



## “We’re Caught In Between Two Systems”: Exploring New Accountability Challenges of Dual Credit Implementation

Julia C. Duncheon  
University of Texas at El Paso

Stefani R. Relles  
The University of Nevada at Las Vegas

## **Acknowledgements**

CERPS working papers have not undergone final formal peer review and should be cited as working papers. They are intended to encourage discussion and suggestions for revision before final publication. The views expressed in this paper do not necessarily reflect those of the University of Texas at El Paso or the College of Education. The authors are responsible for any errors.

### **Suggested Citation:**

Duncheon, J. C. & Relles, S. R. (2018). *“We’re caught in between two systems”*: Exploring new accountability challenges of dual credit implementation. CERPS Working Paper 2018-2. University of Texas at El Paso, El Paso, TX.

## **Abstract**

Dual credit courses have emerged as a popular strategy to bolster the college completion agenda, yet research on program implementation is scarce. This qualitative study uses complexity theory to investigate how teachers enacted dual credit at eight high schools partnered with one community college system in a U.S.-Mexico border region of Texas. To analyze over 140 hours of interview conversations, we use complexity theory, which suggests that how information travels through complex systems is an indicator of organizational effectiveness. Findings indicate that information sharing with the dual credit teachers was contradictory on multiple counts, creating confusion surrounding standards for pedagogy, curriculum, and grading. Ultimately, we find that conflicting mechanisms of institutional accountability on either side of the partnership made it difficult for teachers to align their instruction with college preparation goals. Implications for theory, policy, and practice are discussed.

## **“We’re Caught In Between Two Systems”:**

### **Exploring New Accountability Challenges of Dual Credit Implementation**

*We're just in both worlds. I think that's the odd thing about dual credit ... They haven't really figured out our role. I think for both systems, not just high school side or college. It's both. We're just kind of dead in the middle, and nobody understands exactly what it is that we do.*

*—11th Grade Dual Credit History Teacher*

Rigorous academic preparation is a key predictor of postsecondary outcomes (Adelman, 2006), and is positively associated with grade point average, time-to-degree, and persistence (D’Amico & Dika, 2013; Farruggia, Bottoms, Leighton, Wellman, & Moss, in press; Long, Iatarola, & Conger, 2008). Unfortunately, academic under-preparation is widespread among first year college students (Venezia & Jaeger, 2013). For example, Woods and colleagues (2018) found that for students who completed a standard high school curriculum, the predicted likelihood of passing college-level English or math was only about 48% or 21%, respectively. More concerning are the disproportionate rates of students from historically underrepresented backgrounds who are deemed academically underprepared upon college entrance (ACT, 2015; Kena et al., 2016). These gaps are consistent with inequitable graduation rates, which remain stratified by race, class, and parent education (Snyder, deBrey, & Dillow, 2016). Historically, the secondary and higher education sectors have worked separately to address what higher education stakeholders have referred to as the “remediation crisis” (Levin & Calcagno, 2008). In the K-12 arena, efforts to enhance students’ college preparation include the Common Core State Standards (Hess & McShane, 2013), Advanced Placement (AP) coursework (Dougherty, Mellor, & Jian, 2006), and the International Baccalaureate diploma (Kyburg,

Hertberg-Davis, & Callahan, 2007), although research suggests access to advanced coursework may not be equitable (Kanno & Kangas, 2014; Klugman & Butler, 2008). On the other side of high school graduation, postsecondary institutions have traditionally assigned students who are deemed underprepared to non-credit-bearing remedial coursework (Merisotis & Phipps, 2000), which has questionable effectiveness (Monaghan & Attewell, 2015). While some colleges have begun to innovate new approaches to developmental education that may be more promising (Venezia & Huges, 2013), the problem of academic under-preparedness continues to vex researchers, policymakers, and practitioners across the K-20 pipeline.

