher to discuss the grades in his class, noting how many of the students of color (SOC) were earning Ds and Fs. The principal brainstormed ideas with the teacher on how to focus on relationship building to create a more better way for students to feel a sense of belonging in the classroom. A third example was when the teachers shadowed each other in their classrooms to learn from and with each other on ways and words to implement CRPR in theory and practice. A fourth example involved teachers rethinking pedagogy (how and why to teach) as well as content (what to teach) in order to honor CRPR.

The SOARR described in this chapter aims to promote data literacy among teachers, counselors, and administrators in order for them to acquire the capacity and expertise to engage in more effective data analysis that represents a context-conscious and evidence-based approach. Through effective data analysis, stakeholders are able to critique school practices informed by the data, and identify evidence-based action plan items to implement in classrooms, schools and communities.

Purpose

The purpose of this study was to promote data literacy among high school teachers, counselors, and administrators as an opportunity for growth in improving relationships and active learning. The initiative aimed to improve wider school system capability in making more effective use of data and using it to guide evidence-driven decision making. Using this approach, teachers, administrators, and staff designed policies to influence social factors and physical conditions of the school environment. Stakeholders were encouraged to individually and collaboratively identify solutions to the challenges facing the school in the form of action plan items.

Theoretical Framework: Culturally Responsive Pedagogy of Relations (CPRR)

This study intends to co-construct a culturally responsive critical inquiry framed around Culturally Responsive Pedagogy of Relations (CRPR) (Bishop & Berryman, 2007; Bishop, O'Sullivan & Berryman, 2010). This study bridges the successful work of Māori scholars in Aotearoa/New Zealand (Kia Eke Panuku, 2013) with local considerations to consider how to improve Indigenous student achievement, specifically, and all student achievement generally. The focus on improving Indigenous student outcomes is important because Indigenous communities and community members provide knowledge and expertise for (re) thinking how to engage community, culture, and success.

The following CRPR interdependent principles have been integrated into a model at the high school level. These CRPR principles inform and guide the over-all initiative (Bishop & Berryman, 2007; Bishop, O'Sullivan & Berryman, 2010):

- Power is shared: Where power is shared, learners have the right to self-determination.
- Culture counts: Where culture counts, learners bring who they are to their learning.
- Learning is interactive and dialogic: Where learning is interactive and dialogic, meaningful engagement and learning occurs.
- Connectedness and relationships and fundamental: Where connectedness and relationships are fundamental, students see how they are involved.

All of these principles work together to create a common vision for Indigenous student excellence, specifically, and all student excellence generally. Where there is a common vision, an agenda for excellence exists. The practice of CRPR is informed by critical theories (Apple, 2011), socio-cultural theory (Vygotsky, 1978) and Indigenous theories of teaching and learning (Bishop, O'Sullivan & Berryman, 2010) in a way that brings them into conversation with each other. Critical theory provides the impetus to gain an improved understanding of the present social conditions at a particular high school. Socio-cultural and Indigenous theories inform stakeholders' understanding of how the current social conditions interact with each other and how they might be transformed.

Data Collection

As a first phase, the SCLT members responded to and discussed questionnaires, sometimes in exclusive groups and sometimes in mixed groups of SCLT Indigenous and SCLT non-Indigenous members in order to value Indigenous ways of knowing. These questionnaires aimed to begin to create a school profile of culturally responsive practices in the following four areas: (1) leadership, (2) pedagogy, (3) data and (4) literacy. From these deliberations, it became apparent that there were significantly different understandings about how the school viewed and responded in culturally responsive ways to Indigenous students' educational needs. These meaning-making conversations led to a new set of questions that allowed the SCLT to begin thinking of success as Indigenous versus by Indigenous.

These deliberations led the SCLT to co-construct a framework that centered Indigenous ways of knowing, being and valuing, a Stewards Observing and Advocating Relational Responsiveness (SOARR) model (Figure 1). The SOARR model aimed to identify schooling systems, practices, and policies to enable Indigenous student success specifically, and to contribute generally to inclusive education that would benefit all students, parent/guardians, educators and community members involved in the school. Within the SCLT, a Diné (Navajo) Indian Director led the model creation and drew on the wisdom of her Diné elders; other Indigenous and non-Indigenous SCLT members provided

