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Professional Learning Communities and Institutional Culture Change in Higher Education: Facilitators to Learning Ecological Validation to Support Historically Marginalized Students

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Abstract

In this article, we explore how three campuses implemented professional learning communities (PLCs) in order to create institutional change in support of culture change (toward ecological validation) to support at-promise student success. The study explores the process of learning within the PLCs, examines facilitators of learning ecological validation, and discusses the viability of PLCs as a vehicle to undergo such learning in support of institutional culture change. The findings identify six conditions that support learning within PLCs in higher education settings aimed at culture change and these are distinctive from findings in the K-12 literature on PLCs.

Keywords: student success, low-income, first-generation and racially minoritized students, culture change

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Postsecondary campuses are working to integrate many needed changes ranging from increasing the success of historically and currently marginalized groups, improving teaching and learning, addressing low morale among faculty and staff, integrating new technologies, ameliorating racial inequities in policies and practices, and implementing new accountability structures, to name a few (Kezar, 2018). Most of these changes require transformational or cultural change at the institutional level (Bensimon, 2005; Kezar, 2018). However, often campuses do not have the experience or expertise within their leadership or appropriate structures and processes to conceptualize and implement culture change (Elrod et al., 2023). To date, few campuses have undergone effective cultural change to support historically and currently marginalized students (Bensimon, 2005; McNair et al., 2022; Renn & Reason, 2021). In this article, we define institutional culture change as approaches that shift underlying values and assumptions that become embedded into new policies, practices, processes/systems, and structures on campus.

Many campuses have addressed these issues through first order changes, which do not require faculty, staff, or administrators to adjust their underlying beliefs, values, and approaches (Kezar, 2018). First order changes do not involve culture change and are more minor alterations of existing practice/policy (Kezar, 2018). Kezar (2019) provides evidence of how campuses have focused on providing services or programs "on the side" to support students from marginalized backgrounds rather than changing the culture of the campus to better support students. As a result, after four decades of diversity, equity, and inclusion (DEI) efforts, there has been minimal progress to improve retention and graduation rates (Kezar, 2019; Renn & Reason, 2021). These approaches have been labeled programmitis and performatively make campuses look as though they are undergoing change without changing the day-to-day operations, policies, and practices (Kezar, 2019). Bensimon (2005) argues that campuses need approaches to disrupt their routines in order to move toward culture change. Projects like the Equity Scorecard, Campus Diversity Initiative, or Achieving the Dream provide tools for campuses to undergo inquiry and a learning process to help move toward culture change to support marginalized students. These projects allow campuses to explore their own campus environments and develop local solutions for the challenges that students face. Increasingly, we see campuses adopting approaches that were proven through research to improve the outcomes for historically marginalized students that they can begin to implement more rapidly, such as Complete College America and the Promoting At-Promise Student Success (PASS) Project (Melguizo et al., 2021).

As one example, the first stage of the PASS Project (2015–2020) identified ecological validation (i.e., a campus culture in which campus employees work together across unit

boundaries in validating and asset-based ways) as a key cultural element within a comprehensive college transition program. The program was designed to improve retention and graduation rates as well as the overall experiences of historically and currently marginalized groups (which were labeled "at-promise" to provide an asset-based label for students that also acknowledges the commitment or promise of institutions to support students; Bettencourt et al., 2023; Kezar et al., 2024; Kitchen et al., 2021). In this article, we explore how three campuses participated in the second stage of the PASS Project (2021–2026) and sought to implement a culture of ecological validation at the institutional level to facilitate transformational/culture change. Building on decades of research in K-12 on professional learning communities (PLCs) and their similar counterpart in higher education—inquiry teams such as the Equity Scorecard—we worked with three campuses to develop PLCs that engaged a diverse group of stakeholders with different roles across campus. Ecological validation is an approach to campus culture that involves bringing together an ecologically validating approach to student support where educators promote student success by validating students' assets, strengths, and innate capabilities for success across multiple aligned and coordinated contexts over time. The participants learned together about ecological validation and explored strategies to shift their institutional culture. This paper explores the process of learning within the PLCs, examines facilitators of learning ecological validation, and discusses the viability of PLCs as a vehicle to undergo such learning and support of institutional culture change. Our research question was: What conditions help facilitate learning among PLC members in a college or university setting engaged in institutional culture change toward ecological validation? This study fills a gap in the literature as there have been no studies to date of postsecondary campuses utilizing PLCs to engage in an institutional culture change process.

Literature Review

To frame this study, we use research on PLCs from K-12 settings as well as from higher education inquiry teams that have a similar structure to PLCs. First, however, we review the literature on a culture of ecological validation which describes the type of culture change the educators in our study were learning about within their PLCs. Second, we discuss the PLC literature with a focus on the conditions that facilitate or enable learning related to institutional culture change. For a PLC in higher education to successfully create institutional culture change, learning about the need for culture change is an essential first step.

Culture Change Towards Ecological Validation

As noted in the introduction, ecological validation is an approach to student success where educators collaborate to promote student success by validating students' assets, strengths, and innate capabilities for success across multiple aligned and coordinated

contexts throughout campus over time (Kezar et al., 2024; Kitchen et al., 2021). Instead of focusing on what elements should be included within support programs (e.g., mentoring and proactive advising), ecological validation highlights the importance of focusing on how programs are enacted. Framed by Rendón's (1994) concept of validation and Bronfenbrenner's (1994) Person-Process-Context-Time model, we describe ecological validation in terms of *what* is being validated (Person), *how* validation occurs (Process), the multiple program-curated environments *where* validation occurs (Context), and *when* validation happens (Time). While validation theory tends to look at interactions between an individual institutional agent and a student, ecological validation focuses on an integrated approach that includes coordinated asset-based experiences across a student's microsystems (e.g., advisors and classroom instructors), which also involves interactions between faculty, staff, and administrators at the meso level. An important concept underlying ecological validation is that students' interpersonal and academic experiences influence each other. As a result, holistic approaches to student support are more effective. A holistic approach to validation requires gathering enough information to understand the student's issue before figuring out how to resolve it.

A campus creates and sustains a culture of ecological validation that involves seven norms (holistic, proactive, strengths-oriented, identity-conscious, developmental, collaborative, and reflective practice) that are embedded through five structures and processes. The norms, structures and processes, and their interaction and outcomes are illustrated in Appendix A. For a detailed summary of the concept of a culture of ecological validation please see Kezar et al., 2024.

Ecological validation is a concept that requires educators to look across an entire system. Bronfenbrenner's (1994) theory recommends individuals to consider a student's experience in ways they typically do not think about within campuses' bureaucratic siloed structures. Understanding that learning about ecological validation will require orienting campus stakeholders to systems thinking, we knew that our project would need to be guided by concepts drawn from PLCs and inquiry teams to ensure learning occurred. Inquiry teams in higher education have aimed toward moving campuses to think in systemic ways about student success through the introduction of data, reflective questions, and problem solving in groups that have developed relationships and trust with each other. We now move to a discussion of PLCs as a tool for creating culture change.