As the nation's socio-demographics shift and educated workforce demands increase, the inequalities of college academic preparation auger unfavorably for social and economic welfare (Carnevale, Smith, & Strohl, 2010). Given these threats are shared by K-12 and higher education alike, a growing reform trend—dual credit coursework—proposes institutional partnerships to address the common problem of student under-preparation. Dual credit courses award students a high school and a college credit simultaneously for the same class, without a post-course standardized test requirement (Tobolowsky & Allen, 2016b). The theory of action is that by expediting students' exposure to and completion of postsecondary coursework, dual credit initiatives will encourage college graduation and reduce time to degree. At the institutional level, dual-credit initiatives offer a promising alternative to the litany of separatist efforts to improve academic preparation for college.

Although stakeholders are optimistic about dual credit initiatives as a harbinger of the partnership model (Hofmann, 2012), the literature reveals little about these courses in practice (Tobolowsky & Allen, 2016b). Whether dual credit initiatives enhance students' academic preparation and, by extension, support college attainment depends fundamentally on what is

happening at the classroom level. As states and districts move to scale up dual credit programs (Miller et al., 2017), inquiry regarding their implementation, in particular, is warranted.

To that end, the present study focuses on dual-credit coursework in eight high schools partnered with one community college system in a U.S.-Mexico border region of Texas. Data for the study derive from one-on-one and focus group interviews with 103 teachers who implemented dual credit coursework on their campuses. These data represent more than 140 hours of interview conversations. To analyze these data, we draw from the literature on organizational learning and adaptation, using complexity theory to suggest a link between the functioning of the secondary-postsecondary partnership and the experiences of the dual-credit teachers. A guiding assumption of the framework is that the ways in which information travels through complex systems is an indicator of organizational effectiveness (O'Day, 2002). Accordingly, data analysis focuses on the ways in which information was shared with and used by teachers to support the implementation of dual credit coursework.

In preview, the data demonstrate that information sharing with the dual credit teachers was contradictory on multiple counts, creating confusion surrounding standards for pedagogy, curriculum, and grading. Ultimately, we find that conflicting mechanisms of institutional accountability on either side of the partnership prevented teachers from aligning their instruction with college preparation goals. Without transparent terms of shared accountability, teachers and students at the classroom level bore the brunt of the partnership's basic design flaws. Our findings may be useful to appraise college completion reforms that attempt to bridge K-20 systems via cross-sector partnerships.

### **Literature Review**

Dual credit programs are part of the broader agenda to improve postsecondary access and

completion rates by accelerating students' pathways into college (Karp, 2015). These initiatives have spread rapidly; 98% of public community colleges and 84% of public universities offer dual credit courses through local high schools (Marken, Gray & Lewis, 2013). Dual credit is distinct because, in contrast to separatist reforms, it requires high schools and postsecondary institutions to collaborate to deliver course opportunities (Jobs for the Future, n.d.). Given their reliance on partnerships between education sectors which have traditionally been independent, dual credit programs occupy the "middle space" between K-12 and higher education (Hofmann, 2012).

### **The Middle Space**

Dual credit courses are designed to serve as a bridge between high school and college by awarding credits toward both degrees as well as exposing students to college-level academics (Tobolowsky & Allen, 2016b). To enroll in dual credit, students must demonstrate college course eligibility based on requirements decided by the terms of the partnership between the postsecondary institution and the school district (e.g., GPA or test scores; Karp, Bailey, Hughes, & Fermin, 2004). If the postsecondary partner is a community college or public university, the typical requirement is passing whatever standardized test is used to assess the college readiness of freshmen entering the state's higher education system. Studies of dual credit show mostly positive effects on students' college enrollment (Karp, Calcagno, Hughes, Jeong, & Bailey, 2007), college GPA (Crouse & Allen, 2014), persistence and completion (An, 2013; D'Amico, Morgan, Robertson & Rivers, 2013; Struhl & Vargas, 2012; Swanson, 2008). Dual credit participation has also been shown to reduce a student's likelihood of needing remediation (Grubb, Scott, & Good, 2017). However, research has found that students who are low-income and/or of color may have limited access to dual credit (Museus, Lutovsky, & Colbeck, 2007; Pretlow & Wathington, 2014). Dual credit coursework also appears to have smaller effects for

students from traditionally marginalized populations (Taylor, 2015) and does not necessarily reduce socio-demographic gaps in postsecondary outcomes (An, 2013).