knowledge to complete an Indigenous-Western knowledge model. The purpose of this model is to maximize connections to the larger community of students, teachers, counselors, parent-guardians, administration and community members involved in the school. The SCLT wanted to initiate opportunities to move from thinking about Indigenous communities through deficit lenses to envisioning what Indigenous knowledges provided. Employing this inclusive strategy, the possibility of involving more teachers and staff in the conversations originated. The SCLT developed model lessons to help talk through the implications of this approach for individuals, classrooms, and school-wide conversations.
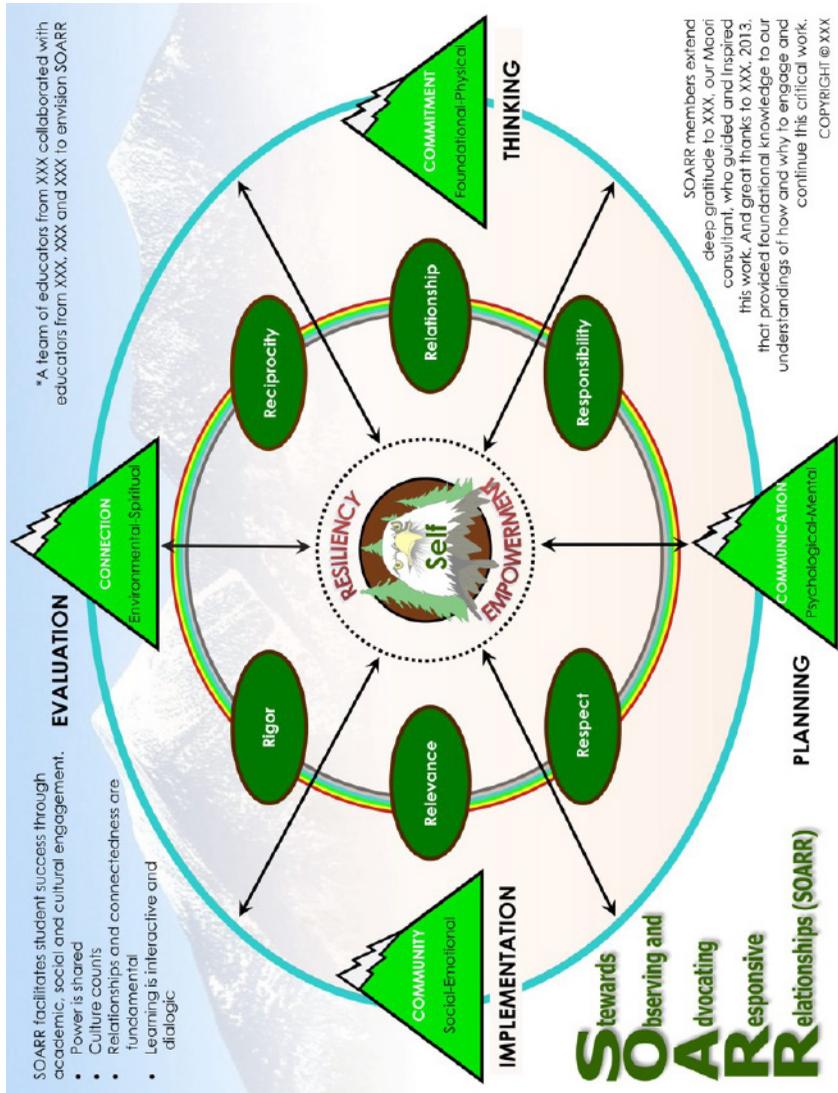

Figure 1: Stewards Observing and Advocating Relational Responsiveness

A cross-sectional survey research design was used to triangulate all three sets of qualitative and quantitative data. Collected quantitative & qualitative data for evidence-based inquiry included (1) perception survey disseminated school-wide, (2) in-class observations and (3) school-wide management data (grades, attendance, discipline). The SCLT simultaneously collected these three sets of data within a month's time to gain a "snapshot" to measure evidence of active learning and rigorous relationships in the local high school. The team then co-analyzed the data, looking across all three sets of data to gain a robust understanding of what was happening and to avoid isolating any one given data set.

Data Analysis

Perception Surveys: The first set of data collected were perception surveys, which measured perceptions of active learning and rigorous relationships on a 16-question Likert scale and one qualitative, open-ended response question that allowed participants to add additional commentary on their relationship to the high school (see Attachment A: Sample Perception Survey Questions). The 16 Likert-scale questions measured participants' perceptions of active learning and rigorous relationships from the point of view of their demographic category–student, teacher/paraprofessional, administrator/counselor/classified staff, or parent/guardian of student. For each of the 16 questions, participants could choose from the following responses on a 7-point Likert scale: Always, Mostly, Sometimes, Hardly Ever, Never, Not Sure, No Answer.