PLCs as Tools to Support Learning and Culture Change

PLCs have not been utilized in higher education as a culture change approach, but they are common in other settings, such as K-12 and healthcare (Eaker & Sells, 2016; Stoll et al., 2006). The theory of change for PLCs is that both individuals and the overall organization need to learn in order for institutional culture change to occur. Organizational learning theory suggests structures and processes, namely PLCs (and other similar groups), can be established to create the time and space needed for learning. PLCs emerged after decades of failed school reform in which they were not sustained; K-12

school leaders explored ways to improve the viability of change to ensure that changes were not just implemented but sustained (Elmore, 1996). As these critiques about sustainability of reforms by Elmore and others mounted, new approaches emerged that focus on engaging teachers, staff, and administrators as well as encouraging inquiry processes that result in organizational learning. PLCs emerged as a key way to bring together groups across a professional setting to engage in inquiry, to communicate across groups that often are siloed apart from each other, and to fundamentally alter the setting and engage in culture change efforts (Stoll et al., 2006). DuFour et al. (2006) defined PLCs as "Educators committed to working collaboratively in ongoing processes of collective inquiry and action research to achieve better results for the students they serve" (p. 217). Studies of PLCs in K-12 schools have found them efficacious, and they have continued to expand as a main mechanism for leading culture change (Stoll et al., 2006). For example, in a large-scale study of school reform, Newmann and Wehlage (1995) showed that the most successful schools were those which introduced PLCs and concentrated on higher level collaboration among school personnel.

The kindergarten through high school (K-12) literature has explored a variety of conditions that shape the learning process in PLCs such as the ways that PLCs are formed and socialized; their need for clearly defined missions, goals, and values; group interactions; the instructional design including curriculum/content (resources, tools, data, and processes); pedagogy and facilitation; and the context such as leadership support, data systems, and other aspects which impact institutions' capacity for learning, success, and achieving culture change (DuFour et al., 2008). For example, research in K-12 settings provides guidance on how to select PLC members such that they be diverse and experts in key areas (DuFour et al., 2008). There is also research on how to socialize PLC members to the group and processes that can be put in place to enhance group interactions—creating ground rules, developing shared missions and visions, establishing collective commitments, and setting clear goals (Stoll et al., 2006). Research outlines the importance of using instructional design principles to develop curriculum and creating activities that help PLC members overcome the knowing–doing gap by trying out new practices simultaneously to learn about them (Stoll et al., 2006). Studies also confirm the importance of creating a school context that supports PLCs learning and culture change work with supportive leadership, developing relationships and trust between teachers and administrators, administrators making it safe to take risks, engaging with data and research, and using data in positive not punitive ways (DuFour et al., 2008; Stoll et al., 2006).

Higher education has not implemented PLCs as a common strategy for culture change (Eaker & Sells, 2016; Kezar, 2018). Eaker and Sells (2016) advocate for higher education leaders to consider PLCs as an approach that addresses the lack of process and expertise about culture change on campuses by providing a methodology and approach for engaging in this process that has been proven in other settings. Yet, there have been no studies to date of campuses utilizing PLCs. However, organizational learning, which is at the heart of PLCs, has been engaged by inquiry teams (e.g., Equity Scorecard, Campus Diversity Initiative, and Achieving the Dream), which provide tools for

campuses to undergo inquiry and a learning process to move toward culture change to support at-promise students.

Kezar (2018) summarized some of the insights from studies of inquiry groups (e.g., Equity Scorecard) in higher education aimed at creating organizational learning to support at-promise students. Several factors emerged as central to inquiry teams being able to facilitate learning and mirror findings from PLCs within K-12 settings. First, team formation is critical to their success and campuses that struggled to learn or move culture change forward did not have a representative cross-campus team. Having diverse members with different vantage points on campus helped challenge thinking and support learning. Another finding is that campuses with stronger institutional research offices that included their institutional research representative on the team were more likely to make progress. Having effective data was essential. Since fear among campus staff, faculty, and administrators that data would expose poor progress and problems could prevent learning, senior administration needed to create a culture of non-blaming to facilitate learning (Bensimon, 2012; Kezar, 2018). Information and data silos on campus that lead to lack of communication impairs learning. Inquiry teams that engage the broader campus in forums on a regular basis were better able to learn and obtain buy-in among others to implement learning from the inquiry group (Dowd, 2005). In Appendix B is a chart comparing PLCs to inquiry teams; while they share some similarities in areas like composition, their goals and processes differ, for example.

It is important to acknowledge that higher education organizations differ from K-12 school settings in several ways that were important to explore within this study. First, campuses are much larger in size and so the PLCs may be limited in their ability to create culture change. There are many more layers of bureaucracy and extensive siloing of functions with colleges compared to K-12 schools (Bess et al., 2012). Second, campuses have much more decentralized power as well as much more complex power and authority structures with shared governance (Bess et al., 2012; Kezar, 2018). A PLC will need to navigate many more governance entities within a college than within a school setting. Third, campuses often have dozens of task forces and groups working on changes—many related to student success—and therefore any effort at working toward culture change will need to consider the ways to connect with these existing working groups. Fourth, tenure track faculty generally have more power and autonomy than teachers. However, in recent decades, campuses have moved to largely contingent labor so the dynamics around faculty autonomy have changed (Kezar, 2018). The contingent nature of faculty labor may make it challenging to engage this group in culture change efforts (Kezar, 2018).[1] All of these dynamics will be key to consider as campuses engage in culture change work through PLCs.

1 Another paper from our study explores how the PLCs shifted into coordinating councils/groups after the first year which seems to be related to the small size of the PLCs being less ideal to conduct the work of connecting units across campus without shifting over time to a slightly larger membership and expanded set of goals.

In sum, higher education institutions have not extensively engaged one of the key approaches to making culture change—PLCs. There is limited research on inquiry teams that resemble PLCs primarily through the Equity Scorecard project and to a lesser extent through the Campus Diversity Initiative and Achieving the Dream. This research project drew on the knowledge of best practices in PLCs and higher education inquiry teams to create PLCs aimed at culture change on three different campuses. These campuses' efforts were then studied to explore whether the best practices identified in earlier research were efficacious in guiding these PLCs and to explore any variations that may emerge for PLCs in the higher education setting. We conducted this research with an appreciation of the differences between colleges and schools. Our research question guiding this paper is: What conditions help facilitate learning among PLC members in a college or university setting engaged in institutional culture change toward ecological validation?

Methodology

This research is concluded from an action-oriented multiple case study of PLCs at three universities in Nebraska (Jones et al., 2014). Action-oriented research involves a research team that works with groups in practice collaborating on an improvement and then studying that process. The research team collaborated with the leadership at each institution to identify two campus leaders—one from student affairs and one from academic affairs—to co-facilitate each PLC. As co-facilitators recruited members, we encouraged them to identify individuals who worked in different roles on campus (e.g., financial aid, institutional research, faculty, advising, student support programming, orientation, and diversity office).

