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Exploring the Use of Evidence to Reform Practice in Community College

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Exploring the Use of Evidence to Reform Practice in Community College

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in Education

by

Deborah Grodzicki

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ABSTRACT OF THE DISSERTATION

Exploring the Use of Evidence to Reform Practice in Community College

By

Deborah Grodzicki

Doctor of Philosophy in Education

University of California, Los Angeles, 2014

Professor Christina A. Christie, Chair

The use of evidence-based research to shape professional practice has become an important focus in the field of education. Researchers have expressed concern that decision-makers and practitioners take action without being sufficiently informed by research (Nutley, Walter, & Davies, 2003; Hemsley-Brown & Sharp, 2003). To understand the obstacles to research use among practitioners, researchers must first explore the types of information those practitioners access and ultimately use. Through interviews, observations, and document analysis, this case study reveals the underlying processes by which community college faculty and administrators define, interpret, and utilize evidence in their everyday practice. Study findings show that participants rarely access research; they have a collective preference for non-systematic information that is easily operationalized and modified, thereby making it ready for classroom implementation. Findings also suggest that for a community college to maintain a systematic process of inquiry, it is critical for the institution to adopt an infrastructure that allows for the provision of accurate, timely, and comprehensible data without political agendas. In light of the

findings reported herein, this study has significant implications for bridging the gap between research and practice. Specifically, it demonstrates the importance of teaching practitioners how to interpret research, contextualize research, and align it with educators' practical concerns. This study additionally highlights the role of organizational climate in the use of data-driven decision making. Both researchers and practitioners can utilize the findings produced by this study, as it facilitates (a) an understanding of the role systematic information plays in refining educational practices, and (b) the development of interventions to promote the use of such evidence.

The dissertation of Deborah Grodzicki is approved.

Marvin C. Alkin

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2014

To my mother, Beatriz, the strongest, most beautiful person I know;

my father, Jaime, who will never stop believing in me;

my brother, Daniel, who inspires me to find my passion;

and my love, Marcelo, who will never let me give up.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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Todd Franke has also been instrumental to my professional and personal development. In addition to providing me with a stable job (and a computer!), Todd urged me to think critically about statistical methods, and to become skilled in multiple statistical programs. Todd's passion for statistics was contagious, making my experience with data that much more enjoyable. I am truly thankful for his time, support, and constructive criticism.

Additional members of the SRM faculty also served key roles in my development as a graduate student. I cannot be more appreciative of Terri McCarty's mentorship during the analysis stage of my dissertation. I have only known her a short time, but I feel so fortunate to have had the opportunity to work with such a warm, genuine, and encouraging person. To Marv Alkin, I owe my sincerest thanks for the many engaging conversations about evaluation theory and practice. His work and guidance were instrumental in shaping me into the evaluator I've become.

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University of California, Los Angeles – Los Angeles, CA
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Claremont Graduate University – Claremont, CA
M.A., Organizational and Behavioral Psychology, 2008-2010

- Focus on organizational and evaluation theory
- Graduate student work at Claremont Admissions Office. Responsibilities included planning and leading recruitment events for prospective students. Overseeing other student ambassadors. Collected and interpreted data, making projections for future enrollment.

University of Rochester – Rochester, NY
B.A., Psychology, 2001-2005

- Minor: Brain and Cognitive Sciences
- Intern at Strong Memorial Hospital Department of Neurology. Responsibilities included: neurological testing assessing memory, attention, language, visuospatial ability and mood. Also designed and monitored a database.
- Research assistant at Mt. Hope Family Center Summer Camp under the supervision of Dr. Dante Cicchetti. Assessed 6 to 12 year old maltreated children across multiple domains of functioning.

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UCLA Center for Healthier Children, Families, & Communities – Los Angeles, CA
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- Responsibilities include: survey development, data management and analysis, report writing, and overseeing participant recruitment and project quality assurance.

Pasadena City College – Pasadena, CA
Evaluator/Consultant, June 2013 – present

- Collaborate with UCLA team to evaluate several educational programs at the college, including Math, English, and newly developed program pathways (e.g. Media, Design Tech).
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Evaluator/Consultant, March 2009 – May 2010
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University of California, Riverside – Riverside, CA
Evaluator/Consultant, October 2009 – March 2010
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Civilian Complaint Review Board – New York, NY
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Galen, M. & Grodzicki, D (2011). Utilizing emerging technology in program evaluation. In S. Mathison (Ed.) Really new directions in evaluation: Young evaluators' perspective. *New Directions for Evaluation,* 131, *123-128*.

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CHAPTER 1
INTRODUCTION

"In recent years practitioners have increasingly been challenged to ground their work in so-called 'research-based practices'. The term has taken on the illusion of infallibility. To proclaim an educational technique or program as research based is sufficient enough to legitimize it. Thus, 'research based' has found its way to the center of practitioners' vernacular" (Nicholson-Goodman & Garman, 2007, p. 284).

University evaluators were hired to evaluate the development of a new English curriculum at a community college in southern California. Two of these evaluators attended a three-day professional development retreat held for the faculty who were commissioned to implement the new curriculum in their classrooms. The purpose of the retreat was to review Course Learning Outcomes, solidify classroom assignments, develop new rubrics, and discuss best practices for teaching English. Although phrases like "academic research," "general research," and "evidence-based" were uttered, they were not elaborated upon. Moreover, the participating faculty did not appear to question the respective meanings of these terms; their mere use was sufficient. The two evaluators, however, were bewildered. What is general research? How are faculty members defining academic research? What do they mean by evidence-based?

Rather than strengthening the relationship between research and practice, these terms could instead perpetuate the gap between them. Use of terms such as "evidence-based" may give practitioners a false sense of connection with the research community and researchers a false sense of confidence in the practicing community. How do practitioners appraise information type, quality, and empirical rigor? How do practitioners interpret the relevance, credibility, and

implications of specific research outcomes? These questions need to be answered to assess the impact of research on daily practice. For that purpose, data were obtained from interviews, observations, and document analyses in order to understand how practitioners define, interpret, and utilize evidence in their everyday practice.

Statement of the Problem

In 2012, expenditures on higher education research and development totaled 65.8 billion dollars (Britt, 2013). Further, expectations about the role of research in improving educational practices are at their highest in the history of the study of education (Coburn & Stein, 2010). Federal and state policies require school leaders to use evidence-based research to ground their educational improvement efforts (Honig & Coburn, 2008). Judging by the large budget and policies emphasizing evidence-based practices, research should play a formidable role in educational practices and reform. Yet, the research community has expressed concern that practitioners take action without being sufficiently informed of the research base, thereby creating a gap between research findings and educational practices that affect large populations of students (Nutley, Walter, & Davies, 2003; Hemsley-Brown & Sharp, 2003).

The gap between research and practice is largely attributable to policies that fail to elaborate on the process by which such research evidence should be accessed, interpreted, or leveraged. This ambiguity leaves teachers and school administrators with a limited understanding of evidence-based research and leaves researchers with a narrow understanding of what teachers and school administrators perceive as credible (Coburn & Talbert, 2006). To narrow this gap, researchers must identify *what* information practitioners consider credible (e.g., classroom vignettes, standardized tests), *how* they process the information, and most importantly, *how* the information is ultimately used. Only after understanding these patterns can researchers begin to

develop a theory of action and provide an accessible evidence base that will point practitioners toward a clearer understanding of the types of systematic evidence needed to address specific educational problems (Roderick, 2012).

In response to the growing concern regarding the effective utilization of research, there has been renewed interest in identifying the extent to which research evidence is central to practitioners' work (Nutley et al., 2003) and a growth of empirical inquiry geared towards identifying the ways in which educational decision-makers and practitioners access, engage, and make use of research (Rickinson, 2005). Although the growth in empirical investigation of these issues has been useful to some degree, most of the studies in this domain have relied exclusively on self-report data (Hemsley-Brown & Sharp, 2003), which are often biased by false positive embellishment of the participants' true behavior (Rickinson, 2005). Given this shortcoming of self-report data, observational studies may provide a more unbiased account of how practitioners make their decisions. Furthermore, educational scholarship focusing on research evidence use primarily focused on the K-12 educational system. The use of evidence-based research to reform educational practice is imperative at all levels of education, and should therefore also be explored within the context of higher education.

Study Purpose

The dissertation explores the processes by which faculty and administrators at a community college acquire, interpret, and communicate evidence. For the purpose of this study, evidence is defined as information gathered to support a conclusion. Research evidence is defined as information gathered in a systematic way to answer a question, and data is defined as systematic information retrieved for analytical purposes. Using a case study approach, I explore the types of information community college and administrators access and use as evidence to

reform educational curricula. Reform can be defined as change in educational practice as a component of an expansive educational policy or within a smaller context (e.g., classroom or program). This dissertation does not offer a predetermined definition of reform; instead, its definition emerges organically as the analyses reveal how study participants define it. This study also features an in-depth contextual analysis of individual and organizational factors that contribute to classroom and curriculum reform. As described, the study explores a community college undergoing educational program development, thereby uncovering the processes related to the acquisition and interpretation of evidence within the higher education system. It has important implications for bridging the research to practice gap, as it provides scholars with further insight into the limited use of data-driven decision-making among community college practitioners.

CHAPTER 2

REVIEW OF RELEVANT LITERATURE

Bridging the Gap Between Research and Practice

Despite the utility of scholarship for informing the development of effective teaching curricula, researchers and practitioners have failed to effectively collaborate to this end. Whereas researchers have expressed frustration that practitioners ignore or misuse research findings, practitioners suggest that research is often irrelevant to their work, inaccessible, or difficult to understand. Moreover, the production of research-based evidence to inform professional practice has become a key concern within the educational system; a great deal of time and resources will go to waste if the outcomes of educational research are never operationalized (Biesta, 2007; Broekkamp & Van Hout-Wolters's, 2007; Davies, 1999; Nutley et al., 2003; Weiss, 1980). Weiss (1980) reported that 21% of practitioners and policymakers claimed they never or almost never sought out published research studies when considering policy or program alternatives. Of those teachers that have read research literature, very few have used the information they glean from it in their daily practice (Shekdi, 1998). This may be attributable to the fact that teachers have historically described research evidence as inaccessible, irrelevant, and unreliable. Some teachers have gone so far as to advise their colleagues to ignore researchers, arguing that they are unaware of the realities of the classroom (Gore & Gitlin, 2004). In sum, the literature provides a strong consensus for the prevalence and detrimental effects of the gap between educational research and practice; however, there exists significant debate regarding the causes of this gap and possible solutions geared towards redressing it.

Extant research suggests that there may exist multiple contributors to the gap between educational research and practice. For example, Broekkamp and Van Hout-Wolters (2007)

identified four determinants of this gap: 1) that educational research yields few conclusive results, 2) that educational research yields few practical results, 3) that practitioners believe educational research is not conclusive or practical, and 4) that practitioners make little use of educational research. The authors suggested that because researchers come to obvious conclusions or discuss issues that are irrelevant to practitioners' work, the practitioners do not find research evidence to be useful. The detachment between research and practice described by Broekkamp and Van Hout-Wolters (2007) occurs primarily because rigorous research is often performed in artificial settings and addresses questions that are only tangentially related to the problems practitioners face in the classroom.

Similarly, in a case study of Israeli teachers, Shkedi (1998) attributed the gap between research and practice to contradictory modes of thought among scholars and practitioners. Shkedi (1998) found that researchers conceptualize research as a quest for universal truths, regardless of context. Teachers, however, tend to engage in a mode of thought that is more narrative in nature. Teachers seek richness and nuances of meaning in human interactions, which cannot be expressed in statements of fact produced by research. Although the research community places higher regard on building specific knowledge through rigorous methodologies, researchers should also note what practitioners value, and adapt their methodological approaches to better serve the practicing community.

Researchers have offered various frameworks for thinking about possible solutions to the disconnect between researchers and practitioners. Three distinct solutions have emerged from this line of empirical work. One proposed solution emphasizes the importance of translating research evidence to the practicing community. Broekkamp and Van Hout-Wolters (2007) discussed two models that fall under this category: the Research Development Diffusion Model

(RDD) and the Evidence-Based Practice Model (EBP). In the RDD model, researchers, policymakers, and educational practitioners with research backgrounds can act as mediators to translate research and distribute its results to the practicing community. Relative to the RDD model, the EBP model is more geared towards providing practitioners with a summation of research findings that show "what works" in educational practice. Bauer and Fisher (2007) used the notion of "scripts" to analyze, describe, and compare various models of establishing relationships between research and practice. The term "script" refers to the "procedural knowledge specifying the typical sequence of actions in recurring type of events" (p. 223). Scripts provide a blueprint for a series of actions. The authors identified three distinct scripts, each stemming from a perspective and understanding of the gap. The "unidirectional script" is recommended when transferring scientific knowledge into practice to achieve educational improvement. This script is only appropriate if the gap is perceived to have been caused by a lack of information transferred from researchers (sender) to practitioners (receiver).

A second proposed solution emphasizes the importance of collaboration between researchers and practitioners. In accordance with this solution, Broekkamp and Van Hout-Wolters (2007) developed two additional models that focus on the connection between the two camps. These models are respectively referred to as the Boundary-Crossing Practice (BCP) model and the Model of Knowledge Communication (KC). The BCP model is participatory-focused and relates to the combination of tasks from different professional domains, essentially blurring the lines between research and practice. The KC model argues for linking researchers and practitioners through professional networks, thereby integrating their interests and values. Bauer and Fisher's (2007) "highly interactive script" similarly emphasizes collaboration between researchers and practitioners. This script promotes the continuous involvement of practitioners in

all stages of the performance of research. Biesta (2007) also posits that bridging the gap between research and practice is contingent on a nuanced understanding of both academic activity and the practicing community. Unfortunately, communication between researchers and practitioners is currently ineffective; researchers often fail to investigate issues that are relevant to practitioners. To provide practitioners with relevant research, researchers must strive to generate more specific strategies (i.e., "technical knowledge") that practitioners can directly apply in their classrooms (Biesta, 2007). However, researchers often address research questions that do not readily translate into actionable educational practices for teachers.

The final proposed solution suggests that to most effectively address the problems facing practitioners, research questions should be derived directly from practice. This solution assumes that teaching practices influence research, which will then improve teaching practices in a positive feedback loop. In theory, this process can increase the relevancy and usage of research in practice (Bauer & Fisher, 2007).

Taken together, the research cited above indicates that there are multiple potential solutions for addressing the chasm between research and practice. However, none of these solutions are unequivocally correct. Each approach focuses on a different issue, and in turn, may overlook important concerns. Therefore, the contextual factors that may affect the efficacy of a proposed solution must be considered before deciding on an appropriate course of action.

As described above, different comprehensive frameworks for integrating evidence-based research into practice have been identified in the literature. However, there remains a need for in-depth and integrated thinking about the concerns surrounding the utilization of research and evidence-based practice implementation. As a first step, Nutley et al. (2003) argued that the research community should seek to clarify a number of issues: 1) what counts as evidence and

under specific contextual circumstances, 2) how evidence should be disseminated and made available to the widest possible audience of practitioners, and 3) what strategies should be implemented to increase the likelihood that practitioners will utilize the evidence generated through research. Although each of these issues is important, the current study will focus on the first—what the practicing community constitutes as evidence under given circumstances. In doing so, this study will pave the way for future research designed to identify best practices for disseminating the research-based information and ensuring its utilization.

What Counts As Evidence: Different Schools of Thought

Debates about what constitutes credible evidence have permeated the research and practice communities (e.g., Donaldson, Christie, & Mark, 2009). Practitioners broadly define credible evidence as local research, local data, personal experience, personal communication, gut instinct or intuition, and the experience of others (Nelson, Leffler, & Handsen, 2009). In contrast, researchers assert that credible evidence comprises any finding from research that distinguishes effective interventions from detrimental ones (Davies, Nutley, & Walter, 2008). More quantitatively oriented researchers contend that credible evidence is derived from more rigorous methodologies, such as the randomized control trial (RCT), inferring that other research strategies such as quasi-experimental designs, observational studies, or qualitative studies are not evidence-based (Bouffard & Reid, 2012).

Some quantitative researchers have called for a methodological hierarchy in which RCTs serve as the gold standard and subsequently ignoring other forms of knowledge that can inform decisions. For example, Jin and Yun (2010) proposed the development of a hierarchy of evidence by expert researchers, whereby methods were rank-ordered from most-credible to least-credible. Although there is variability across the proposed methodological hierarchies, RCTs were

consistently the most highly ranked. In contrast, qualitative studies, professional knowledge, and theoretical knowledge were ranked lower without any explanation or justification. In any event, methodological hierarchies ultimately rank practitioner knowledge as inferior to more quantitative methods (Clegg, 2005). Regardless of the methods used to do so, efforts to define credible evidence have often overlooked context. That is, researchers and practitioners have formed definitions of evidence irrespective of professional context, pedagogical practices, or personal identities.

Other researchers have begun to address contextual differences and assess evidence accordingly by stepping outside the academic milieu in search of a more comprehensive and practical definition (Davies et al., 2008). In light of environmental and epistemological influences, many have come to the conclusion that "there is no such thing as 'the' evidence: evidence is a contested domain and in constant state of becoming" (Nutley et al., 2003, p. 133). Bouffard and Reid (2012) propose that instead of developing hierarchies of evidence, researchers should develop evidence-based practices that are sensitive to different individual and professional perspectives. Rather than identifying which source of evidence is universally superior, efforts should be made towards identifying the sources of evidence that are superior under certain conditions. Biesta (2010) outlines a case for value-based education as an alternative for evidence-based education. He highlights the "democratic deficit" of evidence-based practice, claiming that it often overrides professional judgment and broader discussions surrounding educational practice. He proposes three distinct deficits of evidence-based practice: 1) knowledge deficit, 2) efficacy deficit, and 3) application deficit. Knowledge deficit refers to the notion that knowledge about relationships between intervention and outcome can never be certain. Efficacy deficit relates to the fact that social interactions operate as open, recursive

systems, and thus, causal links can never be totally determined. Application deficit concerns the idea that practices can change through the application of scientific knowledge.

Although most attempts to define evidence have occurred in the context of academia, several researchers have stepped outside the academic arena and investigated what practitioners count as evidence (Cousins & Leithwood, 1993; Finnigan, Daly, & Che, 2012; Zeuli, 1994). Zueli (1994) found that all teachers were drawn to evidence that fits with their professional experiences and could be directly translated into classroom procedures. In this way, teachers highly regard qualitative evidence—information derived from (a) real-world case studies that illustrate in-class teaching and learning, and (b) interviews with students. For Zueli (1994), purely quantitative metrics like test scores do not constitute sufficient evidence to support or refute the efficacy of a given educational intervention. Additionally, Cousins and Leithwood (1993) found that practitioners emphasized the relevance of information source and were more likely to regard evidence as credible when it addressed their specific needs. Moreover, the authors showed that the degree to which practitioners perceived evidence as sophisticated or matched their local needs was crucial in their judgments of its merit.

In contrast to studies that revealed practitioners' broad conceptualization of evidence, Finnigan, Daly, and Che (2012) suggested that practitioners maintained a narrow view of evidence. Specifically, they showed that many practitioners equate evidence almost exclusively with student performance data (i.e., test scores). Finnigan and her colleagues attributed their results to the local district's push for student data, as requested by the No Child Left Behind Act. Taken together, this body of work suggests that practitioners have varying beliefs about what counts as credible evidence.

As the arduous debate persists and policies pushing for "evidence-based" practices continue to emerge, the practicing community is expected to oblige. This obligation forces practitioners to modify the current ambiguous definition of evidence to fit their environmental, social, and organizational needs. Rather than allowing practitioners to accept all information sources unquestioningly, the research community must engage with practitioners to develop a mutual understanding of credible evidence (Nicholson-Goodman & Garman, 2007). The current study will build upon previous work that assesses the types of evidence practitioners value and use on a daily basis.

Types of Information Used as Evidence to Reform K-12 Educational Practice

Evidence-based decision-making has become a staple of educational reform and funding requirements worldwide (Wiseman, 2010). Since the No Child Left Behind Act (NCLB) passed in 2002, federal and state laws have required school leaders to use evidence-based research to ground their educational improvement efforts (Honig & Coburn, 2008). To guide these efforts, the government has provided educators and policymakers with documents orienting them with the effective use of empirical research (Finnigan, Daly, & Che, 2012). However, these documents come with limited explanation and offer minimal direction for implementation. As a result, educators have developed their own schema for evidence, leaving researchers with very little insight into what kinds of information practitioners actually use to shape their work and how, if at all, research is being translated into practice (Coburn, Toure, & Yamashita, 2009; Landrum, Cook, Tankersley, & Fitzgerald, 2003). Experts have observed that quantitative evidence does not always significantly affect educational policymaking, and that classroom practices often fail to reflect the current knowledge base (Wiseman, 2010).

Researchers have performed a number of empirical studies to determine what sources of information practitioners value. Generally, educational practitioners rely on information they deem trustworthy, accessible, and easily usable (Carmine, 2005). Trustworthiness refers to the degree of confidence teachers have in the information being presented to them (Carmine, 2005). For example, Finnigan et al. (2012) indicated that educators tend to find student performance data to be the most credible source of evidence; most respondents almost exclusively used student test scores to inform school practices. Educators also considered research and evaluations published in scholarly and practitioner journals trustworthy. Accessibility relates to the ease with which practitioners can obtain and translate information. Usability refers to the likelihood that teachers implement the information they receive into their classrooms (Carmine, 2005). Teachers choose this information based on whether it can be translated into their classroom practices. However, teachers often challenge educational research, arguing that its findings can rarely be applied to their unique situations. As a result, teachers tend to avoid educational research and choose sources of information that are more pertinent to their needs (Hemsley-Brown & Sharp, 2010). The use of these three constructs can be helpful in understanding what practitioners value. For instance, Landrum et al. (2003) found that teachers consistently rated professional journals and college coursework as less trustworthy, usable, and accessible than information gleaned from more informal sources of information, such as discussions with colleagues and workshops.

Prior research has shown that administrators and educational leaders use the term "evidence" to encompass a wide range of information (Honig & Coburn, 2008). For example, one study showed that when asked to identify the sources of information on which they rely, influential educational leaders defined "evidence" broadly as local research, local data, personal experience, personal communication, gut instinct or intuition, the experience of others, as well as

research-based evidence (Nelson et al., 2009). Nelson and his colleagues (2009) demonstrated that among these educational leaders, no one type of information was preferred over the others, and respondents did not distinguish research evidence from evidence derived from other sources. They also found that policymakers and practitioners preferred evidence that was "practical, real-life, or pragmatic" (Nelson et al., 2009, p. 19). Given these preferences, it seems that policymakers and practitioners determined the value of evidence based on the degree to which it matched the local context, local needs, and expectations. This inevitably resulted in an increase in the use of local data, individual experiences, and the experiences of others as reputable sources of evidence.

Ratcliffe et al. (2004) further corroborated the widespread preference to utilize a broad spectrum of information to reform educational practice. Their work showed that educational leaders and administrators were more likely to use professional judgment, "gut feeling," and evidence of pupil response, than the rigorous methods demanded of empirical research. Their findings suggested that many educators "set research on a pedestal" and do not integrate it into their daily practice.

It is evident from this review of scholarly literature that policymakers and practitioners do not always relate to research, primarily because it is not contextually relevant or has not been translated to a language practitioners will understand. To promote the use of research among practitioners, researchers should continuously engage with local contexts and present their work in a more accessible and digestible manner. To this end, the current study expands upon previous studies that have studied educational practitioners and the types of information they value. Specifically, this study seeks to identify not only the types of information that practitioners value, but also observe how that information is used in daily educational practices.

The Extent to Which Practitioners Make Use of Research Evidence

Understanding how practitioners interpret and integrate research evidence into their practice is a complex process mediated by individual knowledge, beliefs, motivation, and the organizational climate (Coburn & Turner, 2011). Existing research in cognitive and social psychology suggests that this interpretive process involves attending to the information, making meaning of it, and constructing plan for action. Individual and organizational influences cause practitioners to attend to information that reinforces their perspectives and disregard information that challenges the bases of their knowledge, belief systems, or organizational climates (Young & Kim, 2010). Attending to relevant information, however, is only the first step in the interpretive process. Practitioners must also provide meaning to that information. Pre-existing beliefs, knowledge, and social influences are integral to how practitioners encode, organize, and interpret the data (Spillane & Miele, 2007). How practitioners interpret new information is largely determined by what they know and believe; they will assimilate new information into their preexisting beliefs rather than engage with data that causes them to change their current cognitive and social frameworks (Greeno, Collins, & Resnick, 1996). Knowledge, or lack thereof, can also play a crucial role in the way practitioners engage with information. Researchers have reported that teachers and school administrators do not necessarily have the knowledge base to validly interpret these kinds of data (Coburn, Toure, & Yamashita, 2009).

Coburn, Toure, and Yamashita (2009) presented an empirical example of how district-level decision makers acquire and interpret research evidence using frame analysis and sense-making theory. Frame analysis is defined as a process by which problem definitions emerge in social interactions and negotiations, and sense-making theory attends to how people come to understand and enact external cues. As suggested by the authors' findings, framing and sense-

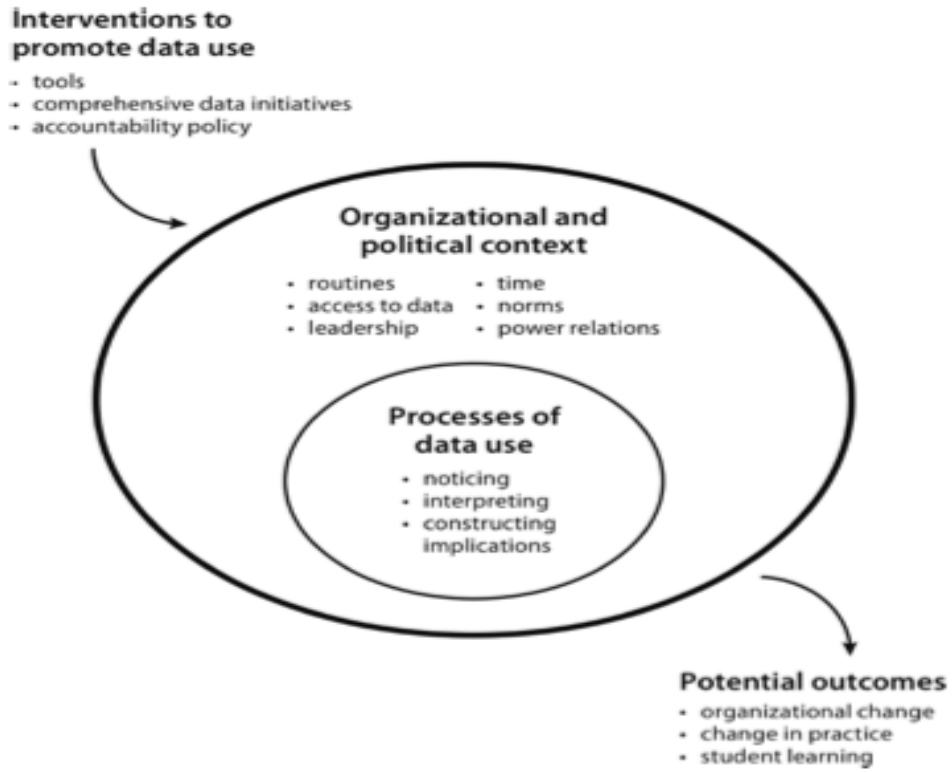
making play crucial roles in the decision-making process. For the current study, this means that the ways in which practitioners and administrators identify problem and define the solutions to those problems can affect the types of information they access. Additionally, the authors found that current working knowledge and shared understanding also influence the extent to which information is acquired, rendered meaningful, and ultimately used. Coburn et al. (2009) demonstrated that there was a strong tendency for district administrators to discount evidence that challenges existing beliefs or actions, and to search for evidence that corroborates their current knowledge and expectations.