These surveys were disseminated school-wide through SurveyMonkey online survey development software. Total responses (N = 1,033) represented the following four categories: students, teachers/paraprofessionals, administrators/counselors/classified staff, and parents/guardians. A significant response rate indicated students (963/1597=60%) and teachers/paraprofessionals (39/106=37%). Data indicated an insignificant response rate for administrators/counselors/classified staff (3/33=.09%) and parent-guardians (28/1760=.02%); therefore, these data were not included in the analysis.

The SCLT evidence-based inquiry team included Indigenous and non-Indigenous high school administrators, teacher, counselors, parent/guardians, and university professors. They co-constructed a Stewards Observing and Advocating Relational Responsiveness (SOARR) model (see Figure 1) to identify schooling systems, practices and policies to enable Indigenous student success, specifically, and to contribute generally to inclusive education that would benefit all students, parent/guardians, educators and community members involved in the school.

In-Class Observations: The second set of data collection was administered through in-class observations at a local public high school in the Southwest United States. A team of three-to-four teachers, classified staff, and a Native American Academic Advisor observed 20 classroom practices across all grade levels and department disciplines. The focus identified "practice" not "people." Data collected included: (1) teacher practice, teacher-student practice, student-student practice, and student-teacher practice and (2) student responses to content

comprehension and work completion of observed practices. These observations used a CRPR framework to incorporate culturally relevant content via shadow coaching, classroom observers recorded practices of relationality, engagement, and environment vis a vis student to student, student to teacher, and teacher to student. For each practice, the observation team looked at notes and determined, on a scale of 1 (Emerging), 2 (Progressing), 3 (Applying), 4 (Integrating) or 5 (Innovating), where each practice fell. This scale was one the school administrators used for observations, so the staff doing the observations were familiar with the scale.

School-wide Management Data: The third set of data collected was school-wide management data of 9th grade students. In February 2018, the SCLT collected and analyzed three specific school-wide management data sets: student attendance, grades, and discipline behavior. One focus was on four 9th grade content areas (Health, Biology, Algebra I, and English) for grades and attendance in correlation with gender identity and ethnicity. The second focus was on overall 9th grade discipline behaviors in correlation with gender identity. The team was unable to break down discipline behaviors according to content areas.

From January to March 2018, the SCLT collectively engaged in qualitative and quantitative data analysis of perception surveys, in-class observations and school-wide management data. The team triangulated all three data sets to inform evidence-based inquiries of rigorous relationships and active learning in the local public Southwest US high school. Using Microsoft Excel and SurveyMonkey software, members performed a statistical analysis of the 16 Likert scale questions collected from each target groups' surveys. After collating students' and teacher/paraprofessionals' survey responses, the team compared both groups' perceptions of rigorous relationships and active learning in the high school. As no data is in isolation, it was important to compare and contrast collected information when analyzing practices to maintain or improve.

Professional Learning: Full Staff Meeting

In March 2018, the SCLT and full high school staff convened for a two and a half hour professional learning meeting to discuss and analyze data collected from all three data sets (perception data, in-class observations, and school-wide management data). The SCLT shared these data results (Attachment B: Data Analysis Explanation Memo) with staff from the following departments: English; Math; Modern Languages; Social Studies; Science; Physical Education; and Counseling. Staff members and SCLT members were invited to work within their department to identify evidence about active learning and rigorous relationships informed by the data. In consideration of the SOARR model (See Figure 1) and CRPR principles, participants were asked to identify conclusions informed by evidence from the data, and then identify evidence-based action plan items that they could realistically complete buy April-May 2018. Because of the large amount of data, the SCLT highlighted their conclusions based on particular points of data from each data set, though all data was available to the high school staff.

At the meeting, stakeholders were provided (1) the data, (2) a memo explaining the context of the work and the intention of the group to use the information the group would provide (See Attachment B: Data Analysis Explanation Memo), (3) the SOARR model, (4) CRPR principles and (5) sample ways to complete the template provided for them after they engaged the data.

As an SCLT, the team wanted them to consciously consider significant "evidence" connected to "active learning" or "rigorous relationships" that they found in the data. It is critical in moving toward responsive transformation, stakeholders begin to understand the meaning they were considering from these data. In other words, were their conclusions grounded in the data? The SCLT wanted to guide the educators (i.e., teachers, counselors, school leaders) to use the evidence and conclusion(s) to inform decisions for "action plan items" they could use for the next two months of school. As an SCLT, this information was collected and provided feedback to the school teams, again in an attempt to promote data literacy/curiosity.