Each PLC included a lead researcher, two co-facilitators, and 8–18 members who committed to participating for three years beginning in the fall of 2021. As part of a research project funded by the Susan Thompson Buffett Foundation, we provide an annual stipend for the PLC members. In addition to the formal members, two of the campuses had a few members of senior leadership who served as ex officio members—they received the materials and participated in the PLC meetings when available. As part of an action-oriented project, we developed a syllabus to guide learning, identified readings, drafted potential activities, and assisted with facilitating the PLC. The co-facilitators provided feedback on the syllabus, refined the activities based upon their campus context, and facilitated the monthly meetings.

Site Selection

We developed a research partnership with the three campuses in the University of Nebraska system as part of a six-year research project that led to identifying ecological validation as a way to improve at-promise student experiences and outcomes through a comprehensive college transition program. Following up on this initial study that

discovered ecological validation in a program on these campuses, the research team proposed moving from a comprehensive program to campus-wide culture change that would benefit all at-promise students attending their institutions. The campuses were chosen because they represent different institutional contexts. The Kearney campus is a regional campus situated in a rural community and enrolls about 6,000 students—22% are racially minoritized, 31.8% receive a Pell grant, and 34.4% are first-generation college. The Lincoln campus is a land-grant research university that draws students from across the state and nation and serves about 26,000 students—27% are racially minoritized, 27.3% receive a Pell grant, and 26.2% are first-generation college. The Omaha campus is a metropolitan university that enrolls approximately 16,000 students—34% are racially minoritized, 31.7% receive a Pell grant, 30.3% are first-generation college, and 90% commute to campus.

Design and Facilitation of the PLCs

The first year of the PLC was dedicated to learning about ecological validation and related research focused on at-promise student success, institutional change, and collaborating across silos. The remaining two years included continued learning as well as moving toward action and developing a plan to sustain the efforts. This manuscript focuses on the first two years (July 2021 to June 2023). The PLCs met 3–5 times each semester for 2–3 hours either in person or via Zoom as well as having a summer retreat at the end of the first year with prereadings for each session. Each month, the researchers and campus-based facilitators collaboratively planned each session, which included three months of preparation meetings before the PLCs launched in October 2021.

Data Collection

Our multicampus case study involved multiple forms of data (Jones et al., 2014). For this manuscript, we draw from observations, interviews, surveys, documents, and artifacts.

Observations. Similar to previous research on PLCs and higher education inquiry teams, we leveraged observations to understand how the groups functioned (Bensimon, 2012; Kezar, 2018). Observations included the monthly PLC meetings at each campus, planning meetings with the co-facilitators, and summer retreats—each session was digitally recorded and professionally transcribed. Between July 2021 and June 2023, we documented over 100 hours of observational data. The researchers who co-facilitated and observed the sessions developed a reflective memo to document insights. Our reflections focused on both the engagement among participants as well as our role and the effectiveness of the materials we created. We developed an observation protocol informed by the literature on PLCs and inquiry teams that helped to sensitize us to our areas of focus—for example, we reflected on the successes and challenges learning about ecological validation. We utilized findings about formation, socialization, collaboration, PLC group processes and structures, context, and institutional policies and

practices that shape learning and culture change efforts to develop areas to explore. We also allowed for inductive findings that did not fit into the protocol. Observations attempted to capture what was said in meetings by individuals, interpersonal dynamics, flow of the conversation, and the general feel of the group.

Interviews. We interviewed the PLC co-facilitators, members, and ex officio members (89 interviews in total across two years). Since we worked closely with the co-facilitators on planning and implementing the meetings, we interviewed them once a semester to understand their role in the group and perceptions of the learning process (6 co-facilitators with a total of 24 interviews). The PLC members and ex officio members participated in one interview at the end of both the first year (33 members and 1 ex officio member with a total of 34 interviews) and second year (31 members with a total of 31 interviews). The interview questions explored how the individuals understood ecological validation, what was helping them learn, what made learning challenging, group and institutional dynamics, and their perceptions of if and how culture change could occur for their campus. Each interview lasted approximately 60 minutes and was digitally recorded and professionally transcribed.

Surveys. After each meeting, we sent a short, reflective qualitative survey to co-facilitators and members asking them questions related to what was working well, what might be improved, what was missing that might help them, and how their learning was developing. Over the two years, we sent surveys 33 times (12 in year one and 21 in year two) and received 306 completed surveys (154 responses in year one and 152 in year two). We analyzed these data in relation to the research question.

Documents and artifacts. Documents and artifacts (drawings they created in their brainstorming; assignments and activities) were gathered throughout the study. As part of the action-oriented design, we created several documents that were used during the PLC meetings. In addition, the co-facilitators and group members created materials that documented or reflected their learning, goals, and attempts to implement the concepts. We also captured email exchanges that included planning for meetings, reflecting on the group learning process, and discussing how the group learning was connected to other efforts on campus.

Data Analysis

We used a constant comparative method of analysis (Boeije, 2002) to analyze the multiple forms of data gathered over a 24-month timeframe. We developed an analytic template based upon deductive themes from the literature and the research questions guiding the overall study. However, we also had space on the template for inductive codes we saw emerging. The template evolved to include emerging themes as we continued to analyze the data. Our analysis was attentive to institutional context and mission, professional roles, power differences, personal identities, and other issues that influence learning and group dynamics.

Each month, the lead researcher for each campus reviewed the observations, surveys, and documents gathered in order to create an inductive summary and deductive responses for the analytic template. Each semester, we did a similar analysis of the interviews and then conducted an analysis of the multiple forms of data to create a summary of each campus case study. We had two researchers who were not assisting with facilitating the PLCs that led the meta-analysis of the emerging themes across the three case studies. We used the template to develop a thematic codebook that we added to on an on-going basis. We met at least twice a month to analyze data and at the end of the year held a full day analytic retreat.

It is important to note that our forms of data allow us access to different types of evidence. The interviews provide direct access to the PLC members' views of learning conditions. We had survey data but this was anonymous so they could freely share and offer up critique. Therefore, this data cannot be tracked back to individual PLC members but reflects their perspectives on learning conditions. Documents reflect more collective viewpoints as many PLC members often contributed to them. Observation captures the researcher's interpretation and sometimes researchers mapped the theme to individuals for our questions related to differences by race, gender, and other background characteristics. Therefore, coding data looked for themes but only interview data can be tracked back to individuals. Our interest was more in the collective learning and process and less so on each individual. In terms of the main findings presented in this article, the key themes were chosen if they were: (a) found across our various sources of data; (b) remained critical issues over time—some issues were raised but then went away or lost salience; and (c) were noted/identified as salient to learning and evidence provided for this link. We also explored differences by campus but there were no major institutional differences; the minor variations identified did not seem important to the overall learning process.

There were some slight variations in weight across the forms of data, but these also had to do with the nature of the issue and where it might be more likely to be visible. For example, leadership was consistently brought up across all data sources but was more strongly represented in the observation data by researchers and interviews. Similarly, group socialization was present in all forms of data but like leadership it was identified in observation data as even more prevalent. Group selection and composition was also found across all data sources and was one of the items mentioned most in interviews. Group interactions was also identified across all data sources but next most represented in the interview data and surveys. Instructional design and curriculum and shared language and vision tended to be identified across each form of data, but we had more documents to illustrate these findings.