The type of information accessed, and how that information is transmitted within the educational context, relies heavily on social interactions (Halverson, Grigg, Pritchett, & Thomas, 2007). Whether the interaction occurs among colleagues, research intermediaries, or directly from researchers themselves, social networks play a critical role in the manner and extent to which practitioners engage with research evidence. Educational networks have a highly centralized structure, giving a single actor (e.g., school principal) a disproportionate amount of influence over the resources that flow through the system. Thus, the type of information that is transmitted through the network is very limited and constrained by the decisions of that single person. When there is a limited exchange of research evidence between the district central office and the school administrations, more informal social networks among teachers, administrators, and policymakers are critical for integrating research evidence into daily practice. Finnigan et al. (2012) used social network theory to reveal how networks support or constrain the use of information crucial for organizational improvement.

As illustrated in Coburn and Turner's (2011) framework (see Figure 1), the integration process is also substantially intertwined with the political nature of the environment in which it

occurs, as stakeholders are inevitably forced to accommodate multiple interests and goals. This instrumental framework illustrates the multiple factors that influence the use of systematic information in K-12 schools, recognizing the intimate link between social context and political climate, and their collective influence on perceived credibility, interpretation, and ultimate utilization of systematic evidence.

Figure 1
Framework for Data Use in Schools (Coburn & Turner, 2011)



As demonstrated, processes of data use are embedded within the organizational and political context, which consists of data use routines, institutional access to data, leadership, time, norms, and power relations. Offering a contextual backdrop to data use, these dimensions guide the formation of social interactions, attitudes toward data use, and the process by which practitioners engage with data in their daily practice. Leadership and power relations are particularly

influential, as college leaders play an important role in establishing a culture that values and engages in data-driven decision making. They control information flow by authorizing access to data, establishing a system of rewards (i.e. social or monetary) for data use, and instituting a research office that provides systematic, timely, useful, and trustworthy data.

Because political motivations and power relations influence the information available, seeking further information may be logistically difficult or politically unsavvy. Knowledge Mobilization (KM) is an emerging field of inquiry that seeks to improve the degree to which research informs practice by identifying the ways in which schools and school systems find, share, and utilize research evidence (Levin, 2010). This approach focuses on the roles school leaders adopt in increasing the distribution and communication of research evidence within the school, given the inevitable political context.

Information does not speak for itself; practitioners must actively make meaning of the data and predict the implications for actions that derive from information (Coburn & Turner, 2011). The current study aims to explain the extent to which educators make use of educational research in their practices and identify the underlying processes related to the acquisition and interpretation of research evidence.

Factors that Promote and Inhibit the Use of Research Evidence

There is a growing body of literature that has explored the factors that inhibit and promote the use of research evidence (Hemsley-Brown, & Sharp, 2003; Honig & Coburn, 2008; Nelson et al., 2009; Nutley et al., 2003). The identification of these factors may help explain why research evidence is often disregarded, and provide guidance on how to more closely align research with the interests and intellectual needs of the educational community.

Communicating educational research to a nonacademic audience can be challenging. Indeed, barriers to research use relate both to the research itself and the practitioners' working knowledge of that research (Levin, 2010; Honig & Coburn, 2008). Some of the more significant barriers include the overwhelming volume of research available, the inability of practitioners to access relevant research, practitioners' lack of time to consume and assimilate the research, a lack of readability, inconsistent results, general ambiguity, and a failure of researchers to synthesize their findings across contexts (Cousins & Leithwood, 1993; Hemsely-Brown & Oplatka, 2005; Levin, 2010; MacColl & White, 1998; Shkedi, 1998). Practitioners also expressed concern about their inability to interpret and apply research (Nelson et al., 2009). Similarly, Ratcliffe et al. (2004) showed that teachers tend to have a poor understanding of social science research and experience difficulty in applying research findings to their own work. As a consequence, they become intimidated by research and deem it inaccessible. Additionally, an organizational climate that does not value research will likely create distance between research and practice, as educational practitioners who work in an environment that does not value research will perceive research evidence as even more alienating and esoteric (Hemsely-Brown & Sharp, 2003).

Empirical studies have identified several ways in which both the research and practicing communities can promote the use of research evidence (Hemsely-Brown, 2005; Hemsely-Brown & Sharp 2003; Nelson et al., 2009; Ratcliffe et. al., 2004). This body of work has shown that the research community could effectively promote research evidence use by reframing its work to address specific contexts, develop reports that convey the big picture, and propose actionable steps for various contexts. To address practitioners' concerns related to the timeliness and complexity of research, researchers should present their results in one to two-page summaries

with links to supporting data. Research findings could also be translated into actionable teaching materials that can be integrated into the curriculum (Ratcliffe et al., 2004). Additionally, practitioners could utilize intermediaries who have the expertise to translate research results into a usable, relevant, and comprehensible document (Nelson et al., 2009).

The practicing community could promote research use by creating a supportive climate, providing access and links to research, building a critical mass of practitioners who are committed to using research, establishing a collegial relationship with researchers, and developing ownership of curriculum change. For example, practitioners could develop research forums in which teachers can reflect on and discuss educational research (Hemsley-Brown, 2005; Ratcliffe et. al., 2004). Organizational leaders could also promote research by incorporating it into the organization's daily practices. As a consequence, educators will become less fearful of the unknown, get past their initial discomfort, and appreciate the importance of research in fostering a continuously learning environment (Hemsely-Brown & Sharp, 2003).

Efforts to improve the impact of research have largely focused on breaking through these barriers by performing research that is more accessible, readable, and meaningful, or by providing research-training workshops to practitioners. Unfortunately, the literature has historically shown these efforts to be inefficient and unsuccessful. For example, Levin (2010) argued that modifying research practices and developing research knowledge does not necessarily improve research impact. He asserted that interpersonal relationships are a key determinant of the promotion or inhibition of systematic evidence use. Levin (2010) was influenced by the work of Gawande (2007), who demonstrated how normative influence can overpower knowledge through a handwashing study he conducted at a hospital. This study showed that while doctors and nurses undoubtedly understand the importance of washing their hands regularly, they continuously fail to

cleanse. The study uncovers the complexities surrounding practice. Specifically, it illustrates that transferring research findings into practice involves more than increasing a knowledge base, it requires an understanding of the culture of practice, and ultimately, establishing a mutual understanding and utilization of evidence-based information.

The American Community College

Established in the United States at the turn of the 20th century, the advent of the American community colleges originated as a social movement to provide access to higher education to individuals who otherwise have lacked the opportunity to receive postsecondary education due to financial, geographic, and/or social barriers (Boggs, 2010). Much like its birthing country, American community colleges are democratic educational institutions, opening their doors to all students who are interested in attending, and offering a wide range of educational and social opportunities (although baccalaureate transfer remains the their primary mission). Community college has also become a market institution, feeding into the local economy through job training, and serving as a medium for individuals to fulfill their personal aspirations and overcome the social limitations to which they may have previously been subjected (Labaree, 1990).

Given that community colleges now account for close to half (43%) of all U.S. undergraduates and 60% of California-based college students, it is clear that they have become a central element in the fabric of American's postsecondary education (Cohen, Brawer, & Kisker, 2014). Indeed, community colleges are currently the fastest-growing sector in postsecondary education, likely overtaking the public four-year institutions in terms of enrollment (Wellman, 2002). The growing prominence of community colleges in the American education system was further corroborated by President Obama's 2009 call for an additional five million community college degrees and certificates over the following decade. Obama made this proposition in the

hopes of encouraging every American to commit at least one year to higher education or career training (Cohen et al., 2014), and ultimately bringing the United States to the forefront of the world in higher education (Ewell, 2011).

American community colleges enroll a disproportionate number of minority, low-income, and first generation college students, many of whom who would have likely been excluded from the world of higher education. With minority students comprising nearly 60% of the student population of community colleges, largely resulting from increases in the price, academic standards, and admissions pressures of four-year institutions, community colleges have become instrumental in serving the needs of underserved, less prepared student populations (McClenney, McClenney, & Peterson, 2007). By attending community college, low-income and minority students are more likely to be able to attend a four-year university and earn a Bachelor's degree. In fact, with 70% of community college transfer students earning a Bachelor's degree, research has showed that transfer students persist and graduate with a Bachelor's degree at a rate that is equal or superior to students who began their studies at a four-year university (65% graduation rate; Adelman, 1999; Wellman, 2002).

The rate at which community college students go on to earn Bachelor's degrees is notable, given that student academic ability of community college students is generally lower than the academic ability of their four-year university counterparts. Nearly 72% of students in California community colleges enroll in basic English courses, and 85% are directed to developmental math (Cohen et al., 2014). In spite of their future successes, community college faculty members openly express dissatisfaction with the low quality of students, and continuously struggle with overbearing teaching loads, work schedule inflexibility, and limited opportunities for scholarly pursuits and professional recognition (Cohen et al., 2014). Because community colleges were

established with an emphasis on teaching, faculty members' primary responsibilities relate to instruction rather than empirical research or scholarly inquiry. In fact, many faculty and administrators choose to work in a community college setting precisely because of the emphasis on teaching instead of research. These individuals tend to prefer to work in settings that draw from a knowledge base of experience rather than empirical findings (Romero, Purdy, Rodriguez, Richards, 2005).

Organizational Culture

Current research on community colleges has a distinct focus on their cultural dynamics. Through this line of inquiry, researchers have identified culture as the single important influence on a college's internal dynamics (Chafee & Tierney, 1988; Schein, 1985; Smart & Hamm, 1993). Culture is reflected in "what is done, how it is done, and who is involved in doing it. It concerns with decisions, actions, and communications" (Tierney, 1988, p.127). Although colleges will inevitably play host to a wide array of subcultures, it is possible to deduce some general themes of organizational life that is generally agreed upon by all members of the organization (Smart, Kuh, & Tierney, 1997).

Understanding organizational culture facilitates a recognition of shared organizational customs and goals, and provides us with the capacity to improve organizational performance and solve critical systemic problems (Tierney, 1988). Thus, researchers have developed and empirically studied several theoretical frameworks to examine the relationships between the institutional culture, decision-making approaches, and organizational effectiveness of community colleges (Bergquist, 1992; Kezar & Eckel, 2002; Smart, 2003; Smart & John, 1996; Smart, Kuh, & Teirney, 1997; Tierney, 1988).

One of the most widely used frameworks—the Competing Values Framework (CVF) helps to identify factors that contribute to organizational effectiveness (Quinn, 1988). This framework is comprised of four dimensions (or quadrants), each representing a distinct and opposing set of organizational and individual factors. These opposing dimensions (or culture types) are clan, adhocracy, market, and hierarchy. A *clan* describes an organizational culture focused on internal maintenance and flexibility, with a particular emphasis on teamwork, empowerment, and interpersonal relationships. An *adhocracy* depicts a culture focused on external positioning with a high degree of flexibility and individuality. Adhocracies are primarily focused on innovation, creativity, and entrepreneurship. Like an adhocracy, a *market* represents a culture focused on external positioning, but instead emphasizes stability and control. This culture type is primarily geared towards competitiveness, responsiveness, and decisiveness. Finally, the *hierarchy* culture type primarily focuses on internal maintenance with an emphasis on control and stability, and emphasizes the importance of assessing and measuring, controlling processes, and quality enhancement.

The National Center for Higher Education Systems (NCHEMS) developed the Institutional Performance Survey (IPS), an instrument based on Quinn's (1988) CVF, to evaluate the organizational cultures of colleges and universities. Within the community college context, there is consistent empirical support for the validity of the four dominant organizational culture types as described in the CVF framework. Specifically, the evidence suggests that institutions that have a dominant clan or adhocracy culture are highly effective, and organizations with a dominant hierarchy or market culture are less effective (Cameron & Ettington, 1988; Smart & John, 1996; Smart, Kuh, and Tierney, 1997; Zammuto & Krakower, 1991). For example, Zammuto & Krakower (1991) found that the degree to which a college exemplifies the hierarchy

culture is positively correlated with centralization and negatively correlated with trust, morale, and leadership credibility.

The current study will refer to the above framework as a means of exploring the cultural dynamics that underlie the process by which community college faculty and administrators gather, interpret, and communicate information to reform current educational curricula.

Building a Culture of Evidence

Community colleges have been instrumental in providing low-income and minority students with postsecondary education. They continuously struggle with the challenge of providing these students with access to educational resources while maintaining high rates of retention and transfer to four-year institutions. To ensure student success, community colleges must regularly utilize empirical data and scholarly research to inform decisions about instructional and curriculum reform. As such, they must cultivate a "culture of evidence" (Bailey & Alfonso, 2005). A culture of evidence has been defined a collection of common values and practices that transition the institution away from a culture of anecdotal learning towards a culture of deliberate use of data and research (Bailey & Alfonso, 2005). Given its emphasis on data and research, a culture of evidence calls for improving student learning by employing empirical analysis to this end (Baker & Sax, 2012).

Achieving the Dream: Community Colleges Count was a national initiative established to facilitate scholastic improvement among students by building a culture of inquiry, evidence, and accountability (Brock, et al., 2011). Funded primarily by the Lumina Foundation for Education, this five-year initiative encourages faculty, staff, and administrators to use data and research to inform institutional decision-making. McClenney, McClenney, & Peterson (2007) developed a Community College Inventory as a framework for analyzing and discussing the use of evidence.

In essence, this inventory has become a tool for identifying the presence of a culture of evidence. Although this theoretical framework is not empirically derived, it is nonetheless used pervasively to spur intuitional review, reflection, and discussion.

1. Institutional research and information systems provide systematic, timely, useful, and user-friend information about student persistence, learning, and attainment.
2. The institutional climate promotes the willingness to rigorously examine and openly discuss institutional performance among governing board members, administrators, faculty, staff, and students.
3. The institution is committed to cohort tracking entering students to determine rates of attainment and to identify areas for improvement.
4. The institution regularly collects, analyzes, and reports data pertaining to successful completion and persistence in developmental and college-level courses.
5. Data are routinely disaggregated and reported by student characteristics, including gender, race/ethnicity, and income level.
6. The institution regularly assesses its performance and progress in implementing educational practices which evidence shows will contribute to higher levels of student persistence and learning.
7. Results of student and institutional assessments are used to routinely inform institutional decisions regarding strategic priorities, resource allocations, faculty and staff development, and improvements to programs and services for learners.
8. Belief and assertions about "what works" in promoting student learning and attainment are evidence-based.

The current study will reflect upon these indicators as a means of identifying the degree to which the community college has a "culture of evidence." The use of these indicators in concert with empirically derived organizational culture frameworks will enable this study to expand upon extant community college literature by providing a more detailed description of the organizational and individual factors that promote or hinder the access, interpretation, and communication of empirical data.

CHAPTER 3

STUDY METHODOLOGY

Introduction

This chapter presents the methods used to assess the process by which community college educators define and use evidence to reform educational curricula. Data were collected from observations, open-ended and semi-structured interviews, and document analysis to address the following research questions:

1. What types of information do community college faculty and administrators access to guide educational reform?
2. How, if at all, do community college faculty and administrators discern quality information and define it as evidence?
3. How, if at all, do community college faculty and administrators communicate the information they access?
4. How do community college faculty and administrators interpret and integrate the information they access into their daily practice?

This chapter presents the study's methodological approach, the setting for the study, the participants, the data collection process, and the credibility of the findings. The chapter concludes with an explanation of the analytic process.

Case Study Method

A comprehensive understanding of the impact of research goes beyond understanding its direct and visible use. It also requires capturing the underlying cognitive and behavioral nuances that lead practitioners to access that information, construct its meaning, and relay that meaning to another educator or administrator. A case study method was selected to obtain an intensive,

holistic description and analysis of these underlying processes (Merriam, 1988: Stake, 2010). Through case study method, I will uncover the process of information gathering and decision-making by examining how community college faculty and administrators use data in their natural setting, welcoming all of the complexities and subtle nuances associated with it (Hutchins, 1995). To account for personal biases, subtle thought processes, and environmental influences, I incorporated multiple modes of data collection: observations, interviews, and document review. The ideas and events that emerged from this study represent "real-world" actions the faculty employ, and serve to replace possible misconceptions held by the research community (Yin, 2011).

Because a qualitative case study is an intensive description of a single entity, phenomenon or social unit, it is limited in its generalizability (Merriam, 1988). However, regardless of the degree to which this study's findings are generalizable to all other contexts, practitioners can reasonably compare the study's findings to their own respective contexts to determine if some of the current study's findings apply (see Lincoln & Guba, 1985).

Overview of Study Procedures

To build a holistic body of evidence, data from observations, interviews, and documents were collected. The data collection process evolved organically, as interviews and observations were aligned to the participants' agenda. There was no pre-determined number of interviews or observations conducted, nor was there a pre-defined order in which the data were collected. Instead, the process of data collection was adapted to the natural setting in which it took place. The documents, which were collected during the interviews and observations, were examined in conjunction with the interviews and observations. Because data were collected from human

participants, the study's design was submitted to and approved by the University of California Los Angeles Institutional Review Board.

Setting

The case study was conducted at a community college in a mid-size urban city in Southern California. Established in 1924, this school is the largest single-campus community college in the United States, serving more than 30,000 students. Nearly 80% of the student population is comprised of minorities with 52% of the students receiving financial aid, and 47% of the students being the first in their respective families to attend college. Since the early 2000s, the college's Center for Learning has been developing transformative learning programs to address the needs of the increasing number of low-income, underrepresented students who lack the skills necessary for academic success (Christie & Klein, 2010). The Center for Learning has created an institutional climate of learning and improvement through continuous curriculum redesign and transformation. This community college also features an Office of Institutional Research, which coordinates the college's research activities related to data reporting, program review, program evaluation, and accreditation.

I chose to study this community college for three reasons: 1) accessibility, 2) commitment to educational reform, and 3) average ranking. Accessibility was possible because of the long-standing relationship between the community college and a university-based external evaluation team. The evaluation team has spent over a decade assisting the community college with the development and sustainability of school-wide curriculum redesign initiatives. More specifically, the evaluation team has provided assistance with survey development, data collection, data analysis, and report writing. Several community college members have also relied on the evaluation team for qualitative data, requesting that evaluators conduct interviews

and focus groups with students, and observe classrooms and professional development activities. As an active member of the evaluation team for nearly a year, I became interested in the evidence faculty and administrators were requesting and subsequently utilizing to reform their practice. I was also particularly intrigued by how they utilized our evaluation findings – how they communicated the information, and how they integrated it into they daily practice. Through my work and genuine investment in the college, I was granted permission to explore my research at the college. While my evaluation team continued to assist the college, my position as evaluator was terminated prior to data collection in order to clearly establishing my role as researcher during the course of the study. My previous relationship with the community college faculty and administrators, as well as my connection to the evaluation team, greatly facilitated my access to data. Further, the longstanding relationship between my university and the college contributed to the rich, in depth understanding of the organizational climate.

The Center of Learning at the college has been highly committed to educational reform, striving to develop transformative learning programs for low-income, high-risk population. It has created an institutional climate of learning and improvement through continuous curriculum redesign and transformation, and has regularly sought research and evaluation assistance from the external evaluation team and the Office of Institutional Research. Consequently, members of the community college frequently access and utilize data to inform their work, ensuring an abundance of study data.

The Aspen Institute, an organization primarily dedicated to ranking community colleges across the nation, ranked this community college in the 50th percentile; this community college has been ranked average in student success in the following areas: 1) persistence, completion, and transfer; 2) consistent improvement in outcomes over time; and 3) equity in outcomes for

students of all racial/ethnic and socioeconomic backgrounds. Because of its average ranking, study findings speak for practices conducted at a "middle of the pack" community college.

Organizational Structure

The community college is hierarchically structured under the direction of the Superintendent-President of the college. The Office of the Superintendent-President has three overarching responsibilities. First, s/he must provide educational and professional leadership for the faculty, staff, and student body. Second, s/he is tasked with partnering with the surrounding community to improve student services. Third, s/he must report to the Board of Trustees in relation to the college's daily operations and implement the Board's policies.

The Board of Trustees is comprised of seven members and serves as the policy-forming body of the district. Qualified voters in each of the seven districts elect a trustee to a 4-year term, with the Superintendent-President of the district serving as Secretary to the Board. The Board is responsible for approving college policies, serving the college community, approving annual budgets of district funds expenditures, acquiring property, and approving the appointment of academic and classified personnel.

In 1997, the Board of Trustees approved a shared governance policy for the community college. The shared governance policy encouraged the participative role of faculty, staff, management, and students (respectively represented by the Academic Senate, Classified Senate, Management Association, and Associated Students) in matters relating to curriculum development, as well as other academic and professional matters. The policy affirmed the rights of all these groups to freely express ideas with the assurance that all opinions would be considered. In addition, the College Coordinating Council was developed to provide a forum for all constituents of shared governance to discuss issues that affect the college.

The college itself is comprised of two divisions, each of which is led by a Vice President. These divisions are the Academic and Student Affairs division (ASA) and the Business and College Services division (BCS). The ASA division is further divided into three subdivisions, each led by an Associate Vice President: academic affairs, student services, and enrollment services. The ASA oversees the various schools that comprise the college, career services, technical education, educational support services, counseling services, and admissions. The BCS serves as the administrative arm of the college, and encompasses the Office of Institutional Research, as well as business services, police and college safety, facilities and construction, and human resources. An executive director oversees each of the services provided by the BCS. Because this study describes the information used to implement curriculum reform, its focus was on the faculty and deans housed under the ASA. Because it coordinates the college's research activities, however, special attention was also paid to the Office of Institutional Research.

Participants

Participants were selected using purposeful sampling. That is, the sample was deliberately chosen in such a way that participants would yield the most relevant and abundant data (Yin, 2011). The sample included faculty and administrators currently involved in classroom or curriculum redesign geared towards improving the quality of instruction. Participants were identified through an external evaluation team, the Office of Institutional Research, and the Center for Learning.

As mentioned above, the community college collaborates with an external evaluation team, which assists with three respective curriculum redesign initiatives within the Mathematics

and English departments and the Pathways Program[1]. The external evaluation team also frequently communicates with faculty and administrators who additionally serve as program coordinators. To connect with the faculty and administrators that lead efforts to redesign the curricula within the Mathematics and English and Technology Departments, I attended curriculum meetings and professional workshops alongside these evaluators. I initially made contact with two faculty members from the Mathematics department, two from the English department, and two from the Technology department. Although all faculty members consented to participating in the study, one faculty member in the English department was unable to participate due to time constraints.

The Office of Institutional Research offered assistance in identifying additional participants who have requested student retention and success data in the recent past. Specifically, the director of the office provided a spreadsheet identifying all data requests from the previous five years. The spreadsheet included the name of the requester, the requester's department, the reason for the request (i.e., accreditation, grant, program review, Student Learning Outcomes, Basic Skills Initiative), and a short description of the request. The spreadsheet did not provide the date of the request. The director indicated the most recent requests were situated at the bottom of the spreadsheet, but the time gap between requests was unclear. I identified faculty members from different departments who provided clear requests. To ensure variability among participants, I identified several potential participants from different request type categories. Upon identifying this potential sample of respondents, I contacted over ten faculty members and administrators for an interview. Only two individuals agreed to participate. Both participants were English as a Second Language (ESL) professors; however, one professor taught non-credit

[1] First-Year Pathways is a year-long program that offers students additional educational resources (e.g. summer courses, tutors, coaches, private learning centers) in an effort to facilitate the transition from high school to college. The pathways program follows a cohort model, providing students with a learning community.

ESL. One of the ESL faculty members recommended that I contact the leader of the ESL curriculum redesign initiative. After several email exchanges, I recruited another participant who was leading a curriculum reform initiative.

The final three participants, two of whom were administrators, were identified through the Center for Learning. The Center for Learning has worked closely with the external evaluation team for over a decade, ensuring that all program initiatives (i.e., first year experience pathways, the summer bridge program, and the math jam) are evaluated. The Dean of the Center for Learning agreed to participate, along with a faculty member who has been leading the pathways initiative since its inception. The Associate Vice President of Student Affairs, who has also been extremely involved in the first year pathways initiative, was recruited during a pathways retreat for first-year students.

In total, eleven faculty members and administrators participated in the study. Eight participants had leading roles in the redesign of curriculum initiatives, and two participants held supporting roles. The final participant was not involved in any large-scale curriculum redesigns; she was instead focused on retention rates and pass rates of non-credit ESL students. The sample of interviewees were drawn from several departments, including English, Mathematics, Engineering, Languages, and Media Arts. Participants were also widely varied in terms of their tenure at the college; their respective times as employees ranged from five years to thirty years. I collected data on highest degree earned to assess whether having a PhD may impact the type and amount of information used, but for the purpose of anonymity I did not included this information in the table below (Table 1). However it is important to note that eight participants earned a Master's Degree in their respective fields, two participants held a PhD, and one held an EdD. Table 1 summarizes the participants' demographic information.