While extant studies of dual credit have begun to unpack student outcomes as measured by academic indicators, research is needed to examine the processes that support dual credit implementation. For example, student learning depends in large part on the nature of the dual credit partnerships, yet it remains unclear how the terms of these agreements shape dual credit coursework in practice. Tobolowsky and Allen (2016b) conducted an extensive review of the dual credit literature and called for inquiry into the structural aspects of dual credit policy—that is, how secondary and postsecondary systems collaborate to enact dual credit programs. Relatedly, research on dual credit at the classroom level is thin. One study revealed that high school and college stakeholders had divergent perspectives regarding the academic rigor and responsibilities of each sector (Howley, Howley, & Duncan, 2013). Thompson and Ongaga (2011) found that teachers of dual credit coursework felt constrained by district policies as they struggled to meet more rigorous academic and testing standards. While some research has examined the college transition experience of students who graduate with dual credits (Tobowolski & Allen, 2016a), the literature offers little insight into teaching and learning inside dual credit classrooms. Thus researchers have called for dual credit studies of instructional quality, course rigor, and program regulation (Crouse & Allen, 2014; Klein, 2007; Tobolowsky & Allen 2016b).

The present study addresses these research gaps by examining how high school teachers implement dual credit at their campuses. To understand teacher perceptions in a middle space partnership context, we turn to research on organizational learning and adaptation.

### **Conceptualizing Middle Space Partnerships**



In education, both the K-12 and higher education literatures use organizational theories to understand and predict how institutional policies yield outcomes. Consistent across these studies is the assumption of a link between policy outcomes and organizational efficiency, for which information sharing is the typical proxy (Ladd & Lauen, 2010). As O'Day (2002) pointed out, "Information is the lifeblood of all [organizational]... mechanisms: one accounts to someone for something, and this accounting gets done by conveying information" (p. 296). Constraints on information (Figlio & Loeb, 2011)—an overemphasis on tests at the expense of other indicators, for example—are shown to limit how organizational actors respond to local needs, leading to unfavorable policy results (Levin, 1974). In contrast, policies that facilitate information exchange encourage stakeholders to "share organizational decision-making powers," and are thus more effective levers for improving student outcomes (Goddard, LoGerfo, & Hoy, 2004, p. 420).

A traditional understanding of schools suggests that information is distributed through coherent, hierarchical reporting structures. Policy implementation is presumed to be a top-down and linear process (McLaughlin, 2006; Schofield, 2004). A policy articulates a course of actions to address an educational problem (Harman, 1984) and a system of rewards and sanctions is imposed on local actors to achieve stated objectives (Browbrow & Dryzek, 1987). Implicit in this assumption is the notion that a school's organizational hierarchy adheres to its chain of provider-director agreements (Hentschke & Wohlstetter, 2004). Yet as Cuban (2013) has pointed out, "school system structures [are not] like mechanical gears and cogs," but are made up of "loose connections, unmapped but interdependent relationships, unpredictable events, and ambiguous directives combine[d] into a web-like complex system" (p. 115).

**Complexity theory.** An alternative to linear models of organizational change, complexity theory redefines how we think about schools (Mason, 2008). The perspective focuses less on

administrative structures and more on fluid relationships, a conceptual shift signaled by a lexical change from the word ‘organization’ to the phrase ‘complex system.’ In other words, the emphasis is on “the *relationship* between elements, rather than the elements themselves” (Morrison, 2008, p. 25). The theory suggests that a complex system is “a natural product of social needs and pressures—a responsive, adaptive organism” (Selznick, 1987, p. 5). Just as an organism’s biology is comprised of relationships among blood, tissue, organs and the like, a school system is composed of relationships among information, agents, practices, and cultural contexts. These relationships are understood to be constantly developing, evolving, and adapting. To describe the connectedness of complex systems, theorists often reference naturally occurring phenomenon such as rainforests (Lewin, 1999) and beehives (Frederick, 1998), which brings attention to the interdependencies among living elements and environments.