Trustworthiness, Positionality, and Limitations

Our prolonged engagement with the PLCs for several years enhanced the trustworthiness of our data (Lincoln & Guba, 1986). Furthermore, using multiple forms of data across the three campuses to deepen our understanding of the ways the PLCs operated

in relationship to fostering learning increased the credibility and confirmability of our findings (Lincoln & Guba, 1986; Mathison, 1988). The trustworthiness of our findings was also enhanced by triangulation via a compositionally diverse group of investigators who engaged with multiple forms of data (Jones et al., 2014). Our compositionally diverse (race, gender, sexual orientation, social class) team met monthly to discuss our emerging understanding of the data. When our interpretations differed, we returned to the data and literature on PLCs and theories of organizational learning to come to greater consensus about our findings. We also shared summaries of our insights with the PLC co-facilitators to member check our emerging findings (Lincoln & Guba, 1986).

This study also has some limitations. The campuses that participated in this study were selected based on being part of a large study and while diverse in terms of institutional type are all in one state due to the fact that the foundation that supported the grant will only fund within that state. Additionally, while we are studying culture change, this process takes five to seven years (Kezar, 2018); therefore, we are still at the beginning stages studying the initial process.

Findings

The section begins with an overview of our findings and then moves into the specific themes. One overall finding from our study is that most of the general contextual, structural, and process conditions outlined in the K-12 literature work well to facilitate learning. Due to space limitations, we focus only on the areas that were distinctive from previous research that highlight unique conditions related to *learning culture change* and being in a *higher education setting*. The research findings around PLC conditions that facilitate learning about culture change and higher education context-specific issues are summarized in Appendix C.[2]

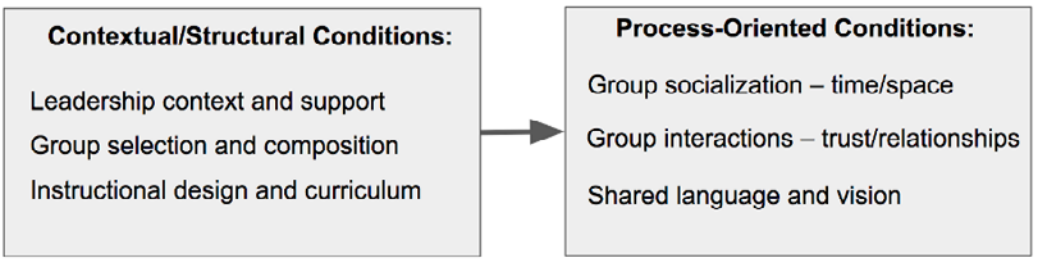
The conditions for a PLC to learn about culture change related to ecological validation on campuses involved contextual, structural, and process conditions (see Figure 1). The *structural and contextual*[3] *conditions* needed to support the development and implementation of the PLC were: leadership support (senior leadership supporting the development of the group and affirming its value of working toward culture change), group selection (cross functionality and demographic diversity to ensure that varying perspectives are present to advance institution-level cultural changes), and instructional design and curriculum (inquiry-based readings and activities to facilitate learning with

2 Other papers from the study focus on similarities to K-12 findings related to conditions (e.g., creating shared goals, importance of facilitation) that support learning.

3 In the PLC literature, structural and contextual conditions are made distinctive areas; we combine them for discussion given only one contextual area emerged in our study.

cross functionality and systems thinking). Structural and contextual conditions laid the foundation for the cross-functional group of diverse educators to learn together. With these conditions in place, facilitators could create process-oriented conditions that supported learning: group socialization (creating space for long-term reflection toward culture change rather than immediate problem solving), group interactions (establishing trust and building relationships within the group to challenge the cultural status quo), and shared language and vision (ensuring a similar understanding of the culture-changing concepts and how to communicate about them). The process-oriented conditions enabled the facilitators and group members to engage in collaborative learning toward culture change.

Figure 1. Distinctive Conditions for Learning Within a PLC Focused on Culture Change



The six conditions for learning culture change were interdependent and tended to influence each other. While we present them in a sequence within the subsections to make it easier to understand the general process, the six conditions reinforced each other and framed the entire learning process. For example, PLC members reflected on their changing and dynamic connections to leadership and group membership throughout the process.

Leadership Context and Support Toward Learning Culture Change

Senior leadership support was critical to ensure PLCs that were designed to create culture change could be successful in their work, and was so important that it seemed a foundational condition. The group was more open to learning and fully engaging in inquiry-based activities when they believed that senior leadership supported the work they were doing. The PLC needed to see that campus leadership supported a culture change approach, or otherwise this constrained their possibilities to imagine potential change approaches and the related learning they did together.

As an initial step in building the PLCs, senior leadership on each campus identified co-facilitators from academic affairs and student affairs who were in positions of authority to lead the PLC on their campus. A PLC staff member commented that: "The involvement of the senior leadership in selecting the co-facilitators sent the message that they were aware of the project and supported the efforts." The co-facilitators also reported to members of the chancellors' cabinets, which meant that they could share what was

happening in the PLC. At times, members of the senior leadership would attend PLC meetings to share how they supported the work of the PLC or they would send a message through the co-facilitators. Connection to senior leadership helped the co-facilitators feel empowered to guide the group through the learning process. As one co-facilitator noted, "I felt like senior leadership involvement, in a meaningful way, was critical for members to fully invest and know that the time they were spending with the group would matter." This individual went on to explain that the senior leadership support "gives PLC members permission to fully invest and dedicate their time" to the learning process.

For some of the PLC members, learning would be constrained without explicit support from the senior leadership. One co-facilitator noted that "if PLC members felt any waivering [*sic*] from leadership, the learning just seemed to come to a halt, people had trouble engaging the readings and were talking about what was prioritized on campus." Some of the PLC members had been at the institution for over a decade and had seen "several initiatives come and go" with changes in senior leadership and priorities. Several PLC members noted that they did not want to "invest concerted time, energy and emotions into an effort that would not be implemented or sustained." For one campus, the co-facilitators instituted monthly meetings with members of the chancellor's cabinet to share what was happening in the PLC and get feedback. They started each PLC meeting by summarizing those meetings and affirming the leadership's support of the effort. At two of the campuses, the PLC members agreed to have members of senior leadership serve as ex officio members. This enabled the PLC members to hear the perspective of senior leadership about the value of the concepts they were learning, which affirmed the value of the process and the potential of doing something meaningful when they got to the point of recommending actions based upon their learning. When senior leadership changed, the facilitators met with the new leadership team to get their buy-in and explain the importance of the work being done by the group. Since the concept of a PLC is new in higher education, the co-facilitators often met with the new leadership a few times and curated an abbreviated selection of readings to help the new leader understand the concept of ecological validation, goals of the PLC, and updates on the learning process of their group. The co-facilitators explained that they "also took the time to learn about the new leader's goals in order to explain how the learning process could connect to their specific goals and objectives."