Table 1
Participant Characteristics

Participant	Gender	Title	Department	Years at College
1	Male	Associate Dean of Center for Learning	Administration	30
2	Female	Assistant Professor	STEM	11
3	Female	Assistant Professor	Humanities	17
4	Female	Assistant Professor	Humanities	10
5	Female	Assistant Professor	STEM	7.5
6	Female	Assistant Professor	Languages	5
7	Female	Assistant Professor	Humanities	5
8	Female	Assistant Professor	Languages	15
9	Male	Assistant Professor	STEM	12
10	Female	Associate Professor	Languages	17
11	Female	Acting Associate Vice President of Student Affairs	Administration	7

All participants were observed and interviewed during the college's 2014 spring semester (January – May). Interviews were conducted at the participants' offices, and each interview lasted approximately 60 minutes. All initial interviews were conducted in person; however, some follow up questions were asked via email, text message, or by phone. Documents were primarily collected during the interviews and observations. Additional documents were also obtained through email. Table 2 illustrates the frequency with which I collected data across the three primary data sources (i.e., interviews, email/text/phone correspondence, and observations). Across all participants, I performed a total of 17 interviews, engaged in 63 email and telephone exchanges, and conducted 48 observations. A significant amount of additional email and phone correspondence occurred for the sake of scheduling; however, these interactions were not directly relevant to data collection and are therefore not included in Table 2. Because several participants were present during some observation periods, 14 observations were duplicated across participants. In addition to the principle means through which I collected data, I also

obtained a total of 86 documents. Approximately five documents were also duplicated, as several participants referred to the same literature and professional development websites.

Table 2
Frequency of Data Collection by Source

Participant	Number of Interviews	Number of Email/text/phone correspondence	Number of Observations	Number of Documents
1	2	15	7	13
2	2	5	6	12
3	2	3	8	10
4	1	2	8	8
5	1	3	6	3
6	3	12	2	7
7	1	1	4	3
8	1	2	3	3
9	1	12	4	10
10	2	5	3	2
11	1	3	3	15
Total	17	63	48	86

Procedures

All data collection was systematically conducted from January to May of 2014. Prior to data collection, each respondent provided informed consent to participate in the study. Each participant was interviewed within a few weeks of recruitment, and was contacted regularly to obtain his or her weekly schedule in an effort to select dates and times for observations. Participants were never pressured or persuaded to inform me of their schedule, and observations were conducted only when notified and permitted. The degree to which I engaged with participants varied as a function of their inclusivity, as well as the degree to which they were involved with data and other forms of evidence.

Observations. I observed all settings in which accessed information was disseminated to fellow faculty, college committees, and administrative staff. These settings included classrooms, staff meetings, faculty meetings, professional development workshops, curriculum redesign meetings and workshops, department meetings, department-wide presentations, meeting with

Office of Institutional Research data analysts, meetings with the external evaluation team, keynote speakers, department Q&A sessions with the president of the college, and college-wide retreats. The observations not only provided a rich description of the setting in which the information was disseminated, but also identified the intricate process by which faculty and administrators integrate the accessed information and communicate it to a larger audience. During each observation, I took detailed notes to capture the dialogue and contextual setting. As an observer, I attempted to blend in, maintain my distance, and give space for the participants to act naturally and discuss their thoughts without concern of judgment from an outsider. Although my presence undoubtedly had an effect on the observed groups' dynamics, I included references to my presence, questions asked of me, and any nonverbal communication that signals an effect of my presence on the proceedings at hand in my reporting.

Interviews. Interviews were open-ended and semi-structured, thereby providing space for additional questions to emerge organically during each interview. Semi-structured interview contains a blend of structured and unstructured questions. It is largely guided by a list of questions or issues to be explored, with exact wording and question order determined during the interview (Merriam, 2002). All participants were interviewed shortly following their recruitment. Follow-up interviews were conducted throughout the semester to further clarify conversations or decision processes that were observed during meetings, workshops, or retreats. Initial interviews followed a protocol designed on the basis of the research questions posed in this study and lasted approximately 60 minutes. Follow up-interviews varied in length, ranging from 30 to 45 minutes. The interviews were face-to face, and were conducted in each participant's respective office. All interviews were recorded to allow for later transcription prior to analysis. During interviews, hand-written notes were taken on nonverbal cues that were not captured by the recording.

Interview protocol. The interview protocol consisted of an informational heading, including the date and time of the interview, the location at which it took place, and the interviewee's identification number. The heading was followed by a set of open-ended interview questions. Each question included specific probes to elicit nuanced responses from the interviewees. The interview broadly focused on the participants' reasoning for accessing the given information, their subsequent comprehension of the information, and how they interpreted it (see the interview protocol in Appendix D). A group of scholars and practitioners reviewed the interview protocol and offered critiques that were incorporated into its final iteration.

Document analysis. Documents and archived data, including data sets, journals, books, blogs, websites, Twitter entries, classroom syllabi, and meeting minutes, complemented the data obtained from the interviews and observations. Documents and archived data were either created by the participant (e.g., meeting minutes), referred to by the participant (e.g., journals, books), or selected through web searches after being discussed by participants during observations (e.g., professional development associations). Additional data files were obtained from the Office of Institutional Research and the external evaluation team.

Data Storage

All data were organized and kept in a protected filing system. Specifically, data were stored in a password-protected computer and backed up daily on an external hard drive that was kept in a locked cabinet. Names of the participants were changed to ensure anonymity, and codes for each pseudonym were stored in a separate file (Creswell, 2007).

Credibility of Findings

To ensure the validity of my findings, I was transparent with respect to the research procedures I followed, adhered to the evidence as it emerged, actively monitored findings for

disconfirming evidence, and remained aware of my personal biases. In doing so, I sought to draw conclusions only from the data I collected. Data were checked for consistency across multiple sources, and any discrepancies that were contradictory to expectations were noted and accounted for. Some findings were shared with study participants to elicit their feedback, and to further ensure that the words and behaviors I accurately interpreted the data I recorded.

As an observer, I was the main research instrument in this study. Thus, I clarified my intrinsic biases, such as my personal background (e.g., gender, culture, and education) and motives for conducting this study (Yin, 2011). Given my strong background in educational research, I had my own methodological biases or beliefs about what qualifies as credible evidence. However, I did not express judgment during interviews and observations, and was open to all types of information, including information I had not been trained to value. I actively sought out disconfirming evidence to ensure that I was making realistic claims and not attempting to merely validate my preconceived notions about the population and context.

Analytic Procedures

Data analysis was conducted in two phases: First Cycle coding and Second Cycle coding (Saldaña, 2013). Each phase offered several possible coding methods for analysis; however, only coding methods that best captured the complexities of the data were selected. Each of the methods I used for this study are described below.

First Cycle Coding

The coding process began with First Cycle coding, which represents a process in which data were assigned preliminary codes, and categorized in accordance with those codes. Saldaña's (2009) First Cycle methods are divided into seven subcategories, which are further divided into

coding techniques. I employed the following coding techniques during the first phase of the analytic process.

Attribute coding. Prior to delving into the data with significant detail, I performed attribute coding to provide essential information related to the participants and the contexts in which they were observed. This facilitated a more in depth analysis of the data I collected and a reasoned interpretation of that data. For this study, the attribute coding log included data source, date of data collection, gender of participant, job title, department, years at college, and highest degree of education.

Structural coding. The data analysis process began with structural coding, a process whereby a content-based or conceptual phrase was generated to describe a larger portion of the data. This technique was primarily used for the interview transcripts; I categorized segments of the interview data in accordance with the specific research questions to which those segments related. I also used structural coding for observational transcripts that covered a pre-determined set of topics.

Descriptive coding. Once structural coding was complete and the data were organized according to larger conceptual or content-based topics, I conducted descriptive coding (or topic coding) by assigning a word or short phrase to a passage of the data. This allowed for an indexing of the data content, further summarizing and organizing the data content by topic. This analytic strategy was used for all three sources of data, and was the exclusive analytic strategy imposed on the document-based data. Second order-tags, or *subcodes*, were assigned to primary descriptive codes for further categorization. For example, educational blogs were subcoded under "type of information access." I also conducted *simultaneous coding* when complex data content had multiple meanings, and thus, could have been assigned more than one code. For

example, during an observation of an English department meeting, faculty presented student work to illustrate the success of the English curriculum. In this case, the faculty accessed the student work and communicated it to colleagues at a department-wide meeting. Given this dual meaning, student work was therefore coded as both "type of information accessed" and "type of information communicated to colleagues".

In Vivo coding. I used this coding technique frequently to describe the interviews and observations to "prioritize and honor the participants' voice" (Saldaña, 2013, p. 91). For In Vivo coding, the language spoken by the participants serve as the actual codes. Not only was this technique instrumental for capturing the specific nuances of the data, but it also mitigated the possible effects of personal biases that often emerge through the use of academic language.

Versus coding. I also employed versus coding to discern dichotomous differences across documents and decision-making processes. Specifically, I coded interviews, observations, and documents to indicate whether the data gleaned from each of these sources were "empirically derived" or "not empirically derived." This coding technique was essential for identifying the credibility of the information that participants accessed and subsequently used to make programmatic decisions.

Second Cycle Coding

Once First Cycle coding was complete, I used Second Cycle coding to eliminate, reorganize, and elaborate on codes to "develop a sense of categorical, thematic, conceptual, and/or theoretical organization" (Saldaña, 2014, p. 207). The following Second Cycle coding methods were instructive in developing thematic connections across the data.

Pattern coding. I engaged in pattern coding to "pull together a lot of material into a more meaningful and parsimonious unit of analysis" (Miles & Huberman, 1994, p. 69). More

specifically, I grouped similarly coded passages together and assessed the groupings for further thematic commonalities. Code groups within identified themes and theoretical constructs were further assessed and assembled together into subthemes. Establishing these patterns allowed for further synthesis across all participants and data sources. Ultimately, pattern coding informed the development of the final coding scheme (see Appendix E).

Elaborative coding. Once pattern coding was complete, elaborative coding was conducted to build upon or refine the current theory of data use. For this method, relevant text was selected and analyzed with an eye towards current theory within the literature. I compared themes that I had identified in the data to that point with findings from extant research in this domain, thereby supporting or refuting the evidence that had been produced by past scholarship.

Analytic Memos

I wrote analytic memos concurrently with the data analysis. These memos were written regularly to document and reflect on the data collection and coding process (Saldaña, 2013). They also prompted deeper reflections of the contextual meanings of codes, connections, and themes. Critical thoughts regarding personal assumptions and biases were also noted in the analytic memos.

CHAPTER 4

CONTEXT: COMMUNITY COLLEGE CLIMATE

A complete understanding of the complexities characteristic of a large learning institution and the mechanisms by which decisions are made requires a conceptual grasp of that institution's climate. One critical aspect of an organization's climate is information sharing, as it promotes organizational effectiveness, innovation, and sustainability. In this vein, this section describes the climate of the community college, as well as how the climate affects what, how, and to whom institutional information is shared. To this end, interviews, observations, and salient documents provide a variety of perspectives and insights related to the community college's climate.

The data revealed four predominant cultural processes: unstable leadership, institutional research, social networking, and system of rewards. Each process contributes to the mechanisms by which faculty and administrators at the community college access, communicate, and disseminate information. Describing the organization's climate provides a necessary foundation for addressing the research questions.

Unstable Leadership

Commonly adopted by community colleges, a hierarchy culture adheres to bureaucratic rules and regulations, and is managed in terms of intrinsic power, status, and formal position (Quinn, 1988). In a hierarchy culture, the chain of command is structured like a pyramid, with decision-makers positioned at the apex of the pyramid. Typically, those at the top of the command pyramid in community colleges prioritize political and fiscal matters over pedagogy. Past research has explored the negative effects of a pyramid structure, indicating that bureaucracy, isolation, and centralization that result from a pyramidal hierarchy serve as impediments to institutional effectiveness (Cameron & Ettington, 1988; Smart & John, 1996;

Smart, Kuh, and Tierney, 1997; Xammuto & Krakower, 1991). The institutional setting for this study has adopted a pyramid structure, with the college president positioned at the apex. Consistent with past research identifying problems with a pyramid structure, study findings revealed the presence of two fundamental problems associated with the college's hierarchical structure—unstable leadership and the restricted flow of information.

For the last 20 years, the college has been headed by a number of presidents, all of whom have been marginally ineffective. Said one administrator:

> "[There is a] history of lack of attention, oversight, management, and leadership in the area of instruction, which is inarguably our most important area of concern. [In] over a period of 12 to 15 years, the effects of this lack of leadership are evident with dysfunction."

The claimed inadequacies of the college's presidents have been exacerbated by a high attrition rate among the college's leadership; the college has had four presidents in the past six years alone. From 1995 to 2007, the college's leadership focused primarily on maintaining low budget expenditures and avoiding disruption of the "status quo." As a result of this institutional stasis, the college failed to invest in innovation, technology, personnel, or management, and maintained only a small number of faculty and staff. Furthermore, the president negotiated with the faculty union to limit organizational disagreements. Faculty and staff worked in isolation, and there were no efforts to modify current organizational practices.

In 2007, the college hired a new president; however, this president held her position for less than two years. Owing to poor management of school funds, the president was asked to resign. Shortly after her departure, an interim president was appointed until the college hired the current president in 2010. The hiring of the current president was met with great enthusiasm, as

unlike past leaders, he was a proponent for innovation and organizational change. Despite the excitement surrounding his appointment, he has made a number of critical errors during his tenure thus far. One participant explained that he is "a man with big ideas, but he played too quickly. He did too much, too fast, too soon." Data revealed that participants did not perceive him as an effective communicator. Rather than consult faculty and staff or incorporate personnel recommendations into his decision-making processes, he was perceived as acting upon his own volition.

> "Perceptions were that he was not communicating effectively, deals made in back room, pretend[ed] to listen to ideas and then ignore them to do what he wanted to do…he was arrogant and didn't listen to people. He kept getting in his own way. Too much, too fast, too soon - he picked fights with people on issues that he didn't to have."
>
> "Administration has gone against shared governance – disrespectful of faculty and pushing their own agenda."

The president was asked to resign upon my study's completion. Coupled with years of unstable leadership, the widespread perception of his disregard for faculty needs has contributed to animosity, distrust, and poor information exchange between faculty and administration. This is evidenced by the following statements:

> "[There is] animosity between faculty and senior administration. Not a healthy environment…countered by negative incivility – yelling and screaming and bullying."
>
> "The union is really suspicious of everything and not willing to budge; it sees the administration as the enemy. There is a total breakdown of communication between the administration, the faculty, and the union."

"The faculty do not trust the administration, and the administration doesn't tolerate the faculty."

Institutional Research

The Office of Institutional Research was established to provide accurate and meaningful information to college decision makers in an effort to advance the college's mission and to foster a climate of continuous improvement and institutional effectiveness. The office is comprised of a director and two assistant data analysts. The director has a Master's Degree in Higher Education, and the two assistant data analysts hold degrees in pastoral studies and gender studies, respectively. Office staff are expected to provide data upon request, assist with department-wide and school-wide evaluation activities, and develop an annual survey related to class climate. On average, the Office of Institutional Research receives three requests for data per day. These requests include, but are not limited to, information related to student demographics and GPA, course retention, course success, employee demographics, and surveys intended to assess the college's needs. The science, mathematics, and English departments, as well as the ESL office, make requests most frequently. Although faculty members typically request information, the deans are responsible for data requests in some departments (e.g., media).

The process by which data are requested and provided varies as a function of the type of the request, its complexity, the timeliness with which it must be received, and the requester. The office director receives all requests through e-mail or an online form. The director then assigns each respective request to a data analyst. If the analyst is not clear on the details of the request, s/he contacts the solicitor of the data for clarification. If the information requested already exists, the office provides the requester a link that directs him/her to the information requested. If, however, the data require extraction and analysis, the data analyst must do so.

Once the data analyst fulfills the request, s/he sends send the results of the analysis to the director, who then determines whether the analysis was completed correctly. When asked how this determination is made, the director replied, "Years of knowing the data. If I think it's too off, I'll send it back and say, this doesn't look right to me. Sometimes I can figure it out by just looking at it." Once the director determines that the request for data has been fulfilled, s/he decides the format in which the data will be sent to the requester.

> "I look to see who it's going to and whether I trust them. If I trust them, I'll send them in the excel file with the raw data and the pivot tables. If I don't trust them, I'll pull out a table, and I'll pdf it and send it to them."

As evidenced, the research office modifies its practices according to the types of requests for data they receive, as well as the identity of the requester. While these subjective behavior positions the office as the "gatekeeper," these processes are likely influenced by the administration. Falling under the watchful eye of the administration, the office has become liable for protecting the administration and filtering data request from faculty whom the administration believes may intentionally misuse data in an effort to sabotage them. As a result, only a subset of the overall organization has access to relevant institutional data. Further, such inconsistencies and a general lack of systematization related to the dissemination of data promoted distrust and ambivalence within the institution. The following statements highlight the distrust and ambivalence with the Office of Institutional Research.

> "There are some people who do not trust what [Office of Institutional Research] does."
>
> "[Office of Institutional Research] report shows high rates of persistence, retention, and success. It doesn't make sense. Comparing experience with results and numbers, and somehow it doesn't compute. I'm very suspicious about the motives."

These sentiments result in the faculty's devaluation of institutional data and search for supportive evidence elsewhere. Data findings corroborated this phenomenon, as faculty primarily reflected on their own experiences, sought anecdotal evidence from colleagues, and collected their own data.

Social Networks

Social network structures can influence access to and sharing of information (Friedkin, 1982). Even in the most bureaucratic settings, informal social relations tend to dictate the processes through which information is shared, thereby influencing the quality of decisions that are made on the basis of that information (Podolny & Baron, 1997). To more comprehensively illustrate how social network structures ultimately affect decision-making processes at the sample community college, the following section will describe the associations between political and pedagogical interests, social structures, and information access and sharing procedures.

Political tensions among a subset of faculty members and administrators contributed to the formation of distinct intra-college networks. As one participant stated, "there is a lot of tension. Some like the administration and some don't, so there is a lot of fighting as a result of everybody suffering." The data corroborated this participant's claims; there was a clear divide among faculty members. Whereas one intra-college network—comprised of both faculty and administrators—welcomes institution-wide pedagogical reform, another network—exclusively comprised of faculty members—is closely aligned with the faculty union. Several faculty members in the latter network hold positions on the academic senate, and are in a constant state of friction with administrative-supported educational reform. Although the data revealed only

two networks, it is likely that there are others at the college. However, because study participants belonged only to these opposing networks, the current study will focus on them.

Stark philosophical differences between the faculty networks have created not only a distinct social divide among college personnel, but also (in the words of one participant) a "culture of fear." One administrator claimed, "at one point in my career, I was upfront and I was getting yelled at and spat upon, and it was really tiresome which is why we stayed underground for a few years and just survived." Faculty members who aligned with administrators described the academic senate as "scary" and "corrupt." Alternatively, faculty aligned with the faculty union and the academic senate asserted that "there are a lot of problems with our president" and that the administration has "gone against shared governance," been "disrespectful of faculty," and "push[ed] their own agenda." This information is useful, as an awareness of the distinct political movements within an organization better equips us to understand the social networks they comprise, and the communication that occurs between and within said networks. Groups have formed on the basis of mutual interests and political standing, and information sharing has generally been kept intrinsic to each network. To illustrate the ways information is shared within the two respective networks described above, I will further elaborate on the network structures, their dynamics, and the information-related activities that occur therein.

Network structures. The first "reformist" network, which is comprised of faculty members and administrators, evolved from the college's Center for Learning. Since its inception, the network has developed into a community of practice focused on reform and innovation. This network of approximately 20 people, which has since been involved in college-wide reform, helped to establish the First-Year Pathways program. Members of the network have assumed leadership roles in several college initiatives, including (but not limited to) pathways programs,

the redesign of college curricula, career training, the college transfer program, and the dual enrollment program. They coordinate yearly retreats and bi-monthly workshops to discuss current classroom practices, student engagement, and efforts to increase student success. Information is also transferred through informal channels. Members of the network regularly send impromptu e-mails to each other, the contents of which include newspaper articles, blog posts, data retrieved from the Chancellors Office, and personal anecdotes. One participant described a typical morning, "You come in the morning, and somebody sent an interesting article. And then there is this little back and forth. So I just sent one from community college week by Byron McClenney." Members of this network also exchange information casually, typically in the hallway or offices. Colleagues also meet for dinner and drinks, and often carpool to nearby conferences and meetings. These gatherings provide informal settings in which information transfer occurs. Through these formal and informal gatherings, several members of this network have developed close friendships with each other, enhancing the frequency and authenticity of information sharing. Said one network member:

> "…I just drop in on people. Like I just walk into [administrator's] office and if he's not busy I'll just start talking to him…or I'll go and visit [name]. If I have a curriculum/instruction type question, I would much rather talk to him in person."

The network primarily seeks to expand and include faculty who are open to learning new pedagogies that may challenge their current practices. Its members have invited all faculty, staff, and administrators to participate in workshops and retreats throughout the year. Although the topics presented in the workshops and retreats tend to vary in terms of content, they are nevertheless geared towards encouraging innovative thinking, giving faculty the opportunity to

reflect on their practices, promoting engagement in valuable conversations, and rethinking current pedagogical practices. In reference to these workshops, one member of the network said:

> "So we want people to start rethinking their curriculum – what are you doing in the classrooms, what is the point of your whole program, what do students get from it now, what do they need to get from it, is it leading them towards completing their goals. And so people are on different levels of where they are at – where there are people in 19th century, and people doing their own innovative things, but they are out on their own (lone wolf), and the retreats [bring] that together."

Expanding this network has proven challenging. College-wide e-mails inviting faculty, staff, and administrators to attend retreats and workshops are often ignored by those outside the immediate network. In most cases only the core network attended the workshops and retreats, thereby restricting the flow of information such that it only circulated among members of that network. Possible reasons for why faculty and administrators outside the network chose not to participate may be related to the timing of the workshops (e.g. weekends and evenings) and their length (e.g. two-day sessions). Outside members may also be concerned about being excluded from the group due to the close-knit relationships among the "reformist" network.

Most study participants belonged to this "reformist" network; thus, data related to other social networks are not as robust. One study participant was a member of the Academic Senate and faculty union, which together comprise a network that is ideologically and pedagogically opposed to the "reformist" network described above. Information related to how members of the Academic Senate and faculty union interact was obtained from interviews and observations of this participant. Additional, more peripheral, information was also obtained from the rest of the study participants. Members of the "reformist" network shared their impressions of the academic

senate and faculty union - they spoke of their experiences at academic senate meetings, their conversations with its members, and their feelings towards the network's communication style and decision-making processes.

The Academic Senate, a shared governance committee, is in charge of all academic matters in relation to the college. The senate solicits recommendations related to academic and professional matters, including the establishment of academic pre-requisites, standards, and policies. Several members of the academic senate are also part of the faculty union, a faculty-led association that protects the rights of the college's faculty and monitors administrative actions that may negatively affect the faculty and campus community. Given the functions served by its members, the senate and faculty union are primarily concerned with addressing faculty needs and challenging the administration's efforts that could compromise their current workload or compensation. Communication within the network is largely formal in kind. Members of the network typically share information with one another during scheduled bi-monthly meetings. Interview data suggest that the amount of information that is shared among its members is limited. For instance, data obtained from interviews and observations of one member of this network showed a clear preference for the use of reflective practice, student feedback, and handbooks as primary sources of information rather than communication with fellow academic senate members.

Given the goals of this network, its members primarily seek information that will ensure appropriate compensation, balanced workload, and pedagogical freedom. They expend little to challenge current pedagogical practices and educational curricula, as doing so can result in a change of the current educational structure. Therefore, members of this network often request data or faculty input to show the potential negative impact of a proposed (or implemented)

institutional change on student learning and workplace satisfaction. For instance, a member of the academic senate was very angry about the fact that winter session was eliminated without the senate's consent, and has been rigorously requesting data to prove its effectiveness.

> "I asked for success and retention of winter quarter – very controversial. During the time the school was getting rid of winter, we were asking what [are] the criteria you were using to eliminate winter? That is what we are trying to figure out."

As another example, the following statement, issued by the president of the faculty union, argues against the newly adopted blocked schedule, which limited the flexibility of faculty schedules. The following statement highlights the potential hardships faculty members are facing.

> "As you are all aware this is a change that has been adopted without any faculty input or without going through the Shared Governance Process. We are particularly looking to see if it effects any of your hours or days on campus. I can use my schedule as an example. I teach four classes back to back twice a week. I normally do not have any down time between classes. With the new block scheduling I now will have 20 minutes in between each class. This will require me to spend an extra hour on campus every day. Considering that we currently cannot have office hours for less than 30 minutes, it is an hour of wasted time. Please look over your schedules and respond to this mail with the effects that it may have on you."

Both examples illustrate that members of the senate and faculty union challenge institutional change without identifying reasons for why these changes were proposed or instituted (e.g. fiscal constraints) and without exploring its potential benefits for student experience and learning.

There is also little evidence to suggest that this network utilizes institutional research to support its decisions. This may be attributable to the mutual distrust between this network and the Office of Institutional Research, which falls under the umbrella of the college's administration. Because members of this network often disagree with the administration, their data requests may be perceived as controversial, and are sometimes delayed or disregarded. One member of the academic senate claimed, "It's been hard to get data from the administration. They just don't really want to give it or they don't have it. [Name] asks and doesn't get." As a consequence, members of the network often rely on personal experience and independent data collection for information.

Although the majority of participants for this study fell into one of the two aforementioned networks, one study participant did not belong to any social network, thereby hindering her engagement with the college community. As a sole coordinator of a non-credit division, the faculty member is given minimal support by the administration: "I really don't have the support. [The college] doesn't know about non-credit. We have a new dean over there who does, but she's super busy." The participant has also experienced difficulty accessing institutional data: "I really wish I had access to non-credit pass/fail rates. I wish I [knew] how many people persist, move on from one level to the next. I just can't figure out how to do it, how to gather it myself and [research office] does not do that for me." Feeling isolated from the college community, the participant sought networks outside of the college to engage with a useful community of practice. Through self-nominations, she has become involved in several professional development organizations for adult educators in the state of California and has attended a number of workshops. Given her separation from social networks inside the college, this participant has obtained pedagogical information exclusively from external organizations.

The lack of support from the college and separation from internal social networks may perpetuate lack of communication and a sense of isolation. This could result in a lack of homogeneity in the way faculty practice and limited opportunity to take advantage of college resources (e.g. institutional research, classroom materials, colleague experiences).