The notion that schools and colleges are adaptive organisms as opposed to predictable machines has implications for how we conceptualize information sharing. The framework implies a distributed knowledge system whereby information “is not centrally located in a command and control center” (Morrison, 2008, p. 21), but rather shared through a web of relationships. Within a complex system, information circulates recursively as agents encounter, interpret, and act on policy intentions, and then reencounter, reinterpret and revise their implementation based on experiential feedback. Whether a school or a business, the organization learns and adapts through the iterative processes of its agents’ interpretations and behaviors. A focus on information sharing brings attention to the ways in which implementation of a new reform depends more on how policy is informally interpreted rather than how it is formally articulated (Coburn, 2005; Cochran-Smith, Ell, Ludlow, Grudnoff, & Aitken, 2014). What gets heard and enacted may not be what was originally said and intended.

Complexity theory also fundamentally changes how we think about educational reforms and outcomes. In complex systems, change is understood to be an adaptive process for which outcomes cannot be predicted or controlled. Yet while the organism metaphor infers that the system is fluid and unpredictable, it is not without an internal logic (Johnson, 2008). As in a rainforest or a beehive, system relationships are “locked in” to path dependencies—that is, internal patterns of knowing and doing—that shape how information is circulated, interpreted, and acted upon. Extending the ecosystem metaphor, path dependencies represent the river banks that information, like water, flows through (Mason, 2008). These path dependencies ensure that, although the system is ever-evolving, there is an internal accountability within the whole (Liebowitz & Margolis, 1995); the water generally flows through the same path, symbiotic with its bed. Path dependencies therefore help explain what some complexity theorists have described as organizational inertia, or resistance to change (Sydow, Schreyögg, & Koch, 2009). When new reforms are introduced into a complex system, path dependency inertia absorbs their momentum such that change tends to occur slowly, shaped by old patterns and cultural norms.

Applying complexity theory to the context of dual credit coursework calls attention to the idiosyncrasies of college access that have implications for information sharing and policy implementation. For example, the middle space between high school and college is empty; there are no native path dependencies between these complex systems. On the contrary, they are historically separate with no precedent of accountability to each another (Dougherty et al., 2006). This separation of the K-12 and higher education systems, with their separate path dependencies, necessarily stunts the information sharing and shared accountability that can organically occur within a middle space partnership (Mitleton-Kelly, 2003). With these challenges in mind, this study examines teacher experiences to understand the ways in which information sharing within

the district-college partnerships shaped the implementation of dual credit coursework.

### **Research Design**

This study was part of an ongoing multi-year research project in Texas focused on K-12 and community college partnerships in a U.S.-Mexico border region. Our research design, which we elaborate below, is purposeful to gain insights about middle space partnerships that may be useful for policy and research on this propagating reform trend.

### **Site Relevance**

The state context for this study was Texas, where dual credit programs have experienced rapid expansion over the past two decades (Miller et al., 2017). Dual credit initiatives are part of the state's strategic higher education plan to increase its proportion of postsecondary degree or certificate holders to 60% (THECB, 2017). Consistent with the legislature's efforts to make dual credit coursework more accessible, Texas has experienced a 650% growth in dual credit participation since 2000 (THECB, 2016). Data for this study were drawn from one of the state's border regions, which encompasses a population of roughly 800,000 people, and borders a city in Mexico that is home to over 1 million. About 80% of the region's inhabitants are Hispanic or Latinx, and the poverty rate hovers around 20%, as does the rate of adults who hold a bachelor's degree. A large proportion of the region's students thus qualify for free and reduced lunch and will be first generation college goers.