Overall, school teams misidentified "evidence." The SCLT needed to support them differently. The SCLT had provided all data and modeled "evidence" and "action" plans, yet there was confusion about the analysis process so were unable to use the data to inform their own practices and policies. The SCLT looked through all of the data and provided feedback to each department. To encourage a more informed analysis process we asked questions like, "How do we bring this back to active learning?" The school teams identified "active learning" evidence, but did not connect conclusions and action plan items to this evidence

Ongoing analysis found this a recurring trend throughout the data; staff were unable to connect the evidence/conclusions/action plan items. In addition, the SCLT encouraged this school team to consider prompts like the following, so that student grades are linked more specifically to learning: "What feedback have you received about your grade? (feedback) What are you ready to do to maintain or improve your grade? (feedforward)" In this way, the department would have the questions linked more succinctly to active learning and accurately engage an analysis process.

Recommendations

Drawing on the CRPR principles and this project data, the following recommendations include:

Where power is shared, learners have a right to self-determination:
  - Facilitate focus groups: all data indicated that additional inquiry, like focus groups with students and parent-guardians may improve connections
  - Build system-wide capacity through evidence-based inquiry: Although the intention was to focus on invitation for collaboration, so that the staff were co-owning the process and outcomes, they seemed to be resisting the initiative for several reasons, one of which is the initiative is perceived as a top-down mandate versus bottom-up initiative. Toward revising this perception,

the staff is to co-present information with the team. The team continues to identify different ways to rethink strategies for the staff to lead discussions with team members.

- Involve non-teaching staff in meetings: Involving non-teaching staff in data meaning-making sessions. Staff like paraprofessionals that work regularly with historically underrepresented populations could provide valuable insights of ways and words to engage individual and collective youth.

Where culture counts, learners bring who they are to their learning:

- Observe health and biology classes to identify active learning and respectful relationship practices: school-wide management data indicated that the culture and environments in health and biology classes indicated active learning and respectful relationships well in place.
- Offer culturally responsive training: The staff want to engage this work yet do not all understand how to engage culturally responsive content and pedagogy.
- Build a culture of collaborative learning with staff (both teachers and non-teachers), students and parent/guardians.
- Promote a culture of data literacy as well as data curiosity by (a) talking to department-specific groups versus whole staff and (b) holding focus groups with students to better understand their responses.

Where learning is dialogic and interactive, meaningful learning occurs:

- Expand time for analyzing data: Increase time, plan multiple meetings, and make data available before and in between meetings.
- Promote school staff-led data analysis: Support school staff to take on leadership to discuss and analyze data and then make recommendations for future actions according to the data. This is meant to build capacity for this work to be ongoing.

Where connectedness and relationships are fundamental, students see how they are involved.:

- Increase communication: perception survey data indicate lack of communication between school and students/parent-guardians.
- Invite volunteers to participate in data collection: Some staff are more interested than others to engage data analysis; ideally, promote representation from multiple (if not all) departments.
- Build relationships among and between staff, students, parent-guardians and community members: Provide relationship building events in school and community sites, to increase access and get to know each other in meaningful, significant and relevant ways.

References

Apple, M. (2011). *Education and power.* Routledge.

Bishop, R., & M. Berryman (2006). *Culture speaks: Cultural relationships and classroom learning*. Huia.

Bishop, R., O'Sullivan, D., & M. Berryman (2010). *Scaling up education reform: Addressing the politics of disparity*. New Zealand Council for Educational Research Press (NZCER).

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Harvard University.

Appendix A: Sample Perception Survey Questions*

4. I am provided with opportunities to contribute my knowledge and experiences to the school.
5. Teachers in my classes know me.
7. Teachers in my classes respect me.
9. Teachers in my classes care about me.
11. Teachers in my classes expect that I will achieve.
15. Teachers talk with me about my grade results so I can do better.
16. Teachers talk with my parents/guardians about my grade results so my parents/guardians can help me.

*This version of excerpted questions from perception surveys represent those given to students/learners. We altered the questions for parents/guardians and school staff.