The nature and dynamics of the college's social networks are critical to information access and flow therein. Study participants belonged to two social networks, one of which is more formal and procedural, and the other is more casual. In the former, faculty members tend to hold formal positions on committees, communicate primarily during structured meetings, and were not observed engaging in casual communication elsewhere. It is possible that the formal nature of communication has discouraged faculty within this network from developing personal relationships, and engaging in more causal, uninhibited conversations. As a consequence, the flow of information is slower and potentially limited. Alternatively, the "reformer" network is able to share information more effectively and efficiently, as participants were observed interacting in multiple contexts, exchanging data, anecdotes, resources, and ideas. The data also show that some individuals fall outside the boundaries of the college's social networks, forcing them to collect pedagogical information from sources external to the college itself.

System of Rewards

Each organization establishes a set of values and goals, and subsequently employs people whose aspirations align with those values and goals. Community colleges were established to emphasize teaching, and as a result, typically employed faculty on the basis of their pedagogical interests and expertise. Therefore, duties and rewards are distributed according to the pedagogical focus of community colleges (including the sample college). Faculty are assigned to

and paid for five classes a semester, leaving limited time and funding for other scholarly activities.

Systems of rewards established by organizations have traditionally been extrinsic in nature (Skinner, 1953). Historically, rewards have not been derived from the sheer pleasure of performing the task, but rather from external motivators, such as monetary incentives or social acceptance (Ryan & Deci, 2000). Although some contemporary organizations promote the importance of internal rewards, the college described here adheres to the more traditional reward system—using monetary incentives and social acceptance as motivators for performing tasks well. Because community colleges focus more on pedagogy than empirical research, monetary and social incentives are primarily reserved for teaching practices rather than research-based activities. As a result, within community college settings, research-related activities have been significantly restricted. One participant described the lack of motivation provided by the college on the basis of promoting empirical inquiry:

> "Generally there is not that incentive. In our lit[erature] committee meetings or our comp committee meetings it's not a place to share research or even share your own practice. It's about finding the space for it. Unless there is that incentive or context for talking and sharing and collaborating, I think it is really hard in the community college to do that - it's not like we have all this time for research, we are teachers."

The data also showed that faculty rarely engage in their own empirical research because of time constraints and workload. Because they are hired primarily to teach, faculty are not expected, incentivized, or provided with time to participate in meaningful research activities. One participant succinctly stated, "We are teachers that teach." This exemplifies their collective

attitude towards their job; they are hired to teach, and thus, focus primarily on teaching rather than research. Said another participant:

> "Community college teachers don't have time to do the research. There is no time built into their job description to do research. We are teachers that teach, and university teachers are teachers that do research and teach a little bit maybe. We don't have any requirements to do research, so we don't have that pressure. The only research that we are required to do is fill out our SLOs on ILUMIN which is meaningless because it's just a record keeping device – there is not a lot of conversation and discussion or engagement about that research going on because there is no time."

It should be noted that social rewards (e.g., group affiliation, political influence) have motivated many faculty members to engage in certain extra-pedagogical activities (e.g., department service); however, limits on monetary and social rewards for participating in research may have discouraged faculty from engaging in research-based activities. Educational efforts to accommodate the inclusion of scholarly pursuits could offer additional opportunities for identifying and incorporating pedagogical practice and educational curriculums that have been empirically tested and deemed effective. Modification of the college's current reward system such that research activities are properly incentivized may help realize this.

To this end, several faculty members have prioritized curriculum redesign and explored educational research. Because the college has limited funds available for these efforts, they are likely motivated by intrinsic rewards. More plainly, faculty and administrators engage in scholarly activity because they find it interesting and derive satisfaction from the activity itself (Gagne & Deci, 2005). One faculty member who is involved in redesigning the English

curriculum described the need for self-initiative for participating in such efforts, given the limits on space, time, and recognition for doing so.

> "When you are just teaching and are on committees, there is no real incentive except your own incentive because there is no place to really talk about it here. There is not a lot…in [program] we talk all the time about our practice and so that really incentivizes looking it up and sharing the information that you are getting and hearing information and looking it up."

Although incentives for reforming the college's stance on scholarly activity are likely self-motivated, the current institutional climate cannot sustain this system of reward. Past research has shown that for people to experience high level of intrinsic motivation, they must feel competent and autonomous (Deci & Ryan, 1985; Deci, Koestner, & Ryan, 1999; Ryan & Deci, 2000). The current political climate of the college, however, may create a feeling of uncertainty among faculty and administrators, which may limit the college's reliance on a system of rewards for scholarly activity that is exclusively contingent on intrinsic motivation. Only after the college climate becomes more collaborative, trusting, and accepting will a sustainable intrinsic reward system effectively complement an extrinsic reward system to promote engagement in educational and research activities outside their specified job description.

CHAPTER 5

DATA PRESENTATION AND ANALYSIS

Data derived from qualitative interviews, observations, and documents captured the underlying process by which faculty and administrators at the community college acquire, interpret, and communicate evidence. These data sources also served to illustrate the nature of the college's organizational climate and link it to the processes related to acquisition and integration of evidence within the community college system.

This chapter provides an analysis of the data meant to address the following research questions:

1. What types of information do community college faculty and administrators access to guide educational reform?
2. How, if at all, do community college faculty and administrators discern quality information and define it as evidence?
3. How, if at all, do community college faculty and administrators communicate the information they access?
4. How do community college faculty and administrators interpret and integrate the information they access into their daily practice?

Types of Information Accessed to Guide Educational Reform

To identify the types of information used by community college faculty and administrators to guide educational reform, I collected data from multiple sources. The data revealed that faculty and administrators access a wide range of information. Data showed that faculty and administrators use 11 types of sources from which to gather information to guide their decision-making: professional development, colleagues, program models, published

empirical research, institutional research and evaluation, educators from other institutions, online media, student feedback, periodicals, R1 researchers[2], and books. Table 3 shows the number of participants who accessed a particular type of source and Table 4 illustrates the number of times that a particular source type was referenced.

Table 3
Sources of Information Used by Participants

Source of Information	Number of Participants
Professional Development	11
Colleagues	11
Other Program Models	11
Student Feedback	11
Online Media	10
Personal Experience	10
Institutional Research & Evaluation	9
R1 Researcher	9
Educators from Other Institutions	8
Periodicals	8
Books	6
Published Empirical Research	6

[2] The Carnegie Foundation for the Advancement of Teaching defines an R1 University as a doctorate granting, research university with a very high level of research activity (Carnegie Foundation, 2010)

Table 4
Reference Count by Source Type

Source of Information	Reference Counts
Professional Development	71
Colleagues	56
Other Program Models	42
Personal Experience	35
Books	29
Institutional Research & Evaluation	24
Educators from Other Institutions	22
Published Empirical Research	22
Online Media	21
Student Feedback	21
Periodicals	20
R1 Researcher	19

Professional Development

Professional development, intra- and extra-organizational training opportunities designed to improve educational practices, was the most commonly accessed source of information among study participants. In total, participants sought out professional development from 18 different non-profit research groups, private foundations, and associations. The most referenced professional development associations were:

- *Complete College America*, a national nonprofit organization whose mission is to increase the number of Americans with quality career certificates or college degrees. Its primary aim is to close attainment gaps for traditionally underrepresented populations.
- *Association of American Colleges and Universities* (AAC&U), a leading national association concerned with the quality, vitality, and public standing of undergraduate liberal education. The AAC&U is comprised of more than 1,300 member institutions,

including accredited public and private colleges, community colleges, and research universities.

- *The Bill and Melinda Gates Foundation*, a foundation that collaborates with global partners to challenge worldwide crises like poverty, poor health in developing countries, and the failure of America's education system. Completion by Design, the signature initiative of the Bill and Melinda Gates Foundation, allies with community colleges to increase completion rates for low-income students while controlling for the cost and quality of education.
- *The Lumina Foundation*, an independent, private foundation committed to increasing the proportion of Americans with high-quality degrees, certificates and other credentials to 60 percent by 2025. Lumina's outcomes-based approach focuses on building an accessible, responsive, and accountable higher education system.
- *The California Community College Success Network (3CSN)*, a professional learning system that offers specialized opportunities on programs and teaching frameworks for community colleges.

The benefits of professional development were clear. Participants gained information related to innovative educational programs, empirical evidence on high impact programs, program models, program implementation training, and most importantly, access to a community of support. The community networks achieved through professional development provided space for the redesign educational curricula, and additional opportunities for participants to become leaders of wider networks that focus on critical issues in higher education. The following quotations demonstrate interviewees' perceptions of professional development programs as valuable sources of information for education professionals:

"I'll look at Complete College America – organizations that I know are also invested in educational equity and have that research available and its updated."

"The first year I went as a participant and learned about habits of mind, acceleration, and also reading apprenticeship. And then the next year I came back as a facilitator."

"So basically I'm involved in a lot of community of practices to see what other people that have programs just like the one that I am the coordinator of. I see what they are doing. That's what a community of practice is – you get together and you share each other's practice. The strengths and stuff like that…it's a training, so when you go they train you on the best practices of these areas that I'm interested in."

Participants also attended conferences, workshops, and seminars hosted by professional associations; conferences were frequently attended by seven study participants who were engaged in wide-scale educational reform. The specific conferences to which participants referred were: First Year Experience, Strengthening Student Success, AAC&U, College Completion and Success, E-portfolio, California Community College Math Conference, High Tech, California Teachers of English to Speakers of Other Langauge (CATESOL), and Teachers of English to Speakers of Other Language (TESOL). All conferences were practitioner-based, and primarily focused on training related to the implementation of innovative curricula (e.g., First Year Experience) or methods of practice (e.g. E-portfolio). These conferences allowed educational practitioners to share their success stories and provide supporting evidence through data, student feedback, and personal experiences. One participant described how she told her "success story" at one of these conferences:

"Because our program is only two or three years old, we tell the story. This is the lack of hope that existed; this is how we gathered our information and came up with our ideas;

> this is how we met weekly and formed relationships in order to create the course and the professional development. These are the numbers we saw that inspired us…then we did this…and then we show data about our faculty surveys and how their self-efficacy in these different areas increased, and this is the student data and how students came back their second year."

Participants referenced information retrieved at conferences over 20 times. Most information was referenced during curriculum planning meetings and workshops and during causal conversations. Faculty shared various types of information they gathered at conferences, including theoretical perspectives, case studies, and hands-on teaching practices. One administrator describes how he shared a PowerPoint presentation he had obtained from Complete College America regarding the development of a 2nd year pathway program:

> "There was a lot of stuff online to help us guide us - Complete College America – Florida story – they have meta-majors for everybody. At the conference, the Florida folks are dazed… you'll see all sorts of stuff, they have brochures and pamphlets and groovy graphics. Too many choices – you start making bad decisions. They get to this interesting thing called behavioral economics – so if you have too many choices you start making bad decisions. If you turn to page 4, give interesting examples – Austria and Germany. The solution is offer fewer choices and make opting out."

Participants also attended workshops and tutorial seminars for experiential training and resources for educational programs, such as Reading Apprenticeship, College1, and First Year Experience. Furthermore, respondents referenced information they retrieved from nine different workshops, most of which were hosted by associations that were external to the college. This finding reflects the substantial time and effort participants invested to attend practice-based workshops geared

towards improving their teaching practices. Interview data showed that two participants also attended online continuing education classes during their tenure at the college. These were courses related to social media and reading apprenticeship.

Colleagues

The second most common type of information used by study participants is colleague experience and expertise; during in-person interviews and observations, participants referenced colleagues over 50 times. Faculty and administrators exchanged anecdotal information in all settings—classrooms, planning meetings, workshops, retreats, e-mail, and causal conversations. Although professional development activities were the most commonly cited source of information overall, participants most commonly identified colleagues as the prime mechanism through which faculty and administrators learn about new educational concepts (e.g., threshold concepts), develop and revise educational curricula (e.g., homework assignments), and exchange program resources (e.g.. rubrics, syllabi, books). In fact, most participants first turned to faculty experiences and advice to guide the development and refinement of their practice. Several participants emphasized the degree to which anecdotes from colleagues were used to guide decision-making:

> "But as far as searching goes, I probably rely more on talking to people."
>
> "It sounds either terrible or obvious but I think professional life is about personal communication (who you know) and that's really how stuff gets done and how innovation happens – it's talking to each other and communicating."
>
> "Usually first, my colleagues. I might ask [name], who is my office mate or [name] down the hall may be somebody. That's usually my first stop. I go to them because I

respect their teaching practice – I like what they do so I feel like I can trust their ideas to be good ones."

Given the frequency with which faculty utilize professional development activities and colleague experience and expertise, it is useful to identify their commonalities. Both are experientially focused and provide practitioners with practical information that can be implemented into classroom protocols and curriculum design. Unlike research, which does not address the college context, professional development and anecdotes provide information that is tangible, contextual, and comprehensible. Finally, because educational professions are typically socially focused, it is unsurprising that the two most commonly accessed sources of information are contingent upon communities of practice.

Student Feedback

In-person interviews revealed that seven of the eleven participants utilized student feedback to inform their practices. Observations similarly showed that nine of the eleven participants accessed or referenced student feedback in their classrooms or in meetings. In total, faculty referenced student feedback over 20 times. Participants sought student feedback to not only improve classroom instruction, but also promote and implement school-wide curriculum reform. This feedback came in the form of student work samples and assessments (e.g. e-portfolios), videos of student reflections, informal student feedback regarding assessments and assignments, course evaluations, and student focus groups. Participants reviewed student assignments and assessments as a means of gauging student progress. Further, at the end of the academic year, two participants who were piloting their math curriculum redesign had the college's video department film their students talk about their experience in the classroom; this video was subsequently used to revise the curriculum for the following school year. One faculty

member discussed assignments with each student individually; she had them describe the reasoning behind their work, and subsequently engaged in a deeper conversation regarding the math concepts addressed in the given assignment. Another faculty member indicated that she utilized school-wide course evaluations to identify areas of weaknesses in her teaching, and used that information to improve her practice. Participants involved with the pathways curriculum and the English redesign contracted the external evaluation team to conduct student focus groups in an effort to obtain feedback regarding their experiences with the programs (e.g. overall impressions, suggestions for improvements). Several participants also indicated that they used verbal and behavioral cues (e.g. facial expressions) to gauge student engagement, and to capture a more comprehensive illustration of how an educational program affects students.

Other Program Models

Participants also relied heavily on other program models. During interviews, participants referenced ten different program models; during observations, participants referenced over 30. The data show that participants' primary impetus for exploring other program models is to obtain classroom resources (e.g. rubrics and syllabi), develop new educational curricula, and measure program effectiveness. As an example, one participant searched prominent research universities (i.e., Harvard and MIT) for classroom resources. This participant argued for the utility in doing so: "Some schools like MIT have whole courses online so I can go and see what is the curriculum in this course at this school – to take a look at what the classes are like at other universities."

Another faculty member expanded his search for other programs, identifying an educational model in Finland as useful for his development of a new sequence in mathematics. He noticed that in the Finnish model, students performed well on an international exam.

Therefore, he explored changes in Finnish educational curricula that may have led to this positive outcome. After identifying problem-based learning as the key component to student success, he researched the learning model and later applied it in his classroom:

> "When we were developing the sequence. I got really into Finland. The Finnish people they redesign education system and there is this international exam called PISA and Finland was average or below average and all of a sudden they were in the top 3. So I studied their educational model and they don't have any standardized testing and everything is problem based."

Participants frequently looked to nationally regarded programs as templates for designing new course models. Said one participant, "We are looking at national best, high impact practices from CECI and looking at models that exist outside of us: Laguardia, CUNY, Valencia." Owing to their applicability to their practices, participants in the current study primarily evaluated educational models that had been developed in community college settings, identifying key aspects that they believed should be integrated into their new curricula. Participants assumed that if the curricula they evaluated could succeed in other, similar settings, they should be successful at their own college.

Online Media

Data from in-person interviews and observations revealed that ten of the eleven participants accessed information from the Internet (i.e., search engines, social media websites, and topic-specific websites). The appeal of these sources were based on their accessibility and variability, as well as the abundance of the information contained therein. For instance, participants were particularly intrigued by Twitter, as it allowed them to stay informed on current educational practices with relative immediacy. It also provided faculty with an avenue for

connecting with educational leaders, thereby allowing them to become informed of the leaders' educational visions, practices, and recommendations. Several participants explicitly discussed the utility of Twitter for these ends:

> "If I'm looking for something specific usually I have to search for it. I'm on twitter a lot, and I follow a few educators here and there. There are a lot of people that are really on top of current issues. Twitter is so easy because it's just under 140 characters so I just favor a lot of things with the intention to read it later and whether I get to it or not…but I feel like I keep abreast of things just through that."
>
> "Our president at [college] tweets. It's kind of cool if you are in education because people are always postings stuff."

Similar to Twitter, participants also readily accessed TedTalks because of the degree to which they were personalized. TedTalks offered participants information through contextualized, personalized stories in a short, digestible format. Finally, one participant explained that she used Facebook to see how her students progressed after she had lost touch with them. In contrast to the social media described above, participants accessed topic-specific websites when more detailed content or discipline specific information was needed.

Personal Experience

Ten participants referenced personal experience as a valued source of information. Interviews and observations provided supportive evidence for its use. Several practitioners indicated that most of their learning occurs in the classroom, and nearly all participants were observed reflecting upon their personal experience to refine their practice.

> "So its my experience that I would use and not numbers."
>
> "The reflection piece is always there. If I take action, I always have to reflect on it and assess."

As evidenced by curriculum redesign meetings, workshops, and document review, several study participants maintained daily journals of their experiences, and utilized those entries as data source to inform their curriculum redesign. Other study participants carved out time during meetings to discuss share their classroom experiences, and often used this information as a measure of success. Nearly all participants utilized personal experience to modify classroom practice; it was been used to determine whether to re-use a textbook, modify a classroom activity, or eliminate a homework assignment.

As illustrated, personal experience was often utilized in all settings of practice. Although participants may have not overtly acknowledged its value, observations suggest that it is, in reality, one of the most valued and utilized source of information used by faculty.

Institutional Research and Evaluation

Participants frequently utilized institutional research and evaluation to glean information that could be used for their pedagogical practices. Seven of the eleven participants claimed that they accessed information from institutional research and evaluations during interviews; I observed six of these participants doing so on 17 distinct occasions. Taken together, the interviews, observations, and archived documents identified over ten different types of data accessed, including program-specific data concerning student success, transfer data, demographic data, and retention and persistence data. In addition, four participants gained direct access to the results of evaluation research from the external evaluation team.

Institutional research. Generally, participants access institutional data to assess the effects of the educational program of which they are a part. If institutional data demonstrated that a particular program resulted in high success and retention rates, faculty used those findings to convince colleagues and administration of the program's positive impact. However, if the data

failed to reflect a participant's personal experiences, a complex interpretive process ensued. Several participants described this phenomenon:

> "[It's] helpful to take [institutional] data back to curriculum design committee or back to the department and say, look, this course is fixing people."
>
> "If it confirms, then it's good, and if it doesn't confirm, what's wrong with this. That's what happens, honestly. What I see going on in here and I've seen talking to people. Something is wrong with THAT – not us."

This process resembles a phenomenon described in the literature (Young & Kim, 2010; Coburn et. al. 2009; Greeno, Collins, & Resnick, 1996), which states that how practitioners interpret new information is largely determined by what they know and believe; they will assimilate new information into their preexisting beliefs rather than engage with data that causes them to change their current cognitive and social frameworks. Study participants were no exception; the discrepancy between what the data showed and their beliefs created an internal struggle that in most in cases resulted in prioritizing their pre-existing beliefs and knowledge.

Evaluation. The community college collaborates with an external evaluation team, which assists the Institutional Research Office and faculty with evaluations of curriculum redesign initiatives. The external evaluation team provides additional assistance with survey development, data collection, data analysis, and report writing. Several study participants also relied on the evaluation team for qualitative data, requesting that evaluators conduct interviews and focus groups with students, as well as observe classrooms and college-based professional development activities. Evaluation data offered a more in depth analysis of an educational practice or curriculum, providing greater insight into reasons for why a program or practice works (or does not work), and offered practical recommendations for how it may be improved.

R1 Researcher as Expert

During the in-person interviews, seven participants identified R1 researchers as a valuable source of pedagogical information. In addition, observations showed that six participants attended a keynote speech delivered by two R1 researchers, and two participants privately consulted with R1 researchers for assistance in evaluating educational programs (e.g. survey development) as well as learning more about current educational frameworks (e.g. growth and fixed mindset). R1 researchers' input was used to spark interest among faculty and bring credibility to new educational curriculum. Further, a few participants kept in touch with faculty under whom they studied, and used them as a scholarly resource. Findings showed that face-to-face contact with R1 researchers largely influenced the way practitioners use research data. Specifically, practitioners were more likely to integrate research data when they had the opportunity to engage in a meaningful discussion surrounding the topic, and when the R1 researcher presented the data as it pertained to the particular context. As an example, an R1 researcher in education was invited to talk to the mathematics department regarding the impact of Growth and Fixed Mindset on student learning. Its impact resulted in a faculty member adapting his pedagogical practice to integrate this framework.

Educators From Other Institutions

During their interviews, seven of the eleven participants said that they accessed information from other college sources; I observed five of the eleven participants doing so. In total, participants identified over 15 different sources from which they accessed information. Some of these sources include: Chancellor of Academic Affairs for California State Universities, Chaffey, Fullerton Community College, advisory boards, and community college listservs. Participants connected with other college educators through colleagues, as well as through

professional development associations. Interview and observational data found that only participants who were involved in developing new educational curricula turned to other college educators for support. By connecting with practitioners from other community colleges, faculty and administrators were able to access program models, educational resources, and contextualized data that illustrated the effectiveness of various programs. Most participants communicated with these educators via e-mail, though in one case, I observed the chancellor of academic affairs speak to faculty and administration about general education courses in the 21st Century. A faculty member very involved in the educational pathways program connected with him through the Association of American Colleges and Universities, and invited him to speak to interested faculty and administrators during a college-wide retreat. The following figure demonstrates a visualization of the chancellor's speech.

Figure 2:
Visualization of Chancellor of Academic Affairs' Speech

Periodicals

To stay abreast of current educational practices and discover new content that could be incorporated into the classroom, participants consulted periodicals. In-person interviews, observations, and documents revealed that seven participants used newspapers, magazines, and

professional association publications to inform their work. Some of the more common periodicals that were identified by participants as informative were *Community College Week*, *Chronicle of Higher Education*, *Inside Higher Education*, the *New York Times*, *World News*, *Economic Reports*, *Wired Magazine*, *Slate*, *Atlantic Monthly*, and *Senate Rostrum*. Although participants said that they used periodicals for pedagogical information to a substantial degree during interviews, I observed only two participants share information from periodicals – one during a workshop and the other during a retreat. One participant led a workshop focused on the notion of empathy, and how it enhances learning. For one of her activities, she handed out two "thought pieces": *The Great Divide* by Daniel Goldman and *Rich People Just Care Less* by Michael Wesch; she obtained the first piece from a colleague, and the second piece by researching the author's work. The participant first requested that the faculty skim the articles, and then had them engage in a think-aloud activity. This activity consisted of each faculty member reading a few sentences out loud to the group, and then spending a few minutes sharing his or her interpretation of the selected segment. Another study participant was observed referencing information from *Community College Week* during a First-Year Pathways retreat. She references the periodical when discussing the importance of providing context when attempting to recruit incoming students into the pathways program.

Books

Six participants cited books as a source of information during the in-person interviews; I only observed two participants explicitly referencing books during meetings, workshops, or retreats. Participants that claimed to have used books as sources of pedagogical information referred to different types of volumes, including academic (i.e., university-based publishing house), trade (i.e., commercial publishers), or textbooks. Commonly referenced trade books

included: *Brain Rules: 12 Principles for Surviving and Thriving at Work, Home, and School* (John Medina), *Leadership and the New Science: Learning about Organization from an Orderly Universe* (Margaret Wheatley), and *How children succeed: Grit, Curiosity, and the Hidden Power of Character* (Paul Tough); commonly referenced academic books included: *The myths of academic literacy* (Joy Read), *What the best college teachers do* (Ken Bain), and *What the best college students do* (Ken Bain); and commonly referenced textbooks included: *ESL textbooks with teacher guides* and *Grammar Sense 1: Second Edition* (Susan Iannuzzi). By distinguishing the types of books used, I effectively differentiated the scholarly rigor with which they were written. Participants accessed 29 different books in total, four of which were published by an academic press, 18 of which were trade, and 6 of which were textbooks.

Participants were sufficiently familiar with their books, as they were able to describe their respective premises. This sentiment was echoed during observation, as many participants referenced specific content from the books during meetings, workshops, retreats, and casual conversations. For instance, one participant referenced the book *Switch* during a first year pathways retreat. This participant claimed, "There is a whole chapter from *Switch* where you get decision paralysis when you have too many choices." Participants were particularly drawn to the narrative descriptions in trade books, recalling the content with greater detail and emphasizing their ability to integrate the information contained therein directly into their practice. During one in-person interview, a participant shared a story that he read in a book regarding the importance of contextualization. This story inspired him to contextualize his math lessons:

> "So my latest favorite story: they did this experiment were they had a picture of this guy. Two groups were shown the same picture. The first group was told that this person's last name is Baker, while the second group was told that this person was a baker. Time passes.

> Each group was asked what word was associated with the picture. The group that was told the person's last name was Baker did not remember. The group that was told that he was a baker remembered that he was a baker. The paradox is: it's the same picture and the same word. I feel that we are teaching them: last name is Baker."

This quote exemplifies a feeling commonly expressed by teachers regarding their impact on student learning; students have difficulty integrating and subsequently recalling classroom content. As the same participant describes below, contextualizing information may significantly improve the students' recollection of content.

> "When we contextualize the math then that's when, oh there is a connection - that means something to me. So I think in general stories resonate with us. I use stories like a just told to communicate the point, to convince people contextualization something meaningful. Also, when we share our experiences in the classroom, especially our success stories, that's also super powerful."

Published Empirical Research

During in-person interviews, six of eleven participants indicated that they access research data from academic (i.e., non-institutional) sources. However, most participants were unable to provide specific names of journals and articles. Instead, they indicated that they accessed "academic research" to guide their classroom practices. The following responses from participants illustrate the vagueness with which they refer to their use of academic sources:

> "Academic journals – none of the titles of which I can remember, although I have a whole bunch in a binder."
>
> "Academic articles on education…"
>
> "EBSCOHost online databases…"

"Research exposed to from my PhD program…"

Some participants identified specific university-based websites from which they would search for information, including the websites for Chicano Studies Department at UCLA, the USC Center for Urban Education, stretch program research from the University of Arizona, and the University of South Carolina's National Resource Center for 1st Year Experience. During in-person interviews, one participant described having accessed the *Harvard Business Review*, and another said he referenced an article from *Dweck's Brainology* to learn about fixed and growth mindset, and apply this concept to his practice.