The PLC members appreciated learning new concepts and imagining the possibilities of what could be; however, they benefited from knowing if and how the leadership would support their efforts to generate ideas about culture change. As one PLC faculty member noted, "I think keeping these ideas in mind is important in getting buy-in from senior leadership. It can be deflating to collaborate and work across units only to have ideas not receive support from senior leaders." At one campus, the co-facilitators recognized this issue and developed an opportunity to do "cascading messages" with different levels of leadership, starting with the executive leadership, then deans, and finally mid-level leadership. They brought back messages of support to the group, which encouraged PLC members to continue engaging in the learning process. The

multiple and complex layers of leadership in higher education led to the cascading messaging as well as mapping of key leaders to keep engaged.

Group Selection and Composition

Learning a culture change approach like ecological validation was enabled by having a compositionally diverse cross-functional team with individuals at different levels of leadership, from different departments and programs, and with varying lengths of time working at the institution. The diversity of perspectives enabled the group to think beyond their silos and begin to imagine campus-wide change. Creating the PLCs began by working with the senior leadership at each campus to identify a leader from academic affairs and student affairs to serve as co-facilitators. This aligned with the goal of breaking down the silos that exist between student affairs and academic affairs. As a co-facilitator noted, "it is important that this effort is not perceived as housed in any one department or space on campus, it needs to be a campus-wide effort."

The co-facilitators underwent an intentional recruitment process to ensure they had a compositionally diverse group of educators from across campus. The final group of members included faculty, staff in student-facing (e.g., advising, financial aid) and non-student facing (e.g., institutional research) offices, and mid-level administrators from the college and university levels. The co-facilitators recruited individuals with varying racial and gender identities, lengths of time on campus, level of leadership position, and other demographic characteristics. Given that the goal was to assist the group in thinking ecologically by considering how multiple systems simultaneously interact and influence students at various levels, PLC members noted how having a diverse cross-functional group facilitated learning about ecological validation. One staff member articulated what we heard during many interviews:

> I think the reason for our success is the scope of people [in the PLC], the learning community. I don't think I've ever seen so many departments and offices represented. Because we literally have almost everybody. We have people from academic affairs, student success, advising.

Intentionality about demographic composition of the group coupled with activities that focused on deepening understandings of how students from diverse backgrounds experience campus opened an opportunity for members to share personal experiences and reflections on navigating campus structures and processes from diverse positionalities. In doing so, members could learn from colleagues whose experiences were different from their own with regards to race, socioeconomic position as an undergraduate, and/or first-generation college status. Participants then made connections between lessons learned from colleagues and topical conversations about supporting at-promise student success. A PLC staff member shared how they learned to think differently about what students are facing from a racially minoritized colleague's experiences:

> But it's easier for somebody to persist through to graduation if there's not as many challenges that they face and maybe unneeded or stacked up unknowingly to certain students, unknowingly to me, certain students more than others . . . and I wouldn't have been as aware or been able to connect the dots as much if I wasn't in the PLC. There's other people that are experiencing other things that I didn't have to go through or that can be viewed in different ways.

PLC members consistently noted how much they valued learning more about the different offices on campus. Many of the members had little understanding of what educators in each office did, which constrained their abilities to imagine new ways to collaborate with educators across campus to create a culture of ecological validation. During the learning year, there were several opportunities for the members to explain what their role was beyond their title that was listed on the university website. The conversations about their work led to exploring ways to connect across different offices. For example, conversations about their individual roles on campus led members from the registrar, financial aid, and student support offices to explore how they could engage in conversations about creating new approaches that support at-promise students that reflected the collaborative approaches they were learning.

Instructional Design and Curriculum

Building from the diverse group composition, the curriculum and activities were designed to help PLC members move from thinking about their individual work and unit to thinking in cross-functional and systems-oriented ways, including a resource mapping activity, a social networking activity, institutional data activities that focused on cross-unit challenges, and detailed discussion of PLC members' roles and unit work so that points of collaboration could be identified. These activities supported the goal of culture change and were noted by participants as "the most powerful to their learning about ecological validation."

As an example, we designed a "constellation activity" that drew from Ehrmann's (2021) study of institutions that had improved student success and addressed the three primary challenges and tensions in doing so: maintaining quality, increasing access, and creating affordability by working cross functionally. Here one faculty participant spoke about the importance of this reading and activity to support learning about culture change:

> The reading was really, really important to address how [our] campus functions. There seem to be too many silos on campus. Ehrmann provides the idea. The 3fold gains are a win-win. The Ehrmann piece and activity provides the roadmap of what could be done to encourage campus partnerships that create the ecological model all benefitting the student-centered process.

The co-facilitators brought in campus-level data that highlighted that some subgroups of students (e.g., racially minoritized, first-generation college) did not have the same

experiences or outcomes as their peers. To highlight the importance of the collaborative and cross-functional norm of ecological validation, the group then mapped all the different programs, offices, and initiatives that worked with that subgroup of students. As they engaged in the activity, they more deeply understood the ideas from the readings that spoke about how campuses tend to be siloed and how collaborative approaches could be more effective. They then started to brainstorm how to build a "constellation" of support where the different programs, offices, and initiatives could work from a more ecological approach in order to create validating experiences for students. At the end of that session, the members had a deeper understanding of the importance of collaboration and holistic support.

We identified many examples of how the instructional design activities led to learning that created changes on campus. Participants were encouraged to apply insights from the activities (which encouraged cross-functional and systems thinking) to their role and share what they had learned with those in their unit. One PLC faculty member described what we heard from many participants that trying the approach within their role was a way to activate and deepen learning from the instructional materials:

> I was able to take the (activities) and start applying them with what am I doing to advance culture change, right? Like, meeting with partner units so that I could understand students' needs holistically. Not just the ones that were reported to me, but all of the stuff that surrounded students' needs, and get those collaborations going from the beginning, think about how I could bring identity-consciousness into the ways that I advise students.

These activities led to new ways of conducting their work. For example, the mapping and social network activities and discussion about their individual roles on campus led members from the registrar, financial aid, and student support offices to explore how they could engage in conversations about creating new approaches that support at-promise students that reflected the collaborative approaches they were learning. As one member of the registrar's office reflected:

> How can we offer the right classes at the right times so that somebody doesn't have to wait an extra semester or they've been waiting for a year for it to be offered in class and then it goes online? How does that impact them? So, yes, in the not necessarily tangible ways but the thinking of how this could impact not just an overall student nameless, faceless thing but actual people that are striving to get through. How would this impact them positively or negatively?

Group Socialization Toward Learning Culture Change

The PLC groups needed to ensure appropriate socialization to the culture-changing tasks by grappling with why a system or institutional culture change approach was needed. Until there was group consensus on the need for more than adding supplemental

programming or tinkering at the edges to support students, learning among PLC members was hampered. This also meant the group engaged with learning differently from their day-to-day work, moving from an immediate problem-solving approach (being reactive) common in their other committee work to taking time to learn without pressure for immediate answers and to be enabled to think more ambitiously about culture-changing shifts.