To collect data relevant to the implementation of dual credit courses, we selected eight school sites across six of the region's urban and rural K-12 districts. All dual credit in these districts was offered through partnerships with the region's five-campus community college system, which we call Border Region Community College, or BRCC (a pseudonym). The schools selected for inclusion in the study were all designated as early college high schools,

which meant that students could earn up to two years of college credit during 9th through 12th grade (Berger, Adelman, & Cole, 2010) through a combination of dual credit coursework and classes taken at BRCC.

The selection of early colleges for the research site (as opposed to traditional high schools) was optimal to support the study's objectives. First, early colleges rely on dual credit coursework as a principal vehicle through which to confer college credits (Muñoz, Fischetti, & Prather, 2014). As such, they hire more credentialed teachers and offer a wider variety of dual credit classes than their traditional counterparts, which provided access to a larger pool of potential participants. Second, by allowing students to obtain a high school diploma and an associate's degree simultaneously (Bailey & Karp, 2003), the school model itself occupies the middle space between K-12 and higher education, and thus is especially well suited to the study of cross-sector information sharing. Third, the early college context situated the study in an equity-relevant environment because—in contrast to most advanced course options, including dual credit (Edwards, Hughes, & Weisberg, 2011)—these schools explicitly serve students who are traditionally underrepresented in higher education (e.g., low-income, first generation, of color; Barnett & Stamm, 2010). Thus, our findings may have implications for the pre-college preparation of historically marginalized students.

The details of site selection for the project were as follows. Each of the eight early colleges had been operating at least one full school year at the time of data collection, so were actively offering dual credit courses. The schools opened between 2005 and 2014, served between 200 and 450 students, offered between 6 and 16 dual credit courses, and represented diverse geographical locations and early college designs. Four were in urban districts and four in rural districts. One of the schools was located at the main BRCC campus, and three were located

on satellite BRCC campuses. Two were on standalone campuses and two shared a campus with comprehensive high schools. Students who attended schools with less proximity to a BRCC campus—and thus less access to courses taught by college instructors—earned the majority, if not all, of their college credits through dual credit courses taught by high school teachers. Another differentiating aspect of these sites pertained to leadership. Seven of the high schools had a history of high administrator turnover, with principals' average tenure between one and three years. In contrast, one school had had the same principal for ten. This particular site, which was located on BRCC's main campus, notably offered the fewest dual credit courses because students took the majority of their college credits (about 75%) at BRCC.

### **Sample**

In total, 103 teachers participated in the study. From each campus, between 10 and 22 teachers were included, which represented, at minimum, half the faculty. At two schools, all the teachers participated. Teachers' years of experience spanned from 1 to over 20, and years at an early college specifically spanned from 1 to 10. Forty-two teachers (roughly 41%) had been teaching dual credit for upwards of five years. Sixty-two teachers (roughly 60%) taught dual credit in the year of the study. Ten administrators and three counselors were also included in the study, though in this paper, their data are used to triangulate teacher perspectives.

### **Data Collection**

Data were collected between September 2015 and December 2017 via interviews, focus groups, observations, and documents. Principals of the schools were contacted and their teachers were invited to participate via presentations at faculty meetings. Those who elected to participate were interviewed either one-on-one or in a focus group setting, depending on principals' preferences and teachers' schedules.

Fifty-two teachers participated in a one-on-one, semi-structured interview, which ranged from 25 minutes to 3 hours with an average duration of around 70 minutes. Two teachers were interviewed by email. The remaining 49 teachers participated in 1 of 12 focus groups, which ranged in size from 3 to 7 teachers, and lasted from 45 to 90 minutes, averaging about one hour. The result was over 140 hours of teacher interview data. Interview questions focused on teachers' experiences becoming certified to teach dual credit and enacting dual credit curriculum in their classrooms, perceptions of their roles as dual credit teachers, and perspectives on the benefits and challenges of the dual credit program for teachers and students. Semi-structured one-on-one interviews were also conducted with all administrators and counselors, whose perspectives were used to contextualize and triangulate teacher data. Interview and focus group data were audio recorded and sent to an external transcription service.