Appendix B: Data Analysis Explanation Memo

Stewards Observing and Advocating Relational Responsiveness (SOARR) Initiative: Thank you for participating in the SOARR initiative. We see this initiative as potential for promoting data literacy to confirm what we're doing well as well as focus on opportunities for growth in both (a) active learning and (b) rigorous relationships. Data is at the center of any school improvement plan. Schools collect a massive amount of data that lie unutilized in decision-making. This project seeks to address this mismatch between massive data collection and absence of using data to drive decision-making around plans to improve active learning and rigorous relationships. Overall, the XXX data we have collected presented a robust school, congratulations on your dedication to youth, education and community. Some data presented potential opportunities for growth; we look forward to determine how you and we could do that together.

A team of XXX teachers, parents, counselors, community members, administrators, a Māori educator from New Zealand and XXX university faculty have been collaborating since October 2015 to engage this initiative. We created the SOARR model that many of you may have engaged in your advisory period and in your classrooms and the school. Recently, we collected data that we would like to share with you so that you may individually and collaboratively make meaning of the data, identify conclusions informed by evidence in the data and identify action plan items informed by the data to engage April-May 2018.

Here is a quick overview of the data we collected. We have created tables (included in packet) so that you may read the data to make decisions on actions you may take. For each attached table, bold-face numbers or information below the tables highlight first and second most frequented responses so you may easily identify this information.

First, we provide a quick description of the three forms we gathered. Data collected December 2018-February 2018 for the SOARR Initiative include:

1. Perception Survey on Active Learning and Rigorous Relationships (Attachments 1-3): Data from 16 likert scale questions from students and teachers/paraprofessionals provided*
2. School-wide management data** (Attachments 4-14): Data on correlation between (1) race/ethnicity and grades & attendance, and (2) discipline & race/ethnicity and gender provided
3. In-class observations (Attachments 15-17): Data from 20 observed practices*** as well as student responses to content comprehension and work completion of these practices provided

*Response rates for surveys were as follows (response rate for last two participants insignificant, so not included):
- Students: 963/1597=60%
- Teachers/Paraprofessionals: 39/106=37%
- Parent-Guardians: 28/1760=.02%
- Administrators/Counselors/Classified Staff: 3/33=.09%

**Focus on four 9th grade content areas for grades and attendance. Focus on overall 9th grade for discipline because unable to break down according to content areas.

***The focus for the in-class observations was on "classroom practice" observed for 15 minutes of classroom instruction. Observers used the following to evaluate the practices (see the last two pages in this packet).

Next Steps: Looking at the data, focus on the following question:
- What aspects of the data relate to (a) active learning and (b) rigorous relationships?
- First, identify evidence about active learning and rigorous relationships. Consider the SOARR model and CRPR principles (at tables/on overhead).
- Then identify conclusions informed by evidence from the data.
- Next, identify action plan items you could realistically complete April-May 2018. Be ready to share your action plan items.
- You may edit your action plan items after discussion or maintain what you have.
- April 2018-May 2018 document how you engaged your action plan item.

Example 1:

Evidence: From survey data, some questions highlight a discrepancy of how teachers/paraprofessionals and students perceive students are receiving feedback from teachers about their learning/grades and how to improve (#15) and of how teachers and parent/guardians perceive a relationship exists in which teachers are communicating student learning/grades and how to improve (#16).

Conclusion: Teachers could consider additional ways beyond the computer grade program to communicate with students and parent/guardians about student learning/progress and how to maintain or improve.

Action Plan Item: Or XXX department will have monthly meetings with students to discuss their learning/performance and how to maintain or improve. XXX department will send home bi-monthly half sheets describing student performance with a note on how to maintain or improve.

Example 2:

Evidence: XXX content area has the highest tardies/absences.

Conclusion: The students feel a disconnect with XXX content.

Action Plan Item: XXX content area will explore how students use (XXX content from this course) in their community/lives and determine ways to collaborate with community members to value/validate multiple perspectives and implement this knowledge into the curriculum.

Example 3:

Evidence: During in-class observations, teachers' highest rating was 4.

Conclusion: Additional CRPR principles could be implemented in the curriculum.

Action Plan Item: XXX department will learn from students how and if they find themselves in the curriculum (texts, assignments, guest speakers, field trips, etc.). The XXX department will ask students for ways that they could find themselves in the curriculum.

Example 4:

Evidence: Student/teacher-paraprofessional responses differed greatly for some questions on the survey. These two groups may be interpreting the questions differently

Conclusion: More data needs to be collected to better understand the students and teachers-paraprofessionals.

Action plan item: We will hold focus groups of 8-10 students to better understand their responses to the survey questions.