The PLC members spoke about the need to understand why culture change was necessary before they could learn about ecological validation. Initially, some of the members struggled to absorb the concepts because they were accustomed to "solving immediate and localized issues and being on short and tight timeframes." They were not used to being in settings where they were expected to "engage in deep learning and to focus on a much bigger institutional change." Given the PLC space was different from their other working groups, it took time for some participants to acclimate to this new working space. Many of the fellows spoke about how "this was different than most committees where there is a specific task or fire to put out that does not enable them to think differently or explore big ideas." The participants expressed "appreciation for this space and time to collaboratively engage in learning that felt meaningful and had the potential to lead to something important." In reflecting on the first year of learning, a faculty member described the transition to a new kind of space and the struggle to think about culture change:

> I would say that the main way in which the PLC has been different than working on other taskforces and committees is that there is a long-term timeline that's been established, and the conversations that we're having in any given meeting don't feel rushed. And it's that patience that I think calms everybody down and helps people not feel like I have to get my thing across immediately and so I'm not willing to listen to the others. Taking our time and feeling like we have our time to take I think relaxes people and has opened people up to more fluid conversations. I think that's probably been the biggest difference, is it's just—it is that there's no—there doesn't feel like there's rush, and so we can really chew on some stuff.

While some struggled at first, participants appreciated the unique space. PLC members commented about the benefit of this learning space being long term, big picture, not initially problem-solving oriented, and aligned for the goals of culture change and creating ecological validation: "I'm allowed and encouraged to think big, creatively and differently to solve these problems. We're trying to really look at the much bigger picture and solve much bigger problems." Even though they enjoyed this space, they also struggled. They described how they had volunteered to join a PLC focused on creating institutional culture change, but once they understood the daunting task, PLC members felt the need to explore why culture change was necessary prior to learning these challenging concepts. As one staff member noted: "I guess I thought it would be more discrete—I was not thinking overall institutional

change, so that really made me question—is this needed? Because I know later I have to convince others."

Two approaches were used by facilitators to socialize the group. First, facilitators would remind the group about the focus on learning and culture change. We observed how the facilitators made people aware when they jumped to problem solving, rushed the group into decision making, and worked to align members to the groups' set expectations of learning first. As one of the facilitators noted, "we have a very action-oriented group and the members wanted to jump to solutions before fully understanding the scope of the issues." In one of the PLCs, when a participant in the group wanted to jump quickly to action, one of the facilitators would remind them that "we need to go slow, so we can go far" and explained how the learning time was opportunity to think bigger than would typically be available in a committee meeting.

A second approach was bringing in activities that helped make them aware that culture change was necessary and the usual efforts to tweak existing practices would not be adequate. Members described how activities were critical in developing the awareness about the need for culture change (e.g., reviewing data about historical trends and lack of success with at-promise students, bringing in students on panels to describe their challenging experience, and mapping gaps in student support). Members repeatedly noted that if they did not understand why culture change was needed, they could not focus on learning the how or what of culture change. One staff member noted how they appreciated "we did spend the first year, like, learning and just getting comfortable with all the concepts" before engaging in discussions about how to enact them. It is important to note that PLC members commented throughout our interviews that PLCs meetings were different from their typical types of meetings or approach to work which underscored for us how distinctive and perhaps challenging group socialization to institutional and culture change work in higher education contexts.

Group Interactions (Trust and Relationships) Toward Learning Culture Change

Group interactions framed their capacity to envision vastly different ways of doing work counter to the status quo. This process required developing and strengthening trust within this cross-functional PLC. In order to feel comfortable learning about issues that challenged the current campus culture, people needed to feel safe and able to be vulnerable; relationships and trust were essential.

The PLC groups held orientation sessions to get to know each other, set up ground rules (e.g., safety, privacy, vulnerability, care), and had relationship-developing activities. One team engaged in formal team building training and all teams had activities aimed at relationship building in the first three months. They also engaged in activities that allowed them to get to know each other more personally. For example, PLCs members shared their job title, history with the campus, and then discussed what they did and the constraints of their work, which helped them get to know each other as individuals

and was important to building trust and relationships. Everyone knew they were going to get an opportunity to share, which created the context where they could actually listen to and hear each other. At one campus, the co-leads facilitated an activity at the year-end retreat where PLC members used magazine cut-outs and art supplies to create collages that reflected how their personal identities and experiences related to their participation in the PLC. PLC members then described their collage to the group, thus enabling group members to gain insight into each other's personal stories and motivations for the work they do. The subsequent discussions that ensued during the retreat referenced points shared during the art activity and fostered greater vulnerability than was evident in prior meetings.

One staff member described the way they saw how the PLC groups were being uniquely set up through ground rules and relationship-building activities to support culture change work and how it supported them in learning:

> What might be unique is that we're trying to create a particular experience, um, that is more than just the task of learning. But it really is about having a particular approach to interpersonal interaction. And having that inform our learning process, our reflective process, um. So, I would say the validation aspect is actually really important (as it helps makes the space safe).

The co-facilitators were critical to building an environment of trust and safety by treating everyone equally, affirming everyone's views, and encouraging questioning. The facilitators modeled the process of being open and vulnerable. For example, one of the co-facilitators brought in data from their department to be the first conversation related to exploring if and how the campus reflected a culture of ecological validation. Another facilitator started a meeting by saying that they had to "shut my office door and cry" while reading about the possibilities related to culture change because "we are not there yet" in terms of supporting all at-promise students and they sometimes get discouraged, but coming to the PLC meeting provides "hope" that the institution will eventually achieve the goal of creating a culture of ecological validation for every student.

There was intentionality in drawing on everyone's knowledge and expertise. The PLC co-facilitators looked for opportunities for each member to leverage their expertise. If a topic emerged that related to a specific member's work, they made sure that person had an opportunity to explain the context and constraints even if the group was providing a critique of specific processes. When group members brought in information, they "were always thanked when they shared and were vulnerable." In addition, the co-facilitators asked members to bring a specific issue as an example to discuss within the group, but they would reach out to the person first to make sure they were okay sharing. As a PLC lead noted: "Fellows were not put on the spot."

In order to accomplish the goal of creating a high trust relational space, the groups attempted to engage with each other as horizontal colleagues, breaking down traditional

hierarchies. This breaking down of hierarchies was a specific challenge and they noted that to address it they had to name the challenge of hierarchy and place intentionality around engaging each other outside that paradigm. As one of the groups discussed, "we are all members of the PLC" during the meetings. They tried to avoid leveraging the power of their positions on campus when engaging in the learning process. As one of the staff members noted, "I am so happy that we don't have a hierarchy. We don't have faculty speak first, staff second, I love that we have gotten to that point." This individual went on to share how "there is a level of trust where people are saying what they think."