Observation and document data were collected and used to triangulate findings. The first author conducted approximately 50 hours of observations of partnership and faculty meetings, professional learning communities, and school hallways and classrooms. A variety of documents, most notably teacher evaluations, were also collected and used for this research. Policy documents and curriculum resources were accompanied by supporting documents for each school site including marketing and recruitment materials and application packets.

### **Data Analysis**

NVivo qualitative analysis software was used to assist with coding and data interpretation. Coding involved a combination of deductive and inductive strategies. Guided by complexity theory, we began by identifying the different sources of dual credit information teachers encountered and interpreted. We applied a priori codes line by line to differentiate between information that was organic to the K-12 versus community college system. We also

coded for “path dependencies,” or patterns of behavior that reflected the cultural histories of a particular education sector. As an example, teachers often reported the high school’s implicit or explicit expectation that they provide students with opportunities to make up missed work.

We then employed open and in vivo coding strategies to discern the implementation themes within each system. At this point, the specific types of conflicting information that teachers received (e.g., related to grading or pedagogy) began to emerge. Inductive coding also revealed the middle space positionality of teachers as a recurrent theme. For example, teachers used phrases such as “two masters” or “two parents” often, so these in vivo codes triangulated with the theory-based assumption that dual credit courses represent a middle space partnership between two complex systems. An additional phase of analysis compared and contrasted the information associated with each system, drawing attention not only to conflicting information, but also the ways in which teachers interpreted the contradictions latent in the partnership (Miles & Huberman, 1994).

### **Trustworthiness**

Member checking, the constant comparative method, and attention to researcher positionality were the primary strategies used to ensure trustworthiness. Member checking consisted of first confirming basic comprehension during interviews, and second checking in with select teachers informally during site visits. In particular, three teachers on three different campuses served unofficially as informants by engaging in ongoing discussions with the researchers and providing feedback on emergent interpretations. These three participants served as instructional coaches or had longevity at their campus, and thus offered unique insight into the dual credit program. The constant comparative method allowed us to discern and confirm patterns as they emerged throughout the coding process (Glaser & Strauss, 1967).



With respect to researcher positionality, this article's first author, who is principal investigator on the larger project, gained access to the schools under study by building rapport with key stakeholders through her role as a professor at the regional university. Due in large part to its geographic isolation from much of the state, this region has cultivated strong cross-sector collaborations that connect the K-12 schools, postsecondary institutions, and local business interests, such that educational leaders are generally open to research opportunities sponsored by the university. Because both authors of this study were former high school teachers and the second author was also a community college instructor, reflexive memoing was used throughout data collection and analysis to bracket any potential researcher bias.

### **Policy Context**

The Texas Education Agency (TEA; n.d.) defines dual credit as “a process through which a student may earn high school credit for successfully completing a college course that meets or exceeds” the state’s standards for a particular high school course. TEA further specifies that “the high school and college work together to determine appropriate high school credit to be awarded upon successful completion of the course,” suggesting the responsibility of local K-12 districts and postsecondary institutions to establish the specific parameters of the dual credit agreement.

The Border Region Community College (BRCC) website provides information on its dual credit program for parents, students, and educators. The webpage first notes the college’s commitment to provide dual credit courses at no cost to students and families. Dual credit is then defined as

college-level courses [offered to] qualified students still enrolled in high school. The college class is a replacement rather than an addition as students take just one class, the college class, and earn both high school and college credit. The courses are taught by instructors

credentialed by Border Region Community College.

Students must qualify by passing the Texas Skills Initiative, the placement exam for incoming students. The website lists program benefits such as smoother postsecondary transition and cost-savings. Toward the top of the page is the program's goal: "to provide a positive collegiate learning experience for participating high school students."

### **Data Presentation**

Data analysis revealed that teachers encountered a host of conflicting information as they worked to implement dual credit coursework. In what follows, we present the administrative, pedagogical, curricular, and grading expectations of the partnership as described by dual credit teachers. For each category, we track the correspondence of information circulated separately by the K-12 and community college system. In preview, the data demonstrate the contradictions teachers encountered and the implementation challenges they subsequently faced. Indicative of the partnership's information sharing, one participant eloquently voiced the data's persistent theme: "It's confusing."