There was a discrepancy between responses provided during in-person interviews and observational data. Whereas most participants claimed to have accessed academic research during their in-person interviews, supplementary evidence indicated otherwise. First, most participants were unable to provide specific examples of journals they had accessed in the previous month. Second, participants did not keep academic research in their offices; there were no printed journals or articles on the desks or bookshelves, and participants did not have them readily available on their computer. Finally, I observed only three participants (all of whom held a PhD) referencing research-based information.

Summary

Faculty and administrators at this community college access a wide variety of information to inform their work. Interviews, observations, and documents revealed that participants most commonly accessed information from professional development associations, colleagues, and other program models to guide their decision-making. Each of these types of information features a contextualized component that situates the information within the community college setting. Fewer participants used books, and an even smaller subset of

participants referenced academic research. Taken together, these findings illustrate the type of information faculty readily access to guide their work, and the weight they place on contextualization.

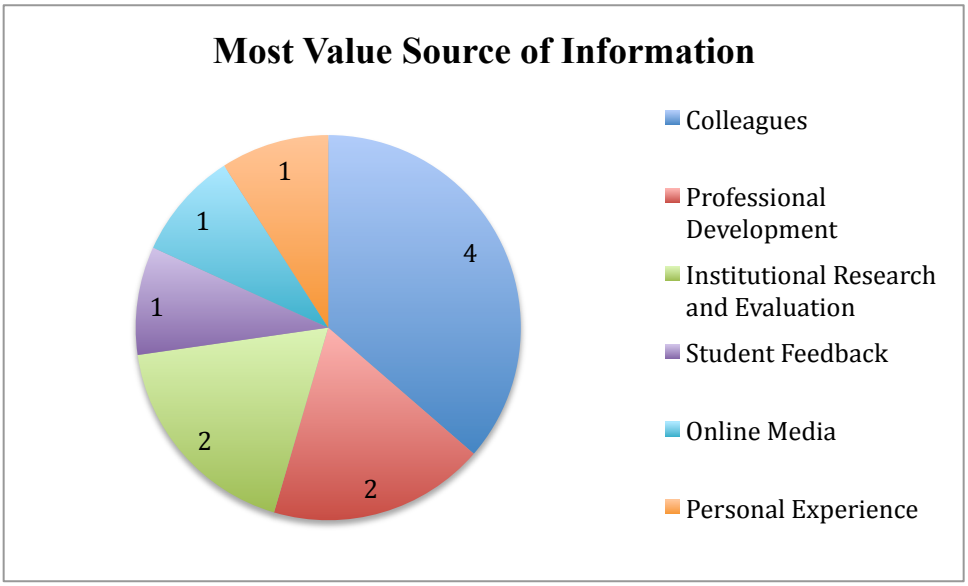
Discerning Quality Information and Defining it as Evidence

Multiple data sources provided an illustration as to how faculty and administrators discern quality information and view it as credible evidence. During in-person interviews, I asked participants to define evidence-based information, and to elaborate on how they distinguish quality information from other types of information. In addition to the interviews, I also conducted observations and reviewed extant documents to generate additional insight into how participants implement the information they access into their daily practices and how frequently a particular source of evidence was referenced.

Discerning Quality Evidence in Daily Practice

Through in-person interviews, observations, and a review of relevant documents, I identified multiple types of information participants believe to be quality evidence for improving educational practice. Subjects identified six sources of information as particularly valuable, including 1) Colleagues 2) Professional Development, 3) Institutional Research and Evaluation, 4) Student Feedback, 5) Online Media, and 6) Personal Experience. I determined the value attributed to each of these respective sources in terms of the number of participants that verbally identified them as quality evidence, and how often they were incorporated into participants' daily practices. Figure 3 illustrates the number of subjects that identified each source as the most valued.

Figure 3
Most Valued Sources of Information by Participant



In the following sections, I describe the most valued sources of information as outlined in Figure 3. In doing so, I illustrate the ways participants discern quality information.

Colleagues. Interviews, observations, and relevant documents suggest that faculty and administrators place great value on colleagues' experience. Most participants involved in curriculum redesign spent a significant portion of their time collaborating and discussing issues with their colleagues. Faculty met regularly to discuss issues they encountered during that week, and brainstormed possible solutions to address those issues. Staff meetings, workshops, and retreats also provided a space for colleagues to share experiences and reflect on pedagogical practices. Data suggest that faculty primarily valued colleagues who they respected as teachers, showed professionalism, were creative in their approach, and had similar pedagogical philosophies:

> "I think people who have a track record, that have shown their professionalism, their creativity and their approach, and they carry a set of principles that I agree with in my own teaching."

> "In terms of colleagues, it really is – do I respect them as at teacher. When I hear them talking about their work, does it sound good and complex? Sometimes it's - do their values mesh with mine? If they view students very differently than I do I'm probably not going to turn to them because there are some teachers who view students as bundles of deficits so those are not the type of teachers I'm going to go to because they are going to give me not useful information. Does our philosophy of teaching mesh? That's how I know."

Further, most faculty members valued the opinions of colleagues with whom they had developed a personal relationship. One faculty member valued colleagues primarily for practical issues because "you don't find the practical stuff in any of the scholarly journals." Another participant believed collaboration yielded better work, claiming, "I believe that when people collaborate you can come up with something better than just the vision of one person."

The value participants placed on colleague expertise partially depended on the network to which they belonged. For example, faculty from the "reformist" network expressed the value and use of colleague experience more frequently than faculty who participated in the academic senate and those who had no association with any particular network. Interacting with other senate members was not emphasized during the in-person interview with the faculty member who belonged to the academic senate. Observation and relevant documents corroborated these findings, as the faculty member was not observed conversing with colleagues or exchanging resources. The data suggest that the culture of a network influences the value placed on colleague expertise and how much it is utilized in developing their classroom practice. We could surmise from these findings that changing the institutional climate can play a role in modifying the way

practitioners communicate, the flow of information, and the value faculty and administrators place on a particular source of information - in this case, colleague experience and expertise.

Professional development. Only two participants cited professional development as the most valuable source for information; however, it was prevalent in the interviews and observations I performed. Participants look to professional development for practice-based information, social support, and insight into new educational practices. Several new educational initiatives that were implemented at the college, including Reading Apprenticeship and First Year Experience, were introduced at professional development workshops. On multiple occasions, I observed participants sharing resources and new educational practices they learned at conferences and professional development workshops. Conferences and professional development workshops provided faculty with examples of educational models, as well as classroom resources practitioners can use as templates when developing new educational curricula. A few participants also obtained a distilled version of empirical work that had been based on practitioners' interpretations and experiences.

Institutional research and evaluation. Two participants identified institutional research and evaluation as the most valued source of evidence available to them. Participants were particularly interested in measures of educational impact (e.g. student pass rates, student retention rates, student transfer rates) and the degree to which these measures influence their colleagues, the administration, and the academic senate. Participants regularly discussed institutional data in department-wide meetings, curriculum development workshops, and administrative meetings, using it as a tool for demonstrating program effectiveness. Several participants offered insight into the value they place on data as a particularly influential kind of evidence:

"[It's] helpful to take [institutional] data back to curriculum design committee or back to the department and say, look, this course is fixing our students."

"My strategy is always go for the heart first, and then back it up with data. So, give a real instance of a truly human story, you know, an example of one of our students and then relate it back to a more general broader objective form of argument."

However, as discussed in the previous section, some participants found institutional data to be more credible when it confirmed their personal experience:

"Experience trumps data, especially when [institutional data] contradicts anecdotal data."

"If it demonstrates what I want it to demonstrate, it's quality. If it doesn't show what I want, then it's not quality. Honestly, that's probably partly true in everybody."

These statements have important implications for the growth and development of the institution. They confirm the notion that practitioners seek and utilize data that reinforce their perspectives and challenge data that do not match their personal experiences and overall interests. As a consequence, the institution may become stagnant, hindering possibilities for providing students with high-quality, most current, educational curricula.

The credibility of institutional data was also influenced by the following reasons. First, participants considered personal experience to be a more accessible source of information, making it easier to interpret. Second, participants believed that institutional data often failed to capture the contextual nuances of a situation. Third, the quality of data reports was variable.

Several participants expressed difficulty in requesting data, and interpreting them once the data were obtained. One participant described a situation in which she grew frustrated because she was unable to effectively communicate her request for data to the Office of Institutional Research, and was receiving a series of questions from the office requesting

clarification. The following statement was provided at the time the email exchange was occurring.

> "This is my frustration as a teacher, the way I asked it, I felt was clear. There is a disconnect between this person or maybe in general statisticians. I ask it open and vague and not statistical and scientific and then I get these kinds of questions. I'm not the expert on this stuff – she should know what I mean. She'll send me all these numbers, and then I'm looking at it and thinking, well, maybe my question wasn't great."

One faculty member found the data to be too overwhelming, and subsequently chose to avoid analyzing or interpreting them:

> "Lately I've been getting [lots of] data for all the math courses and I get a little bit overwhelmed. Sometimes it has too much stuff and I get overwhelmed. I can choose the years, and pick the graphs by years. Year by year tables of numbers, and courses over time…I put it aside and say I will figure this out sometime when I have time."

The lack of knowledge regarding the proper methods for collecting, analyzing and interpreting data likely led participants to rely on personal experience. Further, because institutional data are primarily quantitative, some participants expressed difficulty integrating them into their work, indicating that the numbers do not reflect critical nuances of educational practice.

> "Measures that [the administration] use to test the effectiveness of something generally in my opinion are too broad…they care about success rate, they care about completion, they care about transfer rate. But as teachers, we are like troops on the ground level – completion rate of a sequence is the last thing on our minds. We are more concerned with tactics, pedagogy, and strategy."

My findings also suggest that participants did not always find institutional research to be credible because the Office of Institutional Research is limited in terms of capacity and expertise. The staff available at the office are unable to keep up with requests for data and other ongoing assignments. The volume of data requests often overwhelms the office's staff, which can result in inaccurate and unclear reports. Unable to decipher the data the Office of Institutional Research provides, faculty members often look for additional assistance in doing so. Oftentimes, this assistance comes from external evaluators. The following transcript describes a consultation between an English faculty member and an external evaluator. During this meeting, the faculty member provided the evaluator with a spreadsheet developed by the Office of Institutional Research that contained the pass rates of students enrolled in English 100 and English 1A. The spreadsheet provided raw numbers and percentages, but the calculated percentages did not appear to match the corresponding numbers. The evaluator and faculty member spent three hours interpreting the data and re-calculating the percentages.

Evaluator: Of the 156 who passed 100, 74% took 1A.

Participant: That number is nowhere to be found. Does [Office of Institutional Research] have that number somewhere else? They passed, but they didn't all go.

Evaluator: So of the 156 who passed 100, 74% took 1A. That is 115 students, not 100. I had to calculate all the percentages because it wasn't clear how [Office of Institutional Research] calculated them. It should be about 79%.

Participant: You are really validating me right now – it feels so good. When [Office of Institutional Research] says 'did not subsequently take 1A,' does that mean not immediately or not ever?

Evaluator: I'm assuming [it means] did not take it within that time frame. So the 156 are the students who passed 100, and it includes those that didn't take 1A. So of the 156 who passed 100, half of them succeeded in 1A, but this includes students who didn't even enroll [in 1A] so it's deflating the numbers.

This transcript demonstrates several issues related to the Office of Institutional Research's provision of data. First, the data were presented in a way that was unclear to the person who requested it; the office did not define relevant terminology and presented corresponding numbers (i.e., numbers of students and the corresponding percentages) in two separate spreadsheets. Second, relevant analyses were performed incorrectly. As a result of the inaccuracy of the analyses, the requesting party spent hours correcting the data. These errors contribute to doubt regarding office's capacity and abilities, and often cause faculty members to question their own understanding of the data. In the case illustrated by the transcript above, the participant questioned her own interpretation of the data, attributing the inconsistencies contained therein to her own lack of knowledge and understanding rather than the nature of the data themselves. Further, this participant had the benefit of consulting an external statistician. It is likely that participants who do not have outside support experience frustration with and distrust in the quality of the data they are provided. Taken together, these findings suggest that the process by which data requests are fulfilled does not facilitate learning and decision making.

Student feedback. Although only a few participants identified student feedback as the most important source of information, the fact that it was referenced and utilized pervasively among study participants suggests that they regard it as credible. Student feedback is composed of two distinct feedback mechanisms—student work and student voices. Participants regularly

accessed, communicated, and integrated both of these forms of student feedback into their daily practices.

Student work. Faculty believed that the quality of their students' work directly reflected the quality of their practices, and thus, used this source of information for personal reflection, professional development, and curriculum development. During in-person interviews, faculty defined student work as class assignments (e.g., student journals, reflection papers, e-portfolios) and class participation. In addition to class assignments and participation, observational data also showed faculty members using videos of students engaging in class projects and other activities as a source of evidence. The primary impetus behind referring to student work was to assess the students' comprehension of classroom material. Faculty members saw value in directly assessing the needs of their students through their work, and adjusting their practices accordingly.

One faculty member used her students' work to assess their progress. Specifically, compared her students' performance on an assignment administered on the first day of class with a similar assignment administered on the last day. By comparing her students' performance on these assignments, she effectively mapped her students' respective progress. If her student learning outcomes (SLOs) were not met, she would then re-evaluate and (if necessary) redesign her lessons. Another faculty member set aside time in her daily routine to meet with each student and review his or her work. She believed that it is crucial for teachers to understand student misconceptions before addressing a problem, and to take time with students to gain better perspective regarding the thought process that leads them to a particular answer.

In addition to responses provided during interviews, observations of faculty meetings and department-wide presentations also showed that faculty value student feedback. For instance, faculty members responsible for redesigning the English curriculum used student work to refine

instructional practices (i.e., rubric development). They met regularly, presented their students' work to colleagues, identified strengths and weaknesses in the work, and discussed new teaching practices that could promote student learning. In the form of large booklets containing sample assignments, student work was also presented during department-wide meetings in an effort to demonstrate program effectiveness and persuade faculty to partake in the new curriculum.

Student voice. In addition to reviewing student evaluations, all participants sought additional student feedback through formal and informal channels. Informally, participants asked students about their impressions of class assignments, assessments, homework, and in-class activities. Several faculty members describe working with students individually to gauge their impressions of the class and their overall learning. Some believed that talking to students was the most effective way to capture their students' experiences and assess their effectiveness as teachers. One faculty member summarized well his perspective regarding direct student feedback; he claimed that testimonials were quite simply, the way into "[the students'] hearts and minds." Two faculty members from the math department appointed the video department staff to film students' sharing their classroom experiences. Members of the department utilized these testimonials as a source of feedback, offering them insight into how the program should be modified.

Faculty members who were involved in curriculum redesign were more systematic in their inquiry process; they contracted external evaluators to conduct focus groups with the students and develop additional surveys to assess student engagement and success. To specify, evaluators were asked to attend curriculum development meetings and workshops, and develop measures for assessing student engagement, as well as their impressions of the program. Evaluators also developed focus group protocols, and conducted focus groups with a subset of

students (approximately 30 per program). In some cases, faculty members participated in the development of the quantitative and qualitative measures by providing the evaluators with an initial list of questions they would like included. The evaluators were commissioned to collect the data, analyze the data, and compose a summary report of the findings on a yearly basis.

Online media. Some participants identified social networking websites as valuable sources of information. Specifically, two participants identified Twitter, and one participant identified Google News as useful sources. Both sources were referenced because of the ease with which faculty could access them, as well as the prevalence of current educational issues are discussed on these sites. Twitter provided faculty the opportunity to passively connect with educational leaders, and stay apprised of current discussions within education. Google News, which was explicitly described as a valuable source by a faculty member in the Design Tech Department, offers insight into international technology. Moreover, the faculty member appreciated the ease with which Google News allowed for filtering unwanted information and, as the participant stated, "scroll down quickly and get down to the technology headline." The participant also used Google News's provision of links to studies referenced in their articles. He explained, "I couldn't tell you who wrote that study or where it came from, but I know that if I needed to I could find it in 5 seconds because its there somewhere."

Personal experience. Although only two participants identified personal experience as the most valuable source of information, all participants referenced its value during their in-person interview. Observations provided supporting evidence for its value, as I observed participants repeatedly sharing and reflecting upon their practice. In fact, nearly all modifications to classroom instruction and educational curricula were exclusively based on personal experience.

Practitioners believed that most of their learning occurs in the classroom. As a result, they further believe that the refinement of their practices should be based on classroom experience:

> "I try it. That's really the only thing that I do. I read through it and I consider if I've done something like that before or I see what they are trying to get accomplished and I consider that based on my experience and knowledge and then I would test it out and try it. And if it works, then it's good."

Observations of curriculum redesign meetings corroborated these findings. For example, the curriculum redesign team in the Mathematics Department required all faculty who taught the pilot classes to maintain a daily journal of their personal experiences and reflections. At the end of the year, the faculty met to discuss journal postings, and used this data source to revise and improve the curriculum.

The English curriculum redesign team also refined their curriculum on the basis of personal experiences and reflections. However, rather than keep a daily journal, faculty met on a weekly basis to discuss the successes and challenges they experienced over the course of the previous week. The following vignette describes a meeting where faculty shared classroom experiences with their colleagues.

> *Six English faculty members are sitting around a large circular table, eating a catered dinner, and ready to begin the regularly scheduled curriculum redesign meeting. The first activity on their agenda was called "hold the floor." For this activity, faculty members broke out into groups of three and shared their class experience - one challenge and one success – in a timely manner. The activity lasted nine minutes, with each faculty members speaking for two minutes, listeners responding for a minute, and the original speaker*

utilizing a final minute to respond. Once all groups finished the share-out activity, the group reconvened, and continued onto the second item on their agenda.

Personal experiences were also regularly referenced during university-wide workshops. For instance, during a workshop focusing on general education in the 21st century, several faculty members described how their general educational curriculum responds to current concerns in the current general education system. In describing their new curriculum, faculty members shared their own experiences in the classroom – student engagement, retention rate, assessment scores, and persistence. Biology faculty members even had faculty and administrators participate in two educational activities - original and revised – in order to get 1st hand experience of the impact of the revised curriculum. Faculty members believed this experience offered greater insight into the activities' impact on student engagement and learning.

> "[I] want to highlight curriculum redesign in GE biology. So we'll start off with what we would do in class on the first day. We are going to give you a packet and give you six to seven minutes [to work] as a team to see how far you get. The first activity [reflects] the curriculum before we did the redesign; for [the second activity], work on the redesign assignment in the group."

As evidenced by the observations, personal experience was extremely valuable to participants, as it provided contextualized information from a trusted source (i.e., oneself or one's colleagues). Although participants may not overtly acknowledge its value, observations suggest that it is, in reality, the most valued and utilized source of information used by faculty.

Defining Evidence-Based Information

During in-person interviews, participants were asked how they define evidence-based information. Six participants identified statistical data as evidence-based information, and five

participants acknowledged peer-reviewed studies and information obtained from rigorous inquiry as evidence-based. One participant believed information was evidence-based if its accuracy had sustained over time, and two participants indicated that study sample size was indicative of whether the information obtained was evidence-based. One interviewee provided the following definition of evidence-based information:

> " I would define it as when you base your work on research and theory, you are not starting from scratch. You are starting from a really directed point of view – it's based on what somebody else has done or what you have done before to show evidence that it works. It doesn't mean that has to dictate what you are going to do, but at least it informs the direction you are going in."

Eight of the eleven participants also believed evidence-based information could result from personal experience, student work, and individual judgments. Most of the participants identified student work to be evidence-based. For instance, one faculty member stated, "I would go back to what my student journals are saying. I would do – asking my students how they think - midterm self evaluation." Another stated, "using what the students produce to inform your instruction." Other participants believed that there isn't an established definition for evidence-based information. Instead, they described it as subjective in nature:

> "Everyone decides for themselves what it is. On a really personal level, based on who I am and what I understand, partly from my training, partly from those classes that I took, partly from my practice, partly from my reading, somewhere in my head there is something that I think is rigorous and appropriate."

When asked to define evidence-based information, almost none of the participants immediately responded. Nearly all respondents paused for a moment, and then proceeded to

answer as best as they could. When answering the question, it seemed that some participants provided what they perceived to be the "correct" answer rather than perhaps sharing their authentic beliefs. For instance, one participant responded by saying, "I'm going to get in trouble here," and another repeatedly sought my approval regarding the accuracy of her response: "To me, that's kind of evidence-based, right? When you look at the class and what they need – not based on what I want to teach – isn't that kind of like evidence-based practice?" One participant stated that he did not know what evidence-based information was: "I don't know. I'm not sure what I understand by that term." Another qualified his response, "That's what I would define it to be as, but it makes me very nervous." Interestingly, participants' responses did not differ as a function of their position or their highest academic degree. Most notably, faculty and administrators who had earned a PhD were no more confident or concise with their definitions than those who had not.

Although most participants did offer definitions, they varied substantially, and were not provided with confidence. Many participants often turned to me for reassurance; when I did not validate (or invalidate) their responses, they continued searching for a meaning that they may have believed I wanted to hear. In an attempt to provide a "correct" answer, many participants provided contradictory definitions for "evidence-based," most of which did include an accurate description of the concept:

> "Is it peer-reviewed, right? …I think evidence-based includes reading the research and staying up to date on the research which takes time but I think is useful. The other type of evidence-based can also be anecdotal – that can also be very useful. Did it work in my class? What is the evidence in my class or at my school based on data and teacher reporting and student reporting?"

> "I don't know. I'm not sure what I understand by that term. I would say that it's any classroom practice where the outcome is measurable. One of the biggest issue we have is: is a classroom observation a valid form of assessment? Would that constitute as evidence to someone else? I don't know. If I've had that student for 16 weeks and I see him get to that level where he is actually starting to really do that stuff, to me, I can point to the evidence by describing what they said, or did, or produced. A physical artifact is a much better argument."

These excerpts point to inconsistencies in participants' thought processes, illustrating a discrepancy between how they believe evidence-based information should be defined and what evidence-based information meant to them.

During in-person interviews participants were asked to describe how they would discern quality evidence. All but one participant assessed quality in terms of reputation and scholarly rigor. For the one participant, quality was dependent on interest: "If it demonstrates what I want it to demonstrate, it's quality. If it doesn't show what I want, then it's not quality." Nonetheless, most participants largely agreed that quality information is derived from a trusted research methodology, performed by an established researcher, published by a reputable publisher, timely, and referenced in the literature. These responses, though appropriate academically, did not match the attitudes and behaviors I observed. The sources of information that participants valued most and judged to be credible were not necessarily systematically produced or published by reputable sources. Evidence-based information was something that participants mentioned, but rarely used or trusted, in their daily practices. The fact that they do not regularly utilize quality evidence (as they discern it during their in-person interviews) may imply that while they know that quality evidence should be based on the parameters mentioned above (e.g. established researcher,

reputable publisher, etc.), they revert back to the familiar and accessible, and primarily base their decisions on other considerations.

The stark difference between how participants define quality evidence, and what they actually appeared to believe illustrates the gap between research and practice. My findings suggest that this gap may not only stem from limited knowledge, but also from practitioner interests and personal belief system. Most participants could accurately define evidence-based information and discern quality, and yet, they chose to value information sources that do not reflect this knowledge.

This discrepancy likely results from three issues: relevance, time, and political context. First, in terms of relevance, practitioners found research to be devoid of context and difficult to implement. Members of the faculty and administration believed that researchers do not have a clear understanding of that which takes place within classrooms, and make unfounded inferences as a result. Second, with respect to time, participants rarely engage in empirical research and scholarly inquiry because the aforementioned constraints related to time and workload. Because they were hired primarily to teach, faculty are not expected, incentivized, or provided with time to participate in meaningful research activities. Because they had limited familiarity or experience accessing and interpreting peer-reviewed research and data, participants invest more time and energy into understanding the information before they were able to effectively integrate it into their classroom practices.

Finally, the political climate at the college may also contribute to what faculty discern as quality evidence. As noted above, the college's current political climate is in a state of turmoil. Years of unstable leadership have resulted in a widespread perception of the administration's discounting of faculty. This has contributed to animosity, distrust, and poor information

exchange among some of the faculty and administrators. This tension has permeated other domains within the college, shaping the ways that different departments and offices at the college function. One important by-product of this climate of tension and animosity is the evolution of that which the Office of Institutional Research should be relative to what it has become. Because it was established as stand-alone office meant to provide the college community with objective data, it was thought to be shielded from the college's political climate. Nonetheless, its alignment with the administration has forced the Office of Institutional Research to adopt the additional responsibility of protecting the administration by filtering data requests from individuals who they believe will manipulate accessed data to sabotage the administration's efforts. As a result, an office that was intended to maintain neutrality has been heavily influenced by the college's political climate. Because of the subjective nature of the process by which data are provided, a mutual distrust emerged between a subset of practitioners and the institutional research office, resulting in limited request fulfillment, restricted access, and minimal utilization of relevant institutional data.