Shared Language and Vision Toward Learning Culture Change

The PLCs developed a shared definition, understanding, language, and vision drawing from ecological validation. Engaging with the same set of readings during the learning process helped to create a foundation for shared language. They were provided a one-page summary of key terms and definitions to help facilitate shared language. During the meetings, the co-facilitators used these terms to guide conversations. There were also opportunities to practice explaining the concepts and connecting them to the members' current work. The process was connected to the trust established within the group—the members would ask for clarification when they did not understand an idea or how someone was applying the concept.

When they started to read about ecological validation, few could put the readings into their own words or speak with confidence about the concepts. By the end of the second year, the group developed a shared understanding and definition of ecological validation that resulted in shared language which facilitated their learning as they had a common way of thinking about student outcomes and experiences. One faculty member explained how developing the shared vision of ecological validation helped them to articulate what culture change is like:

> It's easier to connect dots. I always—one word that, ecological validation. And when you explain these systems like as an ecosystem as an ecology, I think people understand it more because then they kind of start to see how everything works together. And before this I would not use that language. It was very difficult for me to kind of explain it. And even at times conceptualize it myself. So, it really helped me conceptualize it at a deeper level which allowed me to explain it to other people, really.

Many PLC members described how ecological validation was a new shared language that allowed them to speak with each other about the new culture they were creating and then to have the words to talk to others across campus: "I definitely think that the language is important; it gives us the tools to talk about things especially across higher education's siloed departments." But they also noted how higher education's decentralized and siloed nature presented a challenge for creating a shared vision and language around ecological validation. One staff member spoke about the importance

of having a shared language as a foundation to build upon when they begin exploring how to take action:

> It kind of gets everyone in line to some extent. And you can build around it, right? I mean if you don't have a shared language, you're also doing a lot of explaining and you're doing a lot of kind of trying to bring people onboard, right? And so, if you have that shared language–I mean it's going to share the values, right, that that entity has. So, for us as we were kind of building this, you know, we're looking at the future and realizing this, you know, it's going to have to change. So, let's create the language. Let's have our values come through that language, you know, and build that.

There are several ways that they supported the development of a shared vision and language about ecological validation, most prominently the curriculum and activities were based on norms of ecological validation, checking for understanding, and applying ecological validation in their work and in their units. As an example, one member noted the importance of the "elevator pitch" activity where each person practiced explaining the concept and norms of ecological validation in a concise way to ensure they understood the concepts "in a consistent way." Because the PLC reinforced learning before acting, it allowed the members to develop a clear shared understanding and definition. We realized how important this was in interviews with members early on who thought they understood the concepts but were not really clear yet and needed more time learning. Throughout the year, members actively engaged materials and considered what this approach would mean for them and their colleagues to work differently. Then the PLCs were prompted to share how they are rethinking their own roles and units work based on the ecological validation concepts and this application to their own work solidifies their knowledge. One faculty member describes an example that is similar to many we captured in our data about how based on developing a shared understanding, he was able to apply the learning:

> In Spring term, I am teaching my first class for the honors program. It is a course for freshmen and involves a lot of discussion of identity, background, interests, hobbies, etc. I am excited to implement validation strategies from the instructional perspective. I will be supervising two learning assistants as well as discussing norms of civil discourse with the students, which may open up some ways to share the norms of validation.

This faculty member was able to use the new language of validation (and his understanding of validation) in order to alter his class but also to communicate with the learning assistants to create a new set of teaching norms.

Discussion

Our overall data comported with earlier findings on PLCs in K-12 and with higher education inquiry groups related to conditions that support learning in PLCs (structures, processes, and contextual issues) such as careful group selection; thoughtful group socialization; curated group interactions; importance of well-designed instructional materials and curriculum; appropriate facilitation; and supportive contextual issues of leadership and data (Dufour et al., 2008; Stoll et al., 2006). In this article, we highlighted several considerations for leaders to be aware of related to unique conditions needed to meet the culture-changing objectives of the PLCs we studied. While we are still at the beginning of the long-term culture change process in support of historically marginalized student success, other papers from our project have demonstrated that the PLCs have led to changes in policies and practices that are positively shaping at-promise student success. Therefore, creating the conditions for learning in the PLCs is a worthwhile effort and investment since these groups can help propel culture change that can have the most scaled impact on at-promise student success.

Considering how to set up PLCs to successfully engage in culture change in support of historically marginalized student success, our findings suggest the foundational role of leadership support. PLC participants expressed empowerment and openness to learn when they perceived leadership support and felt stifled in learning when leadership support was not there or unclear. Our research suggests that PLCs should focus on obtaining, solidifying, and continuously engaging senior leadership as they participate in the task of culture change. The importance of senior administrative support was critical to the PLCs feeling empowered to envision how to enact on what they learned. We identified the strategies facilitators and members developed to connect with, inform, and help socialize new leaders at multiple levels, suggesting how complex this activity is in a higher education setting with decentralized power and authority. In the end, the concern about whether senior leadership was on board and being constrained from action when there was turnover suggests that leadership may be more central in higher education than in K-12 settings. This mirrors the earlier literature reviewed (Bess et al., 2012; Kezar, 2018) about the differences between schools and colleges as organizations and that higher education leaders need to be aware of some differences in operating PLCs based on size and decentralized power structure.

The data also illustrate the importance of a diverse cross-functional group of members to ensure the PLC has the expertise and backgrounds necessary to engage in an institutional culture change initiative aimed at historically marginalized student success. The group composition was essential for systems or cultural level thinking that crossed units, roles, and identities. Higher education inquiry teams have noted the importance of cross-campus representation, but we found the degree of roles necessary for culture change as well as the demographic diversity when focused on an issue like ecological validation in order to have range of perspective necessary to execute are more extensive (Kezar, 2018; Smith & Parker, 2005). Instructional design approaches need to ensure there are activities that engage PLC members in rethinking their role

and think in a campus-wide and cross-functional way. Given previous literature has not explored PLCs aimed at culture change, the identification of some of the critical instructional design activities can help future PLCs with this same goal.

Group socialization was also distinctive in engaging in culture change. Facilitators need to create a unique learning space by providing PLC members with a longer time frame to explore what culture change entails, learn new approaches to practice, and feel safe to innovate in substantial ways. These PLCs created a space where culture change could be a focus and which differed from other groups these individuals had been involved. The traditional focus on action and problem solving can get in the way of learning needed to alter mindsets, which is required for culture change. Being aware of how counter normative PLCs are in higher education in terms of an approach to change is critical to helping the group make the shift from a traditional task force to a planning group that can think big about culture change (Kezar, 2018). This finding itself is novel and an important insight for campus leaders establishing PLCs. PLCs can meet this culture-changing role by being structured as long-term groups, with no immediate objectives, and an entire year of only learning. Previous literature on PLCs has not identified this tension and challenge within higher education PLCs or inquiry groups (Kezar, 2018).