#### **Administrative Expectations: "Serving Two Masters"**

Dual credit teachers felt accountable to both the community college and high school administrations. Teachers who earned a master's degree were certified to teach dual credit by the college. One teacher explained the process: "The coordinator and the dean came to speak to me. They went through all of the qualifications that I needed to have and the paperwork and getting transcripts sent over and that kind of thing." Like other participants, she felt "excited because that was the reason I went to get my master's, because I wanted to teach the upper level courses like dual credit." Participants thus saw themselves as "kind of hired by the college" because "our credentials carry over to BRCC." Yet despite holding a college teaching certification, dual credit

teachers were technically employed and paid by the K-12 district. In the words of one teacher, “the college doesn’t pay us directly.”

The result was that, as one participant explained, “We’re following [the community college] policies but we are also following [K-12 district] policies.” Across interviews, teachers described their positionality as having “two bosses,” being “ beholden to two parents,” and “serving two masters.” Also recurrent was the perception that the information organic to one system contradicted the information organic to the other. As one teacher explained, “Sometimes they don’t communicate well.” One dual credit teacher, for example, recalled how the college administrators “gave me the book, the lab manual that we would be using. They went through everything just to make sure that you do exactly what they do at the college.” Yet dual credit teachers simultaneously perceived that, in the words of one participant, “I think it’s kind of a contradiction because here [the K-12 district] tells us we have to do this, or that.” Another concurred, “[the district] put[s] so much pressure on us, so much red tape.” Consequently, as one teacher put it, “There’s an education gap, I guess we can call it that. How one organization runs versus how the other organization runs.”

Administrators at the high school sites recognized the pitfalls of these circumstances for teachers. One principal, who had been at an early college for less than a year, corroborated that teachers felt pulled in two directions: “The state is saying, ‘You’re a district teacher. This is the behavior you need to display.’ But the college wants something different.” An assistant principal upheld this viewpoint:

I think what people don’t realize is that when you’re going to teach a dual credit course, you have to meet with your dean of the college. You’re actually a dual employee—you have to be approved, hired, meet all of their qualifications, submit your syllabus. And [the college

administrators] do walkthroughs. They come and do observations on you.

Echoing similar observations, one principal explained the policy consequence: “I understand that there are guidelines that BRCC has on their instructors, but I also understand that our teachers are paid by [our K-12 district]. So we kind of have to follow [the district’s] guidelines and then marry [ours with] BRCC’s. It’s a marriage of compromise.” Another administrator chocked it up to norms: “Dual credit classes are more geared towards the college environment, but yet our teachers are having to still comply with the high school which requires different styles of presentation, teaching, that are not part of the college culture.” In the words of one teacher, “We’re trying to blend the two [systems], but ... it’s hard.”

The one notable exception to this theme was on the early college campus where students took the majority of their college credits at BRCC and the principal had longevity. Teachers at this school did not report the same administrative tensions. The principal theorized that this was because “I do the best I can to screen everything from our central office so my teachers can focus on [the college standards] they need to focus on.” He also suspected that because his school was high performing, “it’s gotten to the point where central office pretty much leaves us alone.”

### **Pedagogical Expectations: “[Students] Would Look at Me Like I Was Nuts”**

Teachers felt that each system had contrasting preferences for teaching method. While the college prioritized university-style practices such as lecture, the district emphasized “student centered learning,” characterized by differentiated instruction and group work. Participants across schools described variations in the teaching standards by which their job performance was assessed. As one teacher explained, “We’re evaluated [by the K-12 district] under the Texas Education Agency’s new evaluation system. We’re evaluated by [community college] instructors. And it’s two different things.” One math teacher described the contradictory

feedback he had received on his teaching:

I asked [our former principal], “How much can we lecture during the ninety minute period?” And he said, “Nine minutes, no more than nine minutes.” When the evaluator from BRCC came to our classroom, she was like, “You’re not lecturing! You’re just putting these kids in groups to talk amongst themselves. What are you doing?”