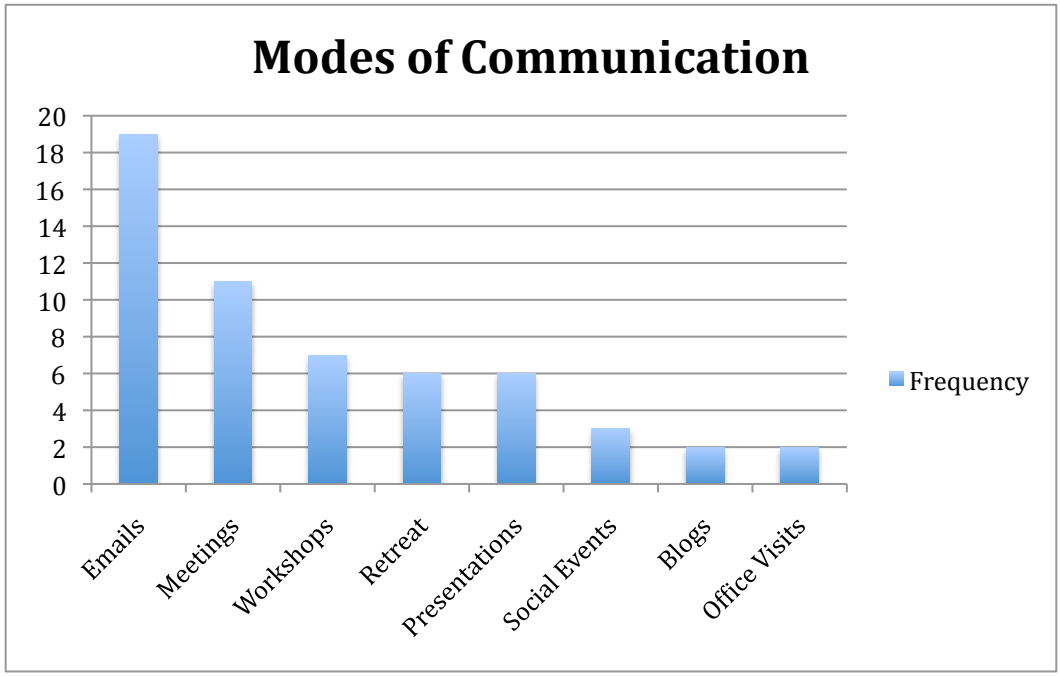
Communicating Accessed Information

How practitioners choose to communicate their information varies significantly as a function of what they are communicating, who they are communicating to, the purpose of their communication, and the mode of communication they use. Study data describe this process, and the complexities related to how individuals transfer information to one another. This section will begin with a short description of the modes of communication that participants use. Following this, I present findings describing the interaction between information sharing and the contextual setting (e.g., audience and purpose).

Modes of Communication Within Community of Practice and Outside Networks

Data revealed that participants primarily communicated information through eight channels: e-mail, meetings, workshops, retreats, presentations, social events, blogs, and impromptu office visits. Multiple sources of data identified the number of times participants communicated information through these channels (see figure 4). Note that this figure does not include instances in which participants held casual conversations related to scheduling or personal matters.

Figure 4
Frequency of Modes of Communication



As demonstrated in figure 4, e-mail was identified as the most common mode of communication, followed by meetings, workshops, retreats, and presentations. The data showed that participants did not frequently communicate through social events and impromptu office visits. It should be noted that this finding might not accurately reflect the realities of communication among college personnel as casual social gatherings were not formally referenced, and rarely occurred in my presence.

Emails. Participants used e-mail primarily to send articles from periodicals, blogs, public radio telecasts, and an occasional research study. In many cases, participants would respond to these initial e-mails with their general impressions of the articles, and smaller discussions would ensue. The following sequence of e-mails provides an illustrative example of the process by which participants share information via e-mail, and the interactions that occur as a result.

1st e-mail: Subject: Peer effect- mixing up the cohorts

Hi All. I heard this on NPR the other day. It's very interesting in terms of how we structure our cohorts and could have implications for developmental education in the classroom and overall.http://www.npr.org/2014/03/26/294639911/air-force-academy-squadrons-test-peer-effect-assumptions

2nd E-mail: Yes, the first revelation is that the middle students are so important to the overall learning experience, my second thought is about the ethical dilemma of using the middle students to help the lower performing students instead of allowing them to excel in their own cohort...

3rd E-mail: Hi Everyone. Found some information regarding Diego Navarro's work with community college students. He was a keynote speaker to Chief Instructional Officers. He provides different interventions based upon high need, medium need, low need like the ASAP program in New York. Part of their "sorting" methods include identifying academically ready students--which I'm not wild about. What IS interesting is that they do not provide the same "treatment" for all freshmen in FYE. Some students get a full term course, some get an 8 week course. They have a late start jam and they have a contextualized FYE seminar based on needs. Some helpful research to inform us as we

scale up. We may also need to change our interventions based on students needs: Diego Navarro program evaluation info:

http://www.rpgroup.org/sites/default/files/Student_Support_Redefined-ACE_Case_Study_Summary-Fall2013.pdf

Researcher: Peter Bahr articles on pathways and outcomes

http://www.soe.umich.edu/people/profile/peter_riley_bahr/

Angela Duckworth "Grit" research

https://sites.sas.upenn.edu/duckworth

Thanks and have a great weekend!

As illustrated in the excerpt above, participants exchanged multiple sources of information that discuss the implications of placing high achieving, middle achieving, and development students in a single cohort; the sources of information ranged from news articles to empirical research. Interestingly, in addition to summarizing the source content, participants shared their personal interpretation and insights regarding mixed cohorts. Eleven faculty members and administrators were included in the email chain, but only three participants responded. Further, I did not observe participants refer to this information during their in-person meetings, workshops, and retreats. Therefore, I cannot be certain of whether the recipients of the emails did in fact read the articles and studies provided.

E-mails also provided a space for faculty to circulate resources retrieved at conferences, workshops, and retreats, as well as institutional data and summaries of evaluation reports. Participants involved in curriculum redesign also used e-mail to share and revise instructional materials, such as syllabi and grading rubrics. Given the extent to which college personnel use it, e-mail clearly provides a ubiquitous, efficient, reliable channel for transferring information.

Meetings. Participants regularly attended meetings. Each department planned and held curriculum planning meetings, where they reflected on their pedagogical practices and revised instructional materials accordingly. One subset of faculty and administrators also held meetings to plan retreats and workshops at the college. Some faculty held meetings in conjunction with the Office of Institutional Research and other data experts to discuss data related to student success rates. Every two weeks, the academic senate and Board of Trustees held meetings to discuss school-wide efforts and activities.

Workshops and retreats. In addition, multiple participants designed, led, and participated in workshops and retreats. Retreats lasted two full days, typically over weekends. Many workshops were organized and implemented during the retreats, and were designed to focus on a specific instructional method or concept (e.g., problem-based, threshold concepts). Although topics presented at the workshops and retreats ranged in terms of content, the overall purpose of these gatherings was to encourage innovative thinking and provide faculty with the opportunity to reflect on their practices, participate in conversations, and rethink current pedagogical practices. Said one participant:

> "So we want people to start rethinking their curriculum – what are you doing in the classrooms, what is the point of your whole program, what do students get from it now, what do they need to get from it, is it leading them towards completing their goals. And so people are on different levels of where they are at – where there are people in 19th century, and people doing their own innovative things, but they are out on their own (lone wolf), and the retreats brings that together."

Retreats tended to focus on curriculum redesign; they were organized for a group of 20 faculty members and administration personnel that were involved in the program development

process. Although retreats designed to spark conversation and rethink educational practices were open to all members of the college community, despite consistent effort to include all faculty and administrators, only the core group of faculty members who planned the retreat were in attendance.

Presentations. Generally, faculty members performed presentations for the college's administration, academic senate, and external audiences. Few participants described instances in which they presented a case for institutional change (e.g., smaller class sizes) to the academic senate or the college's Board of Trustees. I also observed faculty members proposing a new English curriculum to the entire English department. During these presentations, the faculty provided colleagues with supportive evidence from multiple sources, including raw data, student feedback, and personal experience.

Blogs. In addition to the above, two participants also communicated information through a blog. This blog, created by members of the ESL Faculty Inquiry Group (FIG), provided an online space for group members to share information pertaining to the ESL curriculum redesign project. The blog included pictures, videos, and summaries from Acceleration Academy, individual tasks for FIG members, links and resources to association websites, meeting notes, research inquiries (i.e., readings and summaries), and a project timeline. This transparent form of communication encouraged faculty to contribute actively, thereby fostering information sharing and flow among all members of the group. The blog proved particularly helpful in engaging more reticent faculty members, as it gave them a space to share knowledge and insight from the comfort and privacy of their own homes or offices.

Social gatherings. In contrast to the private nature of the blog, several participants also communicated information through social events and impromptu office visits. Participants

attended “happy hours” and dinners after meetings, as well as various informal workshops and retreats. These casual settings allowed faculty and administration personnel to reflect on their pedagogical practices and the political climate to which they were subjected. Some participants preferred to speak with colleagues in person, and would occasionally visit them in their offices. One participant described how he “dropped in” on professional colleagues: “I’m kind of bad that I just drop in on people. Like I just walk into [name] office and if he’s not busy I’ll just start talking to him. Or I’ll go and visit [name] - if I have a curriculum/instruction type question, I would much rather talk to him in person.”

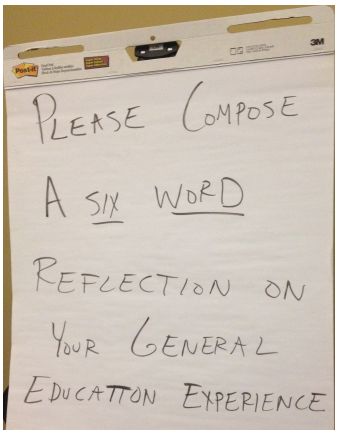
The nature of how participants share information depends not only on modes of communications, but also the purpose of that communication and the intended audience. In many cases, these two conditions closely relate. In the following two sections, I compare the processes by which participants communicate information to colleagues within their communities of practice, colleagues outside their network, administration personnel, and external audiences.

Information Sharing within a Community of Practice

The process by which participants shared information within their community of practice strongly reflected their pedagogical philosophies. Within communities of practice, information assisted in the creation and refinement of educational curricula, and was primarily communicated through storytelling, cognitive mapping (i.e., textmapping, concept mapping, and flow charts), hands-on activities, and group discussions. These participatory methods empowered practitioners to take ownership of information, interact with it, challenge it, contextualize it, and ultimately believe in it. Observations offered me the opportunity to witness how these processes provide practitioners with the space needed to create and refine their pedagogical practices.

Storytelling. During meetings, workshops, and retreats, storytelling was a common occurrence. Participants shared personal reflections and stories regarding a particular topic. Observations revealed that stories were typically shared within small groups; although, a few participants engaged in storytelling with a larger external group. In some cases, faculty members were encouraged to free-write experiences and share those experiences with several colleagues. To illustrate, a two-day retreat concerning general education in the 21st century began with a storytelling activity. Immediately upon arrival, faculty members were asked to take out a piece of paper and "compose a six word reflection on your general education experience" (see Figure 5). After five minutes, faculty members were instructed to report their reflections. When doing so, many participants reported having complemented their reflections with more detailed stories. This reflective activity elicited an emotional reaction to the topic, motivating faculty members to engage in subsequent discussions.

Figure 5
Reflection Activity

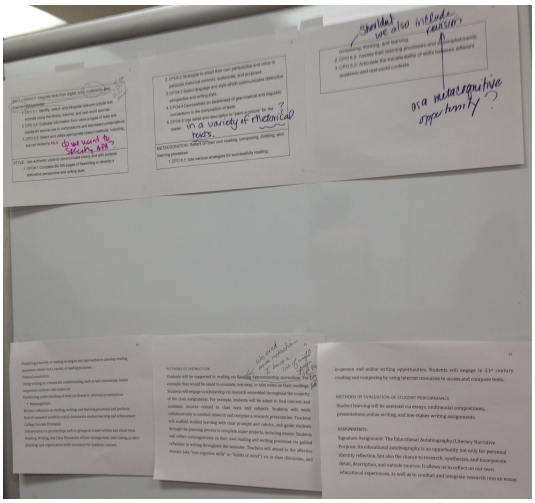


Storytelling also occurred during a workshop focused on the concept of empathy. During this workshop, participants were asked to reflect on their own experiences with empathy and share those experiences with the group. One participant described the activity and how participants used storytelling to engage with the issue of social justice:

"Our topic here is empathy and how it connects with equity and how can get to that with own instruction and teaching. So start off we doing a think/pair/share – think personally, pair situation, and share. Think in the form of freewriting – ask you to reflect on a time in your life when you felt empathy to be a power and productive force. To model that – I am child of Scottish immigrants. When I was two, we moved back to the UK, I grew up in Rural England, and moved to Santa Ana when I was 9 and same time Vietnamese people were coming in. I was coming from a much more privileged background, but I felt a deeper empathy with that population – shared immigrant experience. I think that experience of being the outsider among insiders made me connect with immigrants. Go into ESL classes in high school. So I want you to reflect a time in your life – something you experienced or witness – saw empathy happen and how it changed something 3 to 4 minutes and do a freewrite. Saw or felt what it would be like to be in someone else's shoes."

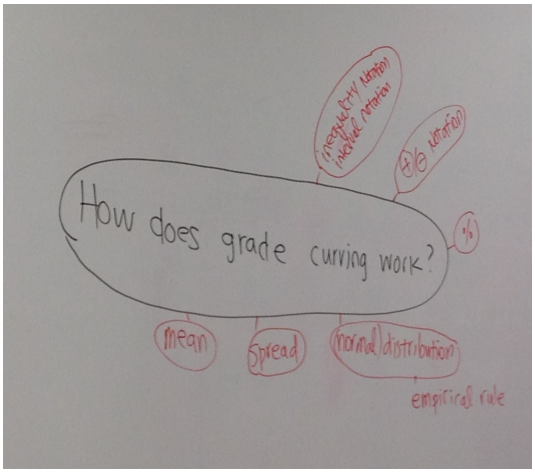
Cognitive mapping. Several participants communicated information through cognitive mapping. Cognitive mapping is a broad method of visualization, and includes multiple sub-methods, including textmapping, concept mapping, and flow charts. Textmapping is a visual technique traditionally used in developmental education that involves marking different text features to make sense of the content and identify associations across the text. In this case, faculty utilized textmapping to revise critical curriculum documents, including the college's mission, vision, pedagogical practice guides, and sample syllabi. The textmapping process consisted of taping documents to a wall, walking around the room, and silently taking notes (see Figure 6). Once completed, documents were removed from the wall, and participants discussed the comments they wrote.

Figure 6
Textmapping



Participants also used another form of cognitive mapping to develop educational curricula—concept mapping. Concept mapping involved linking mathematical concepts to real-world questions (see Figure 7). During this process, participants brainstormed ways in which mathematical concepts could be contextualized and integrated into daily teaching activities. Concept mapping offered practitioners the opportunity to incorporate information from other disciplines (e.g., finance) into their curriculum.

Figure 7
Concept Mapping



In addition to textmapping and concept mapping, faculty and administration personnel also used flow charts for multiple purposes. For example, flow charts aided faculty and administrators in designing educational pathways. Specifically, they provided participants with a space to draw out a comprehensive pathway, and examine all its potential outcomes. This living document provided a clear visualization of a proposed program, offering practitioners an opportunity to critically assess its feasibility and potential effects (see Figure 8). Participants also used flow charts to visually depict topics covered during the retreat. This visual representation offered practitioners the opportunity to revisit topics and draw connections between them (see Figure 9).

Figure 8
Flow Chart of Educational Pathway

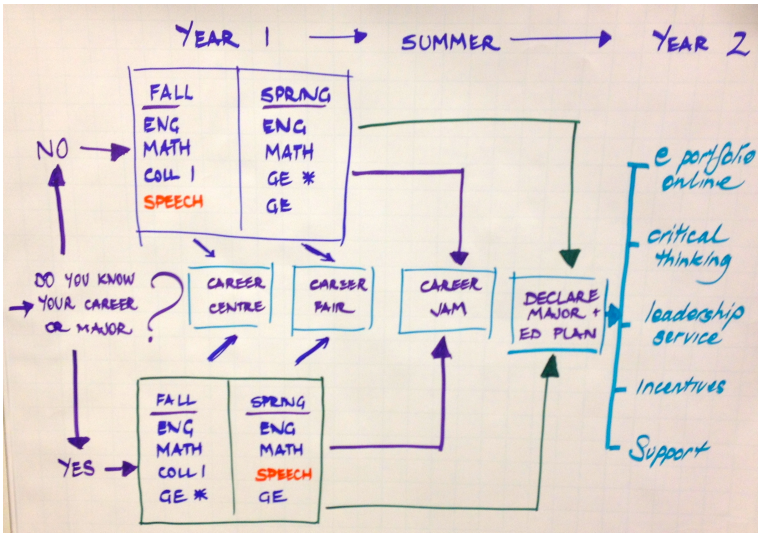
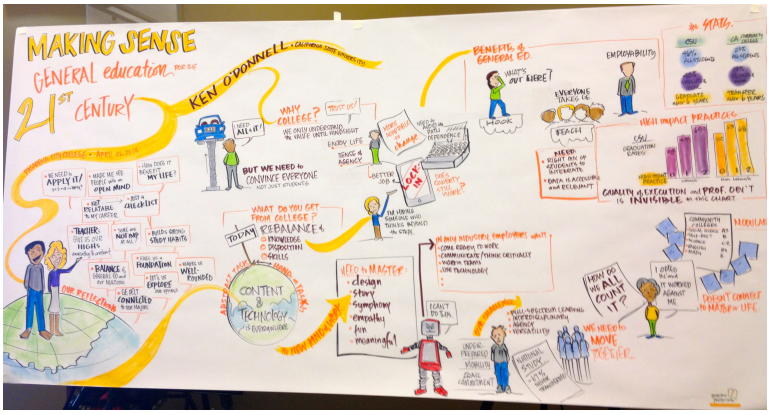


Figure 9
Flow Chart of General Education Retreat



Hands-on activities. On multiple occasions, participants used hands-on activities to communicate new pedagogical practices. For instance, during a presentation of a redesigned general education class, faculty members were asked to complete two in-class assignments related to the scientific method. The first of these assignments was the original version; the second was its redesigned version. Whereas the original assignment involved the completion of a worksheet, the revised version used a problem-based approach in which faculty were to describe the scientific process for identifying the objects in a closed black box. By being exposed to these activities, practitioners were able to identify the pedagogical benefits of problem-based learning.

Participants were also exposed to the hands-on activity approach during a math retreat that focused on the concept of norming. For this activity, math faculty were asked to break into small groups and estimate the number of Post-it Notes needed to cover a room. Specifically, faculty were asked to develop an estimate and explain the steps they took to make their determination. Participants used this activity for multiple purposes. One purpose was to illustrate a "Fermi Problem" where students are not provided substantial detail or parameters related to a question for which there is not a single answer. Another purpose was for faculty to experience the activity from a student's perspective, and reflect upon possible challenges that students may

encounter. A final purpose was for teachers to gain experience with rubrics, and to engage in a broader discussion surrounding the difficulties of norming.

Roundtable discussions. Participants engaged in roundtable discussions to engage with salient literature during the early stages of program development, to share and refine classroom materials, and to share classroom experiences. Roundtable discussions offered a more structured approach to information sharing than other communication mechanisms. This generally occurred when faculty met to discuss literature and reflect on its findings. Observations revealed that during these discussions, faculty members were called upon to present literature on a topic they were assigned to research. For example, I observed two members of ESL Faculty Inquiry Group present on academic literacy. They described how the literature defines academic literacy and the approaches recommended for developing it (e.g. empower students, provide social support). Because they were unable to find sufficient literature on community college settings, most faculty members referenced literature related to the K-12 schooling range. Upon completion of their presentation, colleagues asked questions to clarify the points made therein. Many faculty expressed difficulty interpreting contradictory research findings and relating them to their practice. This was evidenced by the fact that participants struggled with identifying a single approach that they could potentially implement in their classroom.

> "Finding a definition and agreeing on a definition as a group is critical…in terms of what works to promote fluency and accuracy – nobody agrees on that. [One researcher indicated] they must first learn fluency and then grammar, and then another [researcher] said it should be simultaneously. And then another said first [grammar] and then fluency."

This finding further illustrates the challenges associated with the incorporation of research into practice, and why practitioners tend to value contextualized information.

Other observed roundtable discussions evolved into working sessions during which faculty members reworked homework assignments, exams, syllabi, and rubrics. Participants reflected on their students' experiences, and modified their material accordingly. The last subset of observed roundtable discussions offered faculty members the opportunity to reflect on the semester, discuss any concerns, and brainstorm ideas for improving practices in subsequent semesters. The following excerpt illustrates a roundtable discussion where a study participant (who is leading curriculum redesign efforts in the Mathematics Department) asks math faculty to reflect on how the course helped develop critical thinking, a critical component of the new curriculum. Two study participants, and three additional faculty members were involved in the discussion.

> *Participant 1:* To what extent does [course] enhance students' critical thinking skills? Did you see any evidence that your students were developing these skills? What did that look or sound like?
>
> *Faculty 1:* I felt like students were saying things in their own words and were trying to express things how they understood them (e.g. the pros and cons of mortgages). Their answers were different, but to me that showed that they were at least capable of doing some critical thinking.
>
> *Participant 2:* I feel like we need to work on that more. They had to think more – I'm not sure how much evidence.
>
> *Faculty 2:* I feel like my students know the critical thinking skills because I stress it in my class a lot. You need to step back and look at what is going on around you before you jump in. They have a hard time with the variation – it's not very consistent. How do we teach something that is consistent with the concepts?

Faculty 3: What's wrong with this question on the final. I had different answers but they were correct. They are not spitting out what they memorized.

Participant 1: We can develop a check all that apply – so forces them to think that there is more than one answer. I kind of feel I have certain ideas of what I think critical thinking looks like – my idea is at a higher level than what student think. I have student interviews and they said critical thinking. It makes me feel good to hear that but did I really feel like there was that much critical thinking. The fact that they have to think – they interpret that as critical thinking whereas we think it as a baseline.

Faculty 3: It's a level appropriateness as well. We are talking about [course] – number sense for them is critical thinking.

Participant 2: Maybe we are here and our students are here and we have the problem with the definition.

Information Sharing With Outside Networks

The process of information sharing was more structured and formal when participants communicated with audiences outside their networks (i.e., other faculty, the college administration, the academic senate, the Board of Trustees). Because of the time limitations to which these outside networks were subjected, information was principally communicated through short presentations and summary reports. Said one participant, "[Be] careful about talking too much or providing a handout that's too heavy…you have to present information as quickly and clearly as possible."

Presentations. Formal presentations allowed faculty members to present their work to spread program awareness, gather support, obtain more resources, and/or institutionalize a new curriculum or pedagogical practice. Formal presentations generally consisted of a short

description of the program, including its mission and vision, as well as representative student work and testimonials. They also included comprehensible data concerning student success rates as evidence to support the positive effects of the program. Participants stressed that when pressed for time, it was critical to include salient data in the presentation, as it was considered extremely influential among administration personnel. Despite the persuasiveness of raw data, one participant cautioned about leading presentations them: "You can't lead with data because it's too easy to say it's not accurate." Clearly, the tendency for practitioners to utilize specific types of information depending on the topic and audience indicates that they modify the content of their presentations to be optimally persuasive to specific audiences.

When presenting to other faculty members, participants presented a wide range of information concerning tactics, pedagogy, and strategy (e.g., vision, mission, and instructional materials). In addition, faculty highlighted student voice in their presentations by offering student evaluations, student work, and in some cases, videos of student reflections. Data concerning student success rates and retention were also prevalent through the use of visual aids, including tables and charts. Depending on time and the degree to which they were comfortable doing so, some faculty members shared personal experiences to engage their audience on a more emotional level. In discussing her strategy for persuading others, one participant said, "Heart first, and then back up with data. If you engage people emotionally, they are more receptive to an intellectual argument."

When presenting to administrators, faculty generally provided a quick description of the program, and then provided supporting data. Descriptive analyses of student retention and success rates were also common. A few participants described the importance of knowing one's audience, including only that information that the audience would find appealing. Other

participants also recommended adopting passive approach to presentations by making audience members feel like they have a stake in the program.

The presentation of summary report content closely resembled a "traditional" presentation; however, in a report, participants condensed information into what one participant called "a quick one page summary." One participant described how he consolidated an entire evaluation report into a brief administration-friendly document:

> "As an ongoing conversation with the [evaluation team] in terms of the evaluation was, and it was a joke at one point, I need a one pager. I will read the full report, but I need the executive summary. And then they give me a summary, and then I summarize the summary because their summary is like 4 pages and for my audience I can't hold them for more than a page."

Current tensions among networks also influenced how faculty members communicated information to external networks. In one case, faculty members were more concerned about *who* would present to the committees, rather than *what* they would present. For example, a newly developed professional learning committee sought financial support from the college administration and academic senate. Members of the committee were given 5-10 minutes to present their vision, mission, agenda, and timeline for the following school year. The following excerpt illustrates how members of the professional learning committee approached their presentation to the academic senate:

> "Dividing and conquering in terms of presenting. [Name], [Name], and I should not present it to academic senate. [Name], [Name], and [Name] are doing professional development and seek out funding and support. That's why it has to be outside a

committee – it's politicized - if one [member of academic senate] does not support, could not get the [funding] we need to move forward."

To mitigate the potential effects of political tension, members of the professional learning committee volunteered a "neutral" faculty member to present their vision. These individuals were acutely aware that their mere presence at the presentation may harm the likelihood of receiving funding.

Faculty members were also vigilant about semantics. They often contemplated excluding certain words with negative connotations that could potentially deter program support. For example, the team responsible for redesigning the English curriculum was concerned about the consequences of including the phrase "social justice" in the vision statement out of fear that faculty in the English department would perceive the redesign to be too politically liberal. Despite their apprehension, the team felt "social justice" was a critical component of the program, and collectively decided to retain the phrase in the vision statement. Confirming their fears, several faculty members from the English department were hesitant to support the new curriculum because of its pedagogical perspective. One opposing faculty member expressed her concerns at a faculty meeting, "The ideological event concerns me. I mandate to teach critical thinking. And I feel like this is a very leftist curriculum. When I look at what has happened to our version of liberalism I'm beginning to rethink whether we are doing our students a disservice." Whether the inclusion of "social justice" discouraged program support is unclear, but it certainly caused trepidation on the part of some committee members.

Summary

How practitioners communicate information is heavily contingent upon the mode of communication they employ, the purpose of the communication, and the audience to which it is

presented. Data showed that practitioners utilized collaborative approaches when communicating with close colleagues, and formal approaches when communicating with external audiences. The type of information that was communicated also varied widely; anecdotes were commonly referenced within networks, and interpretable data were used when communicating with outside networks. Finally, the data illustrate how the college's political climate influenced the ways in which practitioners choose to communicate their information to outside networks.

Interpretation of Accessed Information

In the following section, I will reflect on the process by which faculty and administrators interpret information and subsequently integrate it into their daily practices. Data showed that faculty most commonly interpret data by personalizing the information, incorporating it into their classroom practices, and relating it to their students.

Interpretation of Broader Information

Personalization. Multiple sources of information revealed that they interpret information by personalizing it. Relating information to their own practices helps practitioners contextualize, comprehend, trust, and ultimately utilize it in their daily practice. Furthermore, participants seem to be aware of the benefits of this learning process, as they implement experiential learning into their classrooms. To illustrate, practitioners regularly incorporate personal experience as mechanisms for understanding a concept and later integrating it into their daily practice.