The findings from this study were distinctive in that facilitators developed an environment of trust so that members felt safe to learn and challenge the institutional status quo. Trust building may prove more challenging in higher education than in K-12 environments where the principal works more directly with teachers and staff to establish working relationships. Higher education's long-standing silos and even resentments between groups like faculty and staff, academic and student affairs, and the greater degree of complexity and hierarchy means that socialization and the creation of positive group interactions and trust can take longer, perhaps requiring PLCs to start more slowly than in K-12 settings (Kezar, 2018). Cross-functional work is atypical on many campuses, meaning that relationship building may take more time than in other settings. A related issue was the challenge in creating shared vision and language. The siloed nature of higher education means communication and sharing can be challenging and make creating shared vision and language around historically marginalized student success a more difficult task.

More research is needed to explore the ways PLC can be set up to shepherd culture change given the need for such changes in higher education. While we feel our research uncovered key aspects around such areas as group formation, selection, socialization, and shared mission, we believe that pedagogical and curricular design issues are important to explore to identify whether there are other issues beyond the cross-functional and system-type activities. We suspect other design issues are important but did not emerge in our research. A study dedicated to PLC curriculum and pedagogy design is important to further pursue these issues. Also, other context issues are likely at play around culture change. The PLCs used data and we did identify some challenges related to data and culture change, particularly around a diverse group needed for culture change

and their level of expertise with data. Data from inquiry teams has provided some information about these issues (Kezar, 2018), but more data would be useful.

Conclusion

Our study identified PLCs as a promising vehicle for the initial steps in creating culture change and clarified what conditions help promote learning in a higher education context and what issues may need special consideration given the distinctive nature of campuses or the culture change process. More research is needed to explore how PLCs can support culture change as well as other key issues in higher education. We found that for culture change approaches, group formation and selection, group socialization, and instructional design are important to consider distinctly when developing PLCs aimed at culture change. We also found that leadership support, group interactions/trust building, and creating a shared language are distinctive and more complex in higher education settings which warrants further research as PLCs are established going forward.

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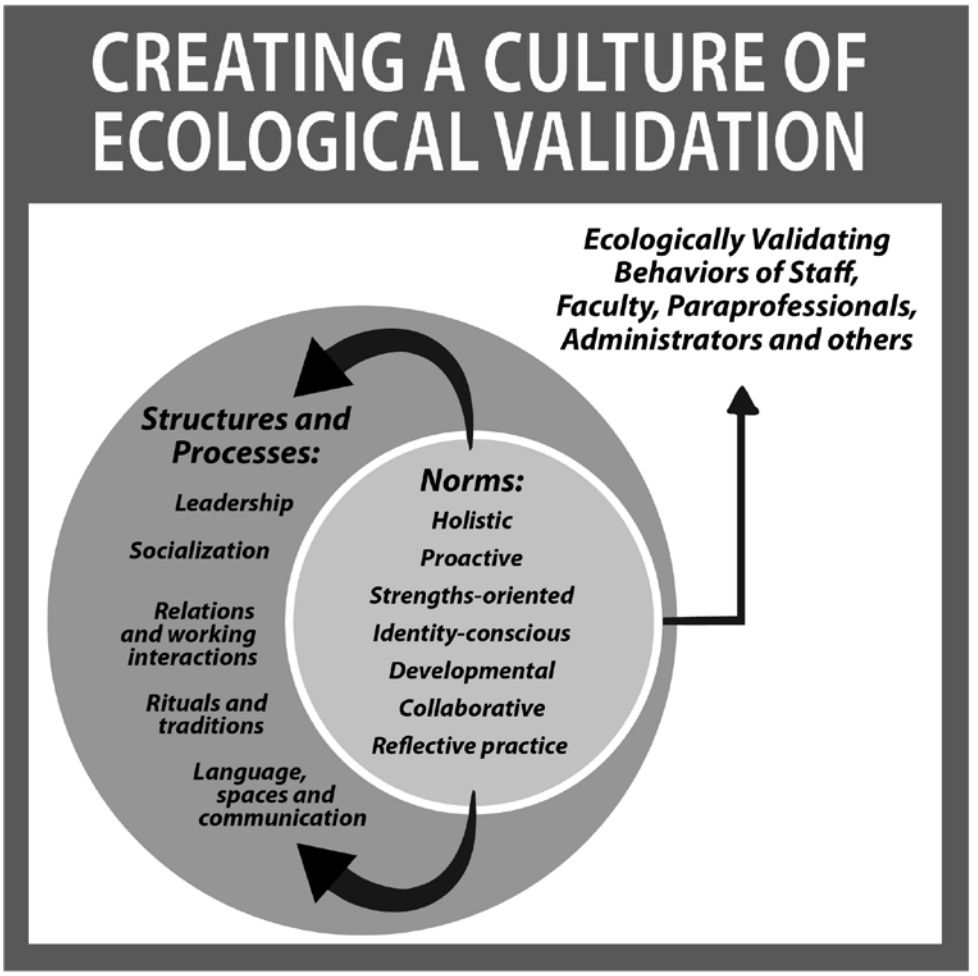
Appendix A

Culture of Ecological Validation



Appendix B

Comparison of Inquiry Teams to Cross-Functional PLCs

Elements of Comparison	Inquiry Team	Cross-Functional Professional Learning Community (PLC)
Goals	Use data to address an institutional challenge	Help a cross-functional group of faculty, staff, administrators, and other key stakeholders in addressing a campus-wide institutional improvement goal
Structure	A team—often with cross-campus representation—that examines data and asks questions, usually over a specific multi-year time period of 2–3 years	A cross-functional group of campus stakeholders that meets for a finite time period to learn and then focuses on implementing changes, usually for 3–5 years due to aim of culture change
Size	Usually 10–15 faculty, administrators, and staff	10 to 25 cross-functional members with at least one facilitator; optional: senior leadership as ex-officio members
Supports	Senior leadership provides access to data, inquiry questions, and facilitators to help guide dialogue	PLC co-leads create curriculum and activities and train facilitators; senior leadership supports the goals and process
Role of Leadership	Senior leadership facilitates data access and cross-campus connection	Shared leadership necessary for success at senior, middle, and grassroots levels
Processes	Data is collected and shared, teams meet and analyze data; team shares insights with campus	Syllabus designed, facilitators trained; first learning and then work to envision and enact culture change or deeper changes
Composition	Senior leadership identifies key group members for inquiry team based on goals of team	Cross-functional diverse (i.e., demographics, role on campus) group of faculty, staff and administrators; potential to be campus cultural change agents

Appendix C

Summary of Study Findings

Condition Found in K-12 Literature to Support Learning in PLCs	Culture Change Issues	Higher Education Context-Specific Issues
Context—Leadership	Leadership even more central for culture change	Complex multi-level leadership requires more networking for PLC to do culture change work
Structures—Group Formation	Diversity of perspective more than just role	
Structures–Instructional Design Curriculum	Activities focused on cross-functional, institutional, and systems thinking	
Process—Group Mission, Vision, Goals, and Values	Culture change a difficult mission/ vision and goal to understand	
Process—Group Socialization	Unique space around culture change—longer time for just learning	Unique space around culture change—differentiation from committees takes time
Process—Group Interactions	Developing trust even more challenging when attempting culture change	Developing trust and positive relationships more challenging and time consuming on campus due to history