In one illustrative example, the administration invited an R1 researcher to give a talk at the college about soul-making and bringing wonder into the classroom. He spoke of the power of empathy in cultivating a classroom characterized by engagement, collaboration, and creativity. At the conclusion of his presentation, practitioners were encouraged to attend faculty-led workshops to further evaluate the issues the speaker discussed. To this end, one participant led a

workshop focused on the notion of empathy, and how it enhances learning. This participant described an activity in which practitioners were asked to interpret empathy by reflecting on their own experiences:

> "Our topic here is empathy and how it connects with equity and how can get to that with own instruction and teaching. So start off we doing a think/pair/share – think personally, pair situation, and share. Think in the form of freewriting – ask you to reflect on a time in your life when you felt empathy to be a power and productive force. To model that – I am child of Scottish immigrants. When I was two, we moved back to the UK, I grew up in Rural England, and moved to Santa Ana when I was 9 and same time Vietnamese people were coming in. I was coming from a much more privileged background, but I felt a deeper empathy with that population – shared immigrant experience. I think that experience of being the outsider among insiders made me connect with immigrants. Go into ESL classes in high school. So I want you to reflect a time in your life – something you experienced or witness – saw empathy happen and how it changed something 3 to 4 minutes and do a freewrite. Saw or felt what it would be like to be in someone else's shoes."

Participants also used personalization as a technique for integrating critical information during a two-day retreat focused on general education in the 21st century. During the retreat, participants shared their own experiences with general education. This activity elicited an emotional reaction among participants in relation to the topic, motivating practitioners to engage in subsequent discussions about it. In this way, participants used personal experiences as a foundation for critically assessing the current state of general education, and discussing how it could be redesigned to promote a more comprehensive learning model for students.

Reflecting back on their practice. Data also revealed that practitioners interpreted information by reflecting it back on their practice. This helped practitioners to operationalize an abstract concept, thereby allowing them to see it executed in practice. In fact, several participants experienced difficulty engaging with information they were unable to operationalize in the classroom. For example, several participants attended a keynote talk given by an R1 researcher. During his talk, the researcher spoke on the importance of play in the classroom, given its promotional effect on collaboration, empathy, and creativity. He then demonstrated multiple activities in which his students engaged, and shared his students' reflections on those activities. The presentation was closely aligned with the needs and interests of the practitioners in attendance, as it was comprised exclusively of reflective practice. Upon receiving the information in this presentation, participants reflected back on their own classroom practices. In doing so, they realized that the diverse demographic profile of their classrooms was quite different from those with which the researcher engaged. As a result of this realization, many participants perceived the presentation to be irrelevant. Said one participant, "I came out of there so inspired and I got so depressed because working in community college and limitations that we are under. The framework we are living in makes it almost impossible." Because participants interpreted the information through their practice, they were unable to understand the full relevance of the information presented. Specifically, participants neglected to recognize the benefits derived from unorthodox thinking and non-traditional teaching methods. This process highlights the faculty's need for information that is not context-specific across multiple classroom settings, but is instead specific to *their* context. Because faculty seek information that relates (and can be implemented with only slight modification) to the pedagogical context in which they operate, they often fail to recognize how a seemingly abstract concept can provide

additional pedagogical insight, thereby missing an opportunity to incorporate new ideas into their practice.

This interpretive process was also exemplified during a general education workshop that focused on defining threshold concepts, core ideas in a discipline that, once understood, transform perceptions of that subject. Wanting to include these concepts into general education classes, participants believed it was necessary to provide a space for faculty to learn about them, and accordingly align them with their pedagogy. The workshop included several activities as a means to transform abstract, unfamiliar concepts into more familiar, tangible ones. One activity utilized this interpretive process of pedagogical reflection by having participants reflect on how a particular a threshold concept (e.g., symmetry) relates to their discipline. Interpreting the concept by way of their own practice helped faculty to understand the construct; only once faculty realized how a concept could be operationalized in the classroom could they begin the integration process. The following excerpt illustrates the discussion surrounding symmetry, and how each participant used experiences within their discipline to interpret information.

> *Participant 1:* How do you we identify a threshold concept within our own disciplines – something to investigate moving forward. We thought it would be interesting to take a universal concepts and find the threshold concept that uses that idea. The idea of symmetry as you understand it in a general understanding and think about it abstractly within your own discipline. What expression acquires the idea of equal but opposite, or mirror, or bilateral. Think individually first.
>
> *Participant 2:* When I think about symmetry in counseling – think about equal but opposite – self-aware so can inform academic decisions. Self-awareness will lead to sound decisions – what's my major, what's my goal.

Participant 3: When I taught ESL, I wanted students to defend big ideas – interpretation, subjective analysis – did analysis work with students and help them get ownership of big idea. It's a qualitative process about interpretation of data. Their analysis were often imbalanced somehow with students wanted to cling to description and struggle with the interpretation that's individualized that makes it you – the writer – your idea and interpretation. I guided them through the process but the idea of symmetry would have been another layer to help them understand.

Relating to students. Participants also interpreted information by connecting to their students. More specifically, participants often related concepts to student learning as a means to explain student successes and failures. For example, when talking about Paul Tough's book, *How Children Succeed: Grit, Curiosity, and the Hidden Power of Character*, a participant interpreted the affective domain from the perspective of students' attitudes towards learning and their emotions. She claimed that Tough "…really looks at the non-cognitive or affective side and how that gives students resilience that gets them through challenges in their life."

For many faculty members, learning about growth and fixed mindsets yielded an epiphany. Specifically, participants linked these related concepts to student successes, identifying them as possible attributions for the difficulties students encounter in attempting to achieve their full potential. To impart meaning on the information they received, participants evaluated its effect on students, and how it could be used to increase student learning. When introduced to a new concept, researchers would strive to ensure its credibility. Teachers, however, evaluated a new concept's credibility on the basis of its capacity to explain differences in student learning outcomes. When learning about the concept, participants took part in an activity intended to illustrate the "growth mindset" phenomenon. Specifically, participants stood side-by-

side with a spoon and a cotton ball in hand. The goal of the activity was for each participant to pass the cotton ball down the line of participants from spoon-to-spoon. Although this activity was initially challenging, after a few attempts, participants had become adept at exchanging the cotton balls. The process by which they learned to perform this activity fascinated them, and they considered when and how they could implement it in their classrooms. More specifically, participants judged a physical activity that required small amounts of time and resources to be perfect for the classroom. As evidenced from this activity, participants are constantly considering their students' needs when learning a new concept and participating in activities related to that concept. As such, they evaluated a concept's credibility or an activity's relevance on the basis of their respective effects on student behavior and successes.

Interpretation of Data

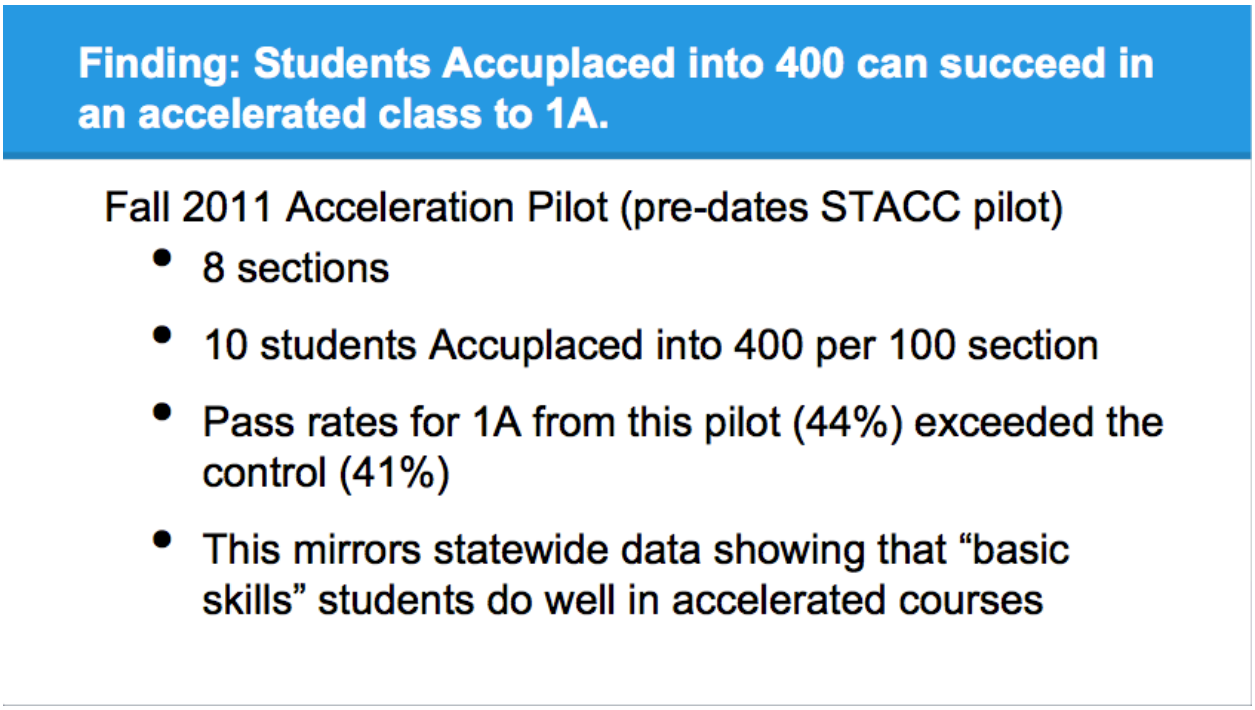
Findings further demonstrated that participants interpret data in two stages. First, they interpret the contextualized meaning of data; following this, they seek to discern its implications. The pursuit of a contextualized understanding of data proved challenging for participants. First, participants were not necessarily trained to read and/or interpret data. Second, the Office of Institutional Research sometimes failed to present data in a manner comprehensible for classroom practitioners. Aware of their own limitations in understanding data, many participants sought assistance with contextualizing the data. The following excerpt demonstrates an example of this first stage of data interpretation.

> "Let's make sure I have these numbers right. So this is the spreadsheet - 206 students started, 68 initially succeeded in 100, and 91 initially retained in 100. Initially succeeded means they passed on the first try, and initially retained means they stayed past the drop date. Finally passed means they may not have passed that first semester, but they passed

before the end of the period (in this case it's four terms). So this 156 is the 76 that finally passed?"

Once participants understood the numbers with which they were presented, they sought to comprehend their implications. In their attempts to make sense of data, participants often brainstormed reasons for the findings the data communicated. In doing so, they were better able to support their arguments related to the effectiveness of the program and identify intrinsic weaknesses of the program, allowing for its continued refinement. For instance, while reviewing pilot data from a newly designed accelerated English course, one participant noticed that 44% of students passed the course. This figure was higher than the 41% of students who passed the traditional English course. At first, the participant was disappointed by the 3% difference; however, further exploration of the findings provided the participant with an explanation the more pronounced success rate of the students in the accelerated class. Although the success rate of the accelerated class was only 3% higher than the traditional class, the former included developmental students and the latter did not. These numbers not only showed that the course redesign increased the rate at which students passed an English class, but also that developmental students could succeed in an accelerated English class. Figure 10 illustrates the multiple levels of interpretation; it offers a description of the numbers, their meaning, and their implication.

Figure 10
PowerPoint Slide from English Redesign Presentation



Participant Notes: What's significant about this is that even though a third had placed into 400 they did just as well as the other students. This was Fall 2011-Fall 2013. When we pulled just Fall 2011-Fall 2012, the pass rate was 36%.

I also observed this two-step process in action during a faculty-requested data workshop intended to assist in the interpretation of statistics. Organizers held the workshop over the course of two days. Lessons on the first day focused on understanding statistical concepts (e.g., T-tests, ANOVA, Chi-squared, correlations, statistical significance, and effect sizes). On this day, practitioners exclusively inquired about the "what" of statistics, focusing their questions on the interpretation of raw data. On the second day, however, the workshop focused on the second stage of the interpretation process, focusing on the "why" and "how" of statistical output. On this day, practitioners began to operationalize the analysis process, identifying reasons for why

certain analyses were conducted, and looked for guidance on how to develop an analysis plan when evaluating their own work.

Integrating Information into Daily Practice

How participants integrated such information was largely contingent on the source of the information and the purpose it served. The following section describes the process by which participants integrate different sources of information into their daily practice.

Data

I regularly observed participants who accessed and valued data integrating those data into their daily practices. Depending on whether the data were obtained from of the Office of Institutional Research or directly from the external evaluation team, practitioners integrated them into presentations, curriculum redesign meetings, and program reviews.

Institutional data. Practitioners utilized institutional data at meetings and during presentations to support arguments in favor of certain pedagogical practices as well as changes to the curriculum. For example, one participant integrated institutional data into her presentation related to the accelerated English pilot class (described above). She used pass rates to demonstrate that developmental students can succeed in accelerated classes, how cohorts improve retention and success, and how a greater percentage of students pass the accelerated class on their first attempt at doing so. The participant framed these data as "objective evidence" to promote the program's credibility and gather support from colleagues.

Faculty members also integrated data into their program reviews as a result of institutional mandate. However, my data showed that some participants understood neither the purpose of the data they used, nor why it should be included in program reviews. One participant described her failure to understand the purpose of including data into a program review:

> "Okay, so I'm looking at this chart and it's telling me that I have 6% African Americans in my class, and I'm thinking, what am I supposed to do with that…besides just tell you that we don't have a lot of African Americans in my class. Am I supposed to recruit? I don't really get it. I feel like that data is for somebody else, but they make us assess it."

Participants neglected to integrate institutional data into their classroom for two key reasons. First, interpretation of the data was too challenging and time-consuming. Faculty members only delved into the data (and often with external help) when they had to prove their case to an audience. They tended to avoid using institutional data in their daily practice due to the training and time it required. Said one participant, "I'm overwhelmed by [institutional] data - it would be more useful if had tutorial. I put it aside, and may go back to figure it out at a later point." Second, the data were too broad. Because institutional data are comprised of retention and success rates, they provided only a general illustration of student progress. Little information regarding classroom-level pedagogy could be understood from the data. For these reasons, faculty members did not utilize data findings to modify their pedagogy. In discussing when faculty members use (or do not use) institutional data, one participant said, "Not in my daily practice because I don't see it as much fine tuned to specific teaching practice. [I] think of data in big picture, but not as much in daily surviving."

Evaluation data. As a reminder, the community college collaborates with an external evaluation team, which assists the Office of Institutional Research and faculty with evaluations of curriculum redesign initiatives. Participants utilized evaluation findings from the external evaluation team for curriculum development (e.g., pathway programs) and redesign. Comprised of both qualitative and quantitative data gleaned from surveys, interviews, and focus groups, evaluation data offered a more comprehensive illustration of the program. External evaluators

also conducted more sophisticated analyses that helped assess group differences. The following example illustrates a case in which faculty utilized evaluation findings to redesign a summer pathways program: The administration hired external evaluators to assess the impact of two summer bridge programs established to help students become acclimated to the campus, provide a brief math tutorial, and assist with course selection. One program lasted three weeks, and the other lasted six weeks. Because the evaluation found there to be negligible difference between the two programs in terms of the completion rates of transfer-level Math and English, the faculty opted to eliminate the six-week summer bridge program and further develop the three-week program.

Professional Development

Participants integrated information from professional development activities into the classroom and curriculum redesign meetings. Professional development focuses primarily on pedagogy, thereby facilitating the faculty's integration of learned practices and instructional resources into the classroom. Textmapping is one example of a teaching practice that participants integrated into both their classrooms and curriculum redesign meetings. Participants were introduced to textmapping during a Reading Apprenticeship professional development workshop. Since its introduction, faculty have integrated this activity into their classrooms and meetings for a range of purposes. In the classroom, faculty members utilized textmapping to develop a collaborative reading exercise, giving students the opportunity to collectively add comments to focal texts by inserting quotes and ideas. During meetings, textmapping was used for editing purposes, providing faculty with a space to contribute to a pedagogical framework or teaching document. Fixed mindset represents another learned concept that faculty members integrated into their classrooms. Shortly after being exposed to fixed and growth mindset, faculty members

created lessons surrounding these concepts and had their students participate in the spoon and cotton ball activity described above. Finally, one participant integrated blended learning into her classroom; this participant was exposed to blended learning during a California Adult Literacy Professional Organization workshop. Intrigued by this educational practice, the participant integrated blended learning into multiple ESL courses. She also mentored colleagues who had expressed interest in teaching blended classes. After observing one of her blended classes, the participant informed me, "I have them use the computer (blended class) so they can continue working and writing at home. My goal is for them to read each other's writing and create a community. I hope they can eventually communicate with each other outside of class."

Anecdotal Evidence

Anecdotal evidence informed all aspects of teaching and practice. It was integrated into classroom instruction and curriculum redesign, and served as a key determinant of institutional change. As noted above, participants stated that they depend on colleagues for pedagogical advice, as well as advice on how to deal with certain classroom behaviors. For example, one participant approached a colleague for advice on how to address cheating in the classroom: "Like from my colleagues…oh, someone has been cheating, really? What did you do because I had this happen and what? They memorized the whole thing? But how did you? And we exchange notes – that kind of thing." I also observed weekly meetings in which colleagues shared their experiences related to teaching a particular lecture or engaging in a classroom activity. Faculty members then integrated these practices into their own classrooms. The following excerpt demonstrates the value placed on colleagues' experiences, and the ease in which they integrate it into their practice:

Faculty: When I do geometry, I ask students to draw anything by using geometric shapes only. They come to class and calculate the area of each shape. The picture has to be geometric shape. That's how they complete the project.

Participant: I like that idea - I'm going to write that down so I don't forget: Draw something using only geometrical shapes and find the area.

Summary

My data showed that community college faculty and administrators adopt a practical perspective to interpreting broad information—they consider information in relation to their personal or professional experiences. Data also revealed that faculty at community colleges foremost consider themselves to be teachers, as they also interpret information in relation to their students; they come to understand (or validate) concepts in terms of their capacity to explain student attitudes and learning outcomes. Findings also revealed that faculty interpreted data in two distinct phases. Participants first came to understand the data's contextual meaning, then came to understand their implications. Finally, my findings showed that participants primarily integrated data, professional development, and anecdotal evidence into their daily practices. Although participants admitted to accessing and attributing value to research, I rarely observed this source of evidence being integrated into practice. This further highlights the limited degree to which practitioners integrate scholarly work into their daily practices.

CHAPTER 6

DISCUSSION

This chapter offers a discussion of the results from the current study, which sought to explore the process by which faculty and administrators at a community college acquire, discern, interpret, and communicate evidence. The study findings are couched in the extant literature and reflected upon in the broader context. Furthermore, the implications of the study, the limitations, and directions for future research are discussed.

Review of the Findings

Effects of College Community Climate on Data-Driven Decision Making

Past research has shown that the degree to which a college exemplifies the hierarchy culture is positively correlated with centralization and negatively correlated with trust, morale, and leadership credibility (Cameron & Ettington, 1988; Smart & John, 1996; Smart, Kuh, and Tierney, 1997; Zammuto & Krakower, 1991). Further, as illustrated in Coburn and Turner's (2011) framework, integration of systematic evidence is substantially intertwined with the political nature of the environment in which it occurs. Data findings revealed multiple contextual factors that influence the use of systematic information, recognizing the intimate link between social context and political climate, and their collective influence on perceived credibility, interpretation, and ultimate utilization of systematic evidence.

Findings revealed that the processes of data access and use were embedded within the organizational context, which consisted of unstable leadership, access to institutional data, timeliness in data access and utilization, contextual norms (i.e. system of reward), and social relations. Leadership and power relations were particularly influential, as the community college administration played a crucial role in the flow, and credibility, of institutional data. Because this

college had adopted a hierarchical structure, several years of unstable leadership had a negative effect on the campus. The college had been subjected to leaders who failed to invest in innovation, technology, and personnel, as well as leaders who were ineffective communicators. The widespread perception of administrations' disregard for faculty needs contributed to animosity, distrust, and poor information exchange between a subset of faculty and administration. Largely influenced by the institutional climate, and under the auspices of the college's administration, the Office of Institutional Research adopted the responsibility of protecting the administration by filtering or overlooking unjustified data requests which, in turn, promoted an additional layer of distrust and ambivalence within the institution.

This study's findings also showed that a subset of faculty members were concerned with the Office of Institutional Research's limited capacity and expertise. In addition to experiencing difficulty in obtaining data in a timely manner, faculty and administrators had difficulty interpreting the data, primarily due to inaccurate or unclear reports. Poor data reporting resulted in practitioner apprehension to use the data, as well as a lack of confidence in their own knowledge with respect to the understanding and interpreting the data. These sentiments resulted in the faculty's general discomfort with institutional data and search for supportive evidence elsewhere.

Social networks and system of rewards were also integral to the access and flow of data. Data showed that the nature and dynamics of the college's social networks were critical to information access and flow therein, as the flow of information was slower and limited within the network that was more formal and procedural in nature. Further, there was little evidence to suggest that this network utilized institutional research to support its decisions. This may be attributable to the mutual distrust between this network and the Office of Institutional Research.

Alternatively, members of the "reformer" network more readily accessed institutional data, and shared information more effectively and efficiently. Further, the community college was established to emphasize teaching, and as a result, the system of rewards was aligned with the pedagogical focus of the college. Because monetary and social incentives were primarily reserved for teaching practices rather than research-based activities, faculty participation in data-driven decision making was limited.

Offering a contextual backdrop to data use, this framework accurately captured the process by which the formation of social interactions, power relations, attitudes toward data use, and contextual norms influenced the process by which these community college faculty and administrators engaged with data in their daily practice.

What Constitutes Credible Evidence in a Community College Setting

Extant research has shown that practitioners broadly define credible evidence as local research, local data, personal experience, personal communication, gut instinct or intuition, and the experience of others (Honig & Coburn, 2008; Nelson, Leffler, & Handsen, 2009; Nelson et al., 2009). The findings reported here corroborate this result. Study participants found a wide range of information to be credible, including colleague experience, personal experience, other program models, institutional data, and social media. Although educators acknowledged empirical research to be credible as well, it was not utilized in daily practice. Participants did not find research to be valuable for their in-class activity, as they found it to be inaccessible, contextually irrelevant, and difficult to interpret. They did not have the time, expertise, or interest in deciphering abstract concepts and integrating them into their practice. Some participants went so far as to claim that the integration of abstract concepts into the classroom was impossible due to their irrelevance. Instead, participants preferred information that was easily operationalized

and modified, making it ready for classroom implementation. This finding was consistent with current literature in this domain, which largely asserts that practitioners prefer information that is trustworthy, accessible, and easily usable (Carmine, 2005).

Study findings also showed that participants experienced a form of dissonance with respect to credible evidence. Their definition of credible evidence, though appropriate academically, did not match their attitudes and behaviors. Observations revealed that the sources of information participants judged to be credible were not necessarily systematically produced or published by reputable sources. The current study has also shown that even though some practitioners were aware of what constitutes credible evidence, they did not always demonstrate confidence in their knowledge-base, as they provided contradictory definitions. The results of this study further demonstrate the importance of educating practitioners about what constitutes credible evidence, as well as how to incorporate it into their daily practice.

The results of this study also revealed that practitioners characterized institutional data as credible; however, the political context created a sense of apprehension and distrust in the data. For an institution to maintain a systematic process of inquiry, it is critical for the institutional research office to remain apolitical and staffed by educational statisticians. This is particularly true here, given that the current study illustrated a pervasive desire among faculty to incorporate institutional data into their work. However, it will be difficult to do so until the college adopts an infrastructure that provides accurate, comprehensible data in a timely fashion and without political agenda.

Communication of Information at Community College Setting

The results of this study suggest that practitioners communicated with close colleagues primarily through storytelling, cognitive mapping, hands-on activities, and group discussion. The

pervasiveness of these forms of communication showed that practitioners attribute great value on learning through visualization, collaboration, and participation. In contrast, empirical research (by its nature) demands a passive approach to learning, and is not necessarily conducive to activity-based or experiential communicative methods for two reasons. First, practitioners would have to be highly skilled and trained in research in order to communicate it effectively through participatory and collaborative approaches, and second, using such approaches may result practitioners losing the nuances of empirical work that are important to understanding the implication of that work. This disparity likely impacts the utilization of empirical research in everyday practice of educators in community college settings.

Moreover, this study demonstrated that communication with faculty and administrators outside their network was formal and passive. As such, participants relied primarily on data and occasionally empirical research when communicating with these networks. The use of institutional research may be attributable to the belief that this form of evidence would be viewed as objective, and the fact that the settings in which these communications took place were not conducive to collaborative information sharing. It is likely that the political context also influenced this mode of communication; however, further research should be conducted to determine whether this is robust in other contexts.

In sum, this study illustrated that there is an interaction between evidence type employed, communication process, and audience. Future research may benefit from exploring this interaction, and assessing whether practitioners access and utilize a source of evidence on the basis of its alignment with the communication process. By understanding the nuances of this relationship, researchers may be able to modify their work to bring it into accordance with practitioners' preferred method of communication.

Interpretation and Integration of Information

Extant research in cognitive and social psychology suggests that the process of interpreting evidence involves attending to the information, constructing its meaning, and developing a plan for action (Coburn et. al. 2009). How practitioners interpret new information is largely determined by what they already know and believe. Practitioners have a tendency to discount evidence that challenges existing beliefs or actions, and seek out evidence that corroborates their current knowledge and expectations (Coburn et al. 2009;Greeno, Collins, & Resnick, 1996).

Results of this study were consistent with this research, as participants interpreted information by relating it to their personal experiences and pedagogical practices. Further, as evidenced by the "soul-making" lecture, participants had difficulty making sense of information that did not align with their preexisting knowledge and personal experiences. This was particularly true with respect to data, as participants admitted to discounting evidence that challenged their ingrained belief system; they sought and utilized data that reinforced their perspectives, and discounted data that did not match their interests or personal experiences. In fact, institutional data were considered credible only when it confirmed personal interests or preexisting beliefs. Said one straightforward participant, "Experience trumps data, especially when it contradicts anecdotal data."

Furthermore, this study's findings showed that participants primarily integrated institutional data, information obtained from professional development activities, and anecdotal evidence into their daily practices. Although participants admitted to accessing and valuing empirical research, I observed it being integrated in the classroom only rarely. This finding

highlights the limited integration of scholarly work into daily practices, further illustrating that practitioners recognize the value of research, but deem it irrelevant to their day-to-day practices.

Reflections on the Findings

Building a Culture of Evidence

A culture of evidence has been defined as a collection of common values and practices that transition the institution away from a culture of anecdotal learning towards a culture of deliberate use of data and research (Bailey & Alfonso, 2005). *Achieving the Dream: Community Colleges Count* was a national initiative established to assist community colleges in creating a culture of inquiry, evidence, and accountability. As outlined in the literature review, an inventory was established to provide a framework for analyzing and discussing the use of evidence. Although this theoretical framework is not empirically derived, it is nonetheless used pervasively to spur review, reflection, and discussion (McClenney & McClenney, 2003).

In reflecting upon these indicators, I would conclude that the institutional climate of the sample community college is impeding it from developing a "culture of evidence." In accordance with the indicators, the institution has shown a commitment to collecting, analyzing, and reporting data pertaining to student persistence and successful completion. It has also been committed to regularly assessing the progress of newly implemented educational practices and measuring its contributions to student persistence and retention. As evidence, the institution has demonstrated the intention, and gathered the resources necessary, to become a "culture of evidence." However, the political climate and the limited expertise of the Office of Institutional Research staff has impeded the institution from reaching its potential in this regard. For instance, one of the indicators states that institutional research provides "systematic, timely, useful, and user-friendly information (McClenney et al., 2007, p.2)." The results of this study show that

although many practitioners seek institutional research, they have difficulty accessing it in a timely fashion. Moreover, they often receive data that is difficult to interpret, and in some cases, incorrect. Furthermore, given the contentious political climate, participants doubt the objectivity of institutional data. As a result, participants neglect to routinely utilize it to inform institutional decisions regarding program development.

Another indicator states, "The institutional climate promotes the willingness to rigorously examine and openly discuss institutional performance among governing board members, administrators, faculty, staff, and students (McClenney et al., 2007, p.3)." My findings show that the current political climate has closed several lines of communication between faculty and administration; distinct groups have formed on the basis of mutual interests, and in turn, information sharing has generally been kept within networks. Finally, the institution's beliefs about "what works" in promoting student learning are not necessarily evidence-based. The results of this study demonstrate that practitioners have a number of conceptions as to "what works," many of which are not based on evidence-based research. Instead, practitioners tended to trust information that worked for their colleagues at the college (or at neighboring colleges), believing that information to be worthy of implementation. Interestingly, my findings indicate that practitioners primarily utilize anecdotal evidence when designing a program, and utilize systematic evidence to secure resources and ensure sustainability. When creating a program, practitioners assume that an educational program or pedagogical practice is useful because it has been deemed worthy by educational "gurus" or has been implemented at successful colleges. Once implemented, however, some practitioners access institutional data and evaluate practices to identify the degree to which they are useful, and to prove their effectiveness to the administration.

Barriers to Research Use

Past research has suggested that some of the more significant barriers to the utilization of research include the overwhelming amount of research available, the inability of practitioners to access relevant research, practitioners' lack of time to consume and assimilate the research, a lack of readability, inconsistent results, general ambiguity, and a failure of researchers to synthesize their findings across contexts (Cousins & Leithwood, 1993; Hemsely-Brown & Oplatka, 2005; Levin, 2010; MacColl & White, 1998; Shkedi, 1998). In addition, other studies have similarly shown that practitioners express concern about their inability to interpret and apply research findings to their own work. As a consequence, they become intimidated by research and dismiss it as inaccessible (Nelson et al., 2009, Radcliffe, 2013). The findings of this study support those produced by past work in this domain, as participants were reluctant to access research because they believed it to be too far removed from practice. To participants, researchers investigate educational practices with little (if any) experience in the classroom. They are perceived as having a limited understanding of teacher practices, and thus, produce research that is either irrelevant or impossible to implement. Participants were also deterred from the jargon inherent to much academic writing, as it made the research even more inaccessible.

Additionally, faculty rarely engaged in empirical research because of time constraints and workload. Because community colleges focus primarily on pedagogy, monetary and social incentives were established to motivate teaching practices rather than educational research. Said one participant, "It's not like we have time for research, we are teachers." Because they were hired primarily to teach, faculty were not expected, incentivized, or provided with time to participate in meaningful research activities. Thus, for practitioners to take the time to access empirical research and incorporate it into their classroom practices, they must first believe that

empirical research is relevant and beneficial. They must also be intrinsically motivated to use the time and exert the effort to seek out that research.

Promoting the Utilization of Systematic Information

Although my findings indicated that the utilization of empirical research and institutional data are heavily contingent on organizational context in which it occurs, there are steps the research and practicing community can take to promote the incorporation of systematic information into its daily practice. The results of this study show that practitioners would benefit from contextualizing research and including it in professional development conferences and workshops. Indeed, participants requested that researchers attend these conferences and present their research to the practicing community. By doing so, researchers would have the opportunity to teach practitioners how to utilize research, ultimately rendering their work much more comprehensible. Moreover, the presentations would assist in the interpretation of the research findings through contextualization and (in some cases) participation. Increased collaboration could also narrow the research to practice gap. Through collaboration, researchers can familiarize themselves with educational practices and ensure that their research is not based on faulty assumptions. Further, collaboration would allow researchers and practitioners to share information as equals, reducing educators' apprehension about unfamiliar information, get past their initial discomfort, and appreciate the importance of research in fostering a continuous learning environment. As indicated by one participant, it is necessary to "create a space for researchers to share with us, talk with us, and reflect with us." While increased collaboration could undoubtedly promote utilization of systematic information, the reward system for researchers may limit this partnership. Researchers are rewarded for research and publications, leaving only limited space for teaching and consulting with practitioners.

Finally, the results of this study showed that practitioners are more likely to access information that is readily available. As such, they may be more inclined to assimilate research that is delivered directly to their inbox. Taken together, the findings produced by this study are consistent with a large body of research that suggests that the implementation of research in the classroom can be promoted by making it more accessible, readable, and meaningful, or by providing research-training workshops to practitioners. The practicing community could promote the use of research in pedagogical practices by teaching practitioners how to utilize research, by creating a supportive climate, and by establishing collegial relationships with researchers.

Implications

This study has several implications for researchers and educational practitioners. Specifically, the results of this study are important for bridging the gap between researchers and practitioners with regard to educational reform in the community college setting. These results provide insight into how the community college culture affects the use of evidence. Even in circumstances in which practitioners value and seek out systematic evidence, the political climate and reward system can dissuade its use. Given this, it is clear that the promotion of the use of systematic evidence must be addressed at both the organizational- and individual levels. This may be challenging, however, as the core mission of community colleges is to teach. Because practitioners are given a full course load and are not compensated for additional work, it is unrealistic for practitioners to assume full responsibility for accessing and interpreting research. To overcome this possibility, researchers should be prepared to refine their approach to help bridge the gap between research and practice.

In addition, this study provides scholars with further insight into the limitations of educational research. This study's findings suggest that often practitioners find it difficult to

contextualize research; they don't see its relevance to their context. Thus, practitioners tend to gravitate toward contextualized information. The findings reported above can assist the research community in recognizing the importance of describing the climate. Further, it provides researchers with key features of commonly accessed evidence, which could be help researchers better align their work to meet practitioner needs. In this vein, I offer several recommendations for the research community on the basis of my findings. First, the research community should seek to utilize social media. Social media has become the fastest, most convenient way to disseminate information to a large audience. Second, because my findings indicate that community college faculty value information obtained from professional development associations, researchers should present their work at professional development conferences attended by teachers. Further, because practitioners are compensated for attending conferences, they may be more willing to take time away from the classroom to attend. Finally, researchers should consult with practitioners about their research. Most notably, the research community should strive to contextualize their findings, and share their implications with teachers. If possible, researchers should attempt to present their research findings through activities or storytelling, as my findings indicate that practitioners are most likely to engage with information that is participatory and has been personalized.

Finally, the results of this study reveal a disconnect between how practitioners claim to identify quality evidence, and how they do so in practice. Historically, researchers have primarily relied on surveys populated by self-report measures and interviews to obtain the attitudes and behaviors of a representative sample. Although self-report data has helped to advance our understanding of educational research and practice, they can be subject to social desirability biases and distorted perceptions of reality. While my results indicate that these very issues were

at play here, there could be other explanations for this disconnect, as the shift from "knowing" to "doing" is certainly complex. Nonetheless, it is critical for researchers to be aware of the methodological limitations of self-report measures, as using them exclusively can produce unreliable data.

Limitations

Although this dissertation leveraged nuanced qualitative methods to present a detailed case study of evidence use in a community college setting, it did have limitations worthy of mention. As such, I discuss the methodological, analytical, and logistical challenges associated with this study in turn.

Methodological

Merriam (2009) cites that the researcher is the primary instrument for data collection and analysis in qualitative research. Thus, data findings are subject to intrinsic biases resulting from the researcher's personal background and motivations for performing the study. I took several steps to mitigate potential problems associated with this limitation. First, I was aware of my personal biases, and explicitly stated my researcher role. Second, I was transparent with participants with respect to my research procedures. Third, I checked data for inconsistencies across multiple sources, and accounted for any discrepancies that were contradictory to my expectations. Finally, I conducted member checking by taking data and interpretation back to the participants, solicited their feedback, and ensured that I interpreted their words and behaviors accurately (Creswell & Miller, 2010).

Given the nature of this study, the purpose was to gather an in depth, rich portrait of a community college. It would therefore be folly to expect findings to be generalizable to the practicing community. Rather, it is expected for practitioners to review the findings produced

here to determine the degree to which they are comparable (and therefore applicable) to their own respective contexts (Lincoln & Guba, 1985). However, because I recruited participants who are actively involved with curriculum reform and institutional data, and may therefore share several commonalities, steps were taken obtain a representative sample of participants. I actively sought to include a diverse sample of participants from various backgrounds, positions, and disciplines. I also expended effort to include participants who belonged to different networks at the college.

Analytical

This study was also subject to analytical limitations. In all research, quantitative and qualitative alike, interpretation of data is influenced by biases and experiences. This was particularly challenging given that I did not utilize a pre-existing coding framework in this study. To address this limitation, I applied several coding methods during multiple stages of analyses. In addition, I maintained copious notes related to the data analysis to allow for reflection on the data collection and coding process. These notes prompted deeper reflections on the contextual meanings of codes, connections, and themes.

Logistical

Finally, this study was characterized by several logistical challenges. First, participants served as both the sources and gatekeepers of the data I wished to access. As such, they had the authority to restrict my access to accurate data. For example, I was only able to collect observational data from settings to which I was invited. As a result, I primarily observed faculty meetings and workshops, and had limited access to administrative meetings and presentations. Furthermore, because participants were well informed of my study, it is likely that they included

me in forums that would reflect most positively on them, and excluded me from forums that may have reflected poorly on them.

Second, there was significant variability in the number of times I observed each participant. Although the variation likely resulted from limited opportunities, it is possible that some participants chose not to include me in their daily activities, thereby denying me access to a more representative body of evidence. Further, some participants were more responsive to follow-up questions than others.

Finally, due to the nature of my recruitment procedures, several participants collaborated on numerous projects. As a result, I observed the same group of people interact, and thus, was offered a limited perspective on how participants communicate information to different audiences.

Directions for Future Research

This study's findings and the discussion thereof have revealed multiple avenues of future research that may further increase our understanding of pedagogical practice. Foremost, I investigated the use of evidence in general terms, looking at multiple types of information that community college practitioners may use to inform their work. However, future research may benefit from a more comprehensive analysis of the use of systematic evidence in reforming educational practices. Given the limited amount of research in this context, the field could benefit from a widely distributed survey that asks community college faculty to provide and elaborate on specific instances in which they used systematic information to inform their classroom practices. Having faculty provide specific instances is key, as study results suggest that practitioners were more genuine in their responses when they were prompted to provide

examples. Ideally, this approach would capture a larger, more heterogeneous sample, and limit biases that result from self-report data.

This study's findings also suggest that the use of evidence in a community college setting is similar to that in a K-12 context. Still, future research in this domain should explore whether this finding remains robust across multiple community college contexts. Related to this, investigations into the cultural contexts of other community colleges would provide additional insight into the relationship between culture and the use of evidence. This could be accomplished through a case study comparison analysis in which researchers could explore these processes among several colleges across the country. These comparisons could be focused on schools of variable rank and/or prestige to explore whether the use of systematic information relates to student success.

Concluding Remarks

I designed this study to illustrate the process by which community college faculty and administrators access, interpret, communicate, and integrate information into their daily practice. The investigation, and the results it produced, helped to provide a more comprehensive understanding of the research to practice gap, and produced some insight into how this gap may be narrowed.

Appendix A

In-Person Recruitment Letter

University of California, Los Angeles
Graduate School of Education & Information Studies

Exploring the Use of Evidence to Reform Practice in Community College

You have been invited to participate in a study designed to provide the research community with an understanding of the type of information community college faculty and administrators access to guide curriculum and instructional reform. This dissertation study is being conducted as a final requirement for the degree of Ph.D. at the University of California Los Angeles under the advisement of Dr. Christina Christie.

You have been contacted because you are currently involved in either classroom or curriculum redesign in an effort to improve the quality of instruction. If you choose to participate, you will be interviewed regarding the information you have accessed and used in developing the new curriculum. Follow up interviews may also be conducted if you access any additional information from the Office of Institutional Planning and Research. With your permission, you will also be observed in settings where you may utilize the information accessed. These settings may include your classroom, professional development workshops, and/or program review meetings. If for any reason you become uncomfortable during the observation, you can ask me to stop observing.

Your participation in this study is completely voluntary. You may withdraw from the study at any time, and may also choose not to answer specific questions or not to be observed.
Any information that is obtained in connection with this study and that can identify you will remain confidential. Moreover, all information will be de-identified, meaning that any information that identifies you as a participant (i.e., name and title) will be removed from files that include your responses.

If you are interested, please fill out the attached consent form, indicating whether or not you are interested in participating in the study. If you have any questions, please do not hesitate to call or e-mail me. Thank you for considering our request!

Sincerely,

Deborah Grodzicki, M.A.
Doctoral Student
Deborah.grodzicki@ucla.edu

Christina A. Christie, Ph.D.
Professor

Appendix B

Recruitment Email

Dear [participant name],

You have been invited to participate in a study designed to provide the research community with an understanding of the type of information community college faculty and administrators access to guide curriculum and instructional reform. This dissertation study is being conducted as a final requirement for the degree of Ph.D. at the University of California Los Angeles under the advisement of Dr. Christina Christie.

You have been contacted because you requested data from the Office of Institutional Planning and Research at [COLLEGE] in the past few months. If you choose to participate, you will be interviewed regarding the information you accessed. Follow up interviews may also be conducted if you access any additional information from the Office of Institutional Planning and Research. With your permission, you will also be observed in settings where you may utilize the information accessed. These settings may include your classroom, professional development workshops, and/or program review meetings.

Your participation in this study is completely voluntary. You may withdraw from the study at any time, and may also choose not to answer specific questions or not to be observed.
Any information that is obtained in connection with this study and that can identify you will remain confidential. Moreover, all information will be de-identified, meaning that any information that identifies you as a participant (i.e., name and title) will be removed from files that include your responses.

If you are interested in participating, please email Deborah Grodzicki at Deborah.grodzicki@ucla.com.

Sincerely,
Deborah Grodzicki

--
Deborah Grodzicki
Doctoral Candidate
UCLA Graduate School of Education & Information Studies
Social Research Methodology (SRM) Division
Los Angeles, CA 90095-1521
Deborah.grodzicki@ucla.edu

Appendix C

Consent Form

University of California, Los Angeles

CONSENT TO PARTICIPATE IN RESEARCH

Exploring the Use of Evidence to Reform Practice in Community College

You are asked to participate in a research study conducted by Deborah Grodzicki (Principal Investigator) from the UCLA School of Education and Information Studies. You were selected as a possible participant in this study because you are a faculty member or administrator at [COLLEGE]. Your participation in this research study is completely voluntary; you may choose **not** to participate at any time without penalty.

Why is this study being done?

The goal of this study is to identify the type of information community college faculty and administrators value, how they interpret that information and, most importantly, what it is that drives practitioners to use that particular piece of information as evidence. I am interested in exploring the type of information educational practitioners use to improve classroom practice.

What will happen if I take part in this research study?

If you volunteer to participate in this study, you will be asked to complete an open-ended interview regarding the information used improve classroom instruction and curriculum. These interviews will be audio recorded to allow later transcription prior to analysis. You may also be observed in your classroom, at program review meetings, or any at other meetings surrounding curriculum improvement. You will also be asked to provide any documents and/or archived data you used to obtain information. This may include archived data, meeting minutes, blogs, and journal/book citations.

How long will I be in the research study?

Participation in the study will involve 2 or 3 interviews. Each interview will last approximately 45 minutes. Each additional interview will follow up on the interview topics covered in the first interview protocol. Observations will also be conducted, however, the amount and duration of each observation will vary by each participant's engagement with the data. Depending on the participant, observations may be conducted in the classroom, professional development workshops, or program review meetings. Participation in the study will last throughout the spring semester.

Are there any potential risks or discomforts that I can expect from this study?

There are no anticipated risks involved with this study. You may experience some discomfort when asked certain questions, which we understand and honor. If you do feel discomfort, you may choose not to respond those questions without penalty. All of your responses are confidential, only the Principle Investigator will have access to your responses for the purpose of finding what all participants' responses have in common and how the responses might be different.

Are there any potential benefits if I participate?

You will not directly benefit from participating in this study. The results of this study may improve what we know about research use to improve educational practice.

Will information about me and my participation be kept confidential?

Any information that is obtained in connection with this study and that can identify you will remain confidential. It will be disclosed only with your permission or as required by law. I will safeguard your responses in four ways. 1) I will use passwords to secure all computer-based data files. Only I will have access to the passwords. 2) I will store all recording materials in a locked cabinet. 3) I will store your consent forms in a separate, secured file from your responses to minimize the likelihood that participants and their responses can be paired. 4) I will de-identify your responses, meaning that we will remove any information that identifies you as a participant (i.e., name and title) from files that include your responses. You will also have the right to review, edit or erase the research tapes of your participation in whole or in part.

What are my rights if I take part in this study?

You may withdraw your consent at any time and discontinue participation without penalty or loss of benefits to which you were otherwise entitled.

You can choose whether or not you want to be in this study. If you volunteer to be in this study, you may leave the study at any time without consequences of any kind. You are not waiving any of your legal rights if you choose to be in this research study. You may refuse to answer any questions that you do not want to answer and still remain in the study.

Who can I contact if I have questions about this study?

If you have any questions, comments or concerns about the research, you can talk to the Principal Investigator or faculty sponsor. Please contact Deborah Grodzicki (Principle Investigator) or Christina Christie (faculty sponsor) at:

Deborah Grodzicki
Doctoral Candidate
Social Research Methodology
Graduate School of Education & Information Studies

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Christina A. Christie
Professor, Division Head
Social Research Methodology
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University of California, Los Angeles
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tina.christie@ucla.edu

If you wish to ask questions about your rights as a research participant or if you wish to voice any problems or concerns you may have about the study to someone other than the researchers, please call the Office of the Human Research Protection Program at (310) 825-7122 or write to Office of the Human Research Protection Program, UCLA, 11000 Kinross Avenue, Suite 102, Box 951694, Los Angeles, CA 90095-1694.

You will be given a copy of this information to keep for your records.

SIGNATURE OF STUDY PARTICIPANT

_____
Name of Participant

_____ _____
Signature of Participant Date

SIGNATURE OF PERSON OBTAINING CONSENT

_____ _____
Name of Person Obtaining Consent Contact Number

_____ _____
Signature of Person Obtaining Consent Date

Appendix D

Interview Protocol

RESPONDENT ID: _____ LOCATION: _____

DATE OF INTERVIEW: _____/_____ / _____ TIME OF INTERVIEW: _____
MM DD YY 24HR CLOCK

First, I'd like to thank you for taking the time to meet with me today. Today I would like to chat with you about the types of information you use to inform your work here at [COLLEGE]. While I have created a set of questions to guide our discussion, we are not bound by these questions.

To start, I'd like to ask you some questions to get to know you a little better. The first set of questions is going to ask you about your employment and background education.

1. What is your position at [COLLEGE]?

    a. Can you elaborate a little about your specific duties at [COLLEGE]? If adjunct, where else do you work?

    b. How long have you been working at [COLLEGE]?

2. Tell me about how you came to be a faculty member/administrator at [COLLEGE]. (*Prompt if needed*: What is the highest level of education that you have completed? What content area is your degree in?)

I'd like to ask you some questions regarding the type of information you typically access to inform your practice (or work) at [COLLEGE].

3. When you have different questions about educational practice (e.g. how a classroom activity or educational curriculum should be developed or changed), where do you usually go to find the answer? (*professional development? YouTube? TedTalks?)*
    a. What types of information do you usually access?
    b. Why do you use (*Insert types of information*)?
    c. Which of these types of information do you find to be most valuable? Why?

4. Do you value the information you accessed or would you have preferred to access other information?

    a. What other types of information do you think you would access?
    b. Why didn't you access these sources of information?

c. Do you think these sources would have been more credible than what you got? Why?

5. Let's say you are meeting with your colleagues in your department and you want to convince them that a particular educational practice is worthwhile, what source of information would use as evidence to support your point? Why?
    a. What information would you use as evidence if you were meeting with administrators? The Academic Senate? The College Board? Or external audiences, such as outside community members or faculty at other colleges?

6. What source of information do you believe is most valued or found to be most credible by your colleagues? Why?
    a. Academic senate? Why?
    b. Administrators? Why?
    c. The College Board? Why?
    d. External audience? Why?

I'm now going to ask you questions about how you accessed information to inform your work at [COLLEGE] (classroom reform or curriculum redesign).

7. Can you give me one or two examples of when you accessed information at [COLLEGE]? (*Prompt if needed*: It could be information you accessed from the Office of Institutional Planning and Research, books, research articles, etc.)
    a. What were the titles or authors of the books or articles you accessed?

8. Can you walk me through the process by which you accessed (*Insert example(s)*)**?**
    a. Where did you access the information?
    b. How did you access the information?
    c. Why did you access that information?
    d. Did you find the information helpful? If so, how helpful did you find the information?
    e. Why did you choose to access that information over another source of information?
    f. Do you value the information you accessed, or did you just use it because it was the most accessible?
    g. Is it okay if I follow up with you and get some of those citations?

Now I would like to talk to you about what evidence-based practice means to you.

9. Let's say you are being asked by an administrator to consider the topic of evidence-based practice in your area (*Insert area of practice*).
    a. How do you define evidence-based information?
    b. How do you access that information?
    c. How do you discern its quality?
    d. How do you use evidence-based information to inform your practice? How often to do you use it?

10. Do you find that evidence-based information is helpful in assisting your daily practice?

    a. If yes, how so?
    b. If no, why not?
        i. Is there a way it could be more helpful? How so?

11. Have you had any previous experience conducting academic research?
    a. Has there been an issue where you searched for academic information as an aid?
        i. If so, what was it?
        ii. How did you go about doing it?

    b. If yes, could you elaborate a little about your experience?
    (*Prompt if needed*: How did you go about studying/conducting research? Under what conditions did you conduct research? What topic did you study? What was the goal of your research? What did you use that research for, if at all? Was it a positive or negative experience?)

12. What advice would you give to researchers so that their work would be more accessible to faculty at a community college?

This concludes our interview. Do you have any questions for me?

Again, thank you so much for taking the time to chat with me. I truly enjoyed our conversation. Would it be okay if I followed up with another interview at a later time?

Thank you!

Appendix E

Coding Framework

CODE	DEFINITION
Sources of Information	
Professional Development	Intra- and extra-organizational facilitated learning opportunities for practitioners to increase their knowledge base and improve educational practice. (e.g. associations, workshops, conferences, continuing education classes)
Colleagues	Colleague experience and expertise
Other Program Models	Educational models utilized at other institutions. These models are accessed to obtain classroom resources, develop new educational curricula, and measure program effectiveness.
Student Feedback	Information obtained from student work or from student personal reflections
Online Media Sources	Information accessed from the Internet (i.e., search engines, social media websites, and topic-specific websites).
Personal Experience	Faculty experience in the classroom
Institutional and Evaluation Data	Data obtained from the institutional research office and the external evaluation team.
R1 Researcher as Expert	Faculty from research university with a very high level of research activity
Educators from Other Institutions	Faculty members and administrators from other higher educational institutions
Periodicals	Magazines, newspapers, and non-empirical journals
Books	Academic, trade, or textbooks
Published Empirical Research	Research based on experimentation or observation. It uses the scientific method to test a hypothesis or answer a question.
Definition of Evidence-Based Information	
Empirically Derived	Evidence derived from systematic inquiry process
Not Empirically Derived	Evidence derived from anecdotes, personal experience, and gut instinct
Quality Evidence	As described by participants
Student Feedback	Information obtained from student work or from student personal reflections
Institutional and Evaluation Data	Data pertaining to student demographics,

	student retention, and student success.
Colleagues	Colleague experience and expertise
Professional Development	Intra- and extra-organizational facilitated learning opportunities for practitioners to increase their knowledge base and improve educational practice.
Personal Experience	Faculty experience in the classroom
Online Media	Internet-based websites (e.g. social networking sites and news)
Reputable and Scholarly Rigor	Research that has been conducted by trusted research methodology, an established researcher, published by reputable publisher, timely, and referenced in the literature.
Communication of Information	
Modes of Communication	Channels by which faculty communicate (e.g. emails, meetings, workshops, social events, blogs)
Information Sharing Within Network	Process by which faculty communicate information within their close-knit community of practice (e.g. storytelling, cognitive mapping, hands-on activities, roundtable discussions)
Information Sharing With Outside Networks	Process by which faculty communicate information to other faculty, administrators, and external audiences (e.g. presentations)
Interpretation of Information	
Interpretation of Broader Information	Interpretation of information obtained from non-data sources (e.g. literature, anecdotes, personal experience).
Interpretation of Data	Interpretation of data obtained from institutional research office and external evaluators
Integration of Information	
Institutional and Evaluation Data	Data obtained from the institutional research office and the external evaluation team.
Professional Development	Intra- and extra-organizational facilitated learning opportunities for practitioners to increase their knowledge base and improve educational practice.
Personal Reflection and Anecdotes	Information based on personal experiences and colleague experience and expertise
Empirical Research	Research based on experimentation or observation. It uses the scientific method to test a hypothesis or answer a question.

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