Participants’ own experiences as students validated the college evaluator’s perspective: “Every single college class I’ve taken,” said one teacher, “was lecture-based.”

Written teacher evaluations offered further insight. For example, the K-12 district and the college both provided feedback on teaching methods and techniques. One calculus teacher received his lowest score on this part of the district evaluation: “Instructional materials and presentation were not differentiated nor adapted.” This same teacher received the highest score from the community college evaluation on its parallel section: “Judging from the participation of the class, the activities used to teach this class are very effective.”

Participants expressed a variety of concerns about implementing student centered learning approaches in dual credit classrooms. Some worried that group activities diverted time from delivering all the content on the college syllabus: “If the students don't learn everything then we've done them an injustice. But the [K-12] district doesn't see it that way.” Others feared they were setting students up for failure by not training them to listen to a lecture and take notes. As one teacher explained, “I have taught classes at [the university] and at [the community college] and the truth is, if I were to walk into a college class and start doing hands-on learning experiences [the students] would look at me like I was nuts.” She paused, adding, “It’s very bizarre to have [the K-12 district] require me to do one thing when the experience [students] are going to get at the college is going to be completely different.” Some teachers expressed

frustration with the mixed messages: “the [K-12] district comes up with these [teaching] models that work great in elementary schools, and then they ask us, ‘Why aren’t [students] succeeding at college level?’ And it’s ‘cause they don’t teach like an elementary school at the college.” One teacher who had recently obtained her dual credit credential shared her assumption that she would be “teaching college. I learned the hard way that is not what it is.”

Teachers felt they had to resolve this pedagogical tension on their own, because “there’s no district person that can say, ‘This is what dual credit class instruction looks like.’ There’s nobody.” Another teacher concurred, “Our campus administration, or really the district, is saying, ‘You are a district employee. You need to do what we mandate.’” A third teacher reflected, “I think it’s just easier for [the K-12 district] to ask us to adapt than to fundamentally change the way dual credit is taught.” Some participants expressed concern about potentially losing their college teaching credential: “If you’re not doing lecture, you might get a bad evaluation and BRCC might just say, ‘You’re not competent enough to be teaching that course.’” Most teachers altered their pedagogy depending on which evaluator was coming to their classroom. As a result, one teacher surmised, “if a student is in our [dual credit] Education 1300 class, and you go to that class at [another school], it’s not going to be the same thing.”

### **Curricular Expectations: “You’re Going to Have to Do Some Bridging”**

Dual credit teachers also struggled with curriculum due to misalignment between high school and college content standards. The community college used the syllabus as a contract to standardize what was taught whether on a secondary or postsecondary campus. Flipping through her syllabus, one teacher explained, “We have part one and part two. The part two is what’s [mandated] by the college, so we have to follow those part twos as closely as possible.” Another teacher reported that the college “usually has us do a calendar and we’re supposed to cover so

many themes by the end of the semester.” At the same time, dual credit teachers were obligated to address the state’s high school standards, because “the kids take their [end of course] exams, which are based on the TEKS.”

Some classes and disciplines afforded teachers curricular flexibility. In the introductory English course, for instance, teachers had some autonomy with the content itself so long as the students wrote five essays. One dual credit biology teacher felt the college curriculum gave her more time and space to do labs. For dual credit British Literature, “there are tons of different novels you could choose from, just as long as you cover those time periods” specified on the BRCC syllabus. Yet some teachers worried that that the college curriculum did not prepare students for writing the state exam: “For college, I am trying to teach [students] to write 6-page papers, but then for [the state’s K-12 exam], they are writing a one-page paper and have to be concise.”

Indeed, state exams often complicated curricular decisions because participants felt pressure to prepare students for what one teacher called “those darn [end of course] tests.” Many perceived that the high school exams “get in the way of actually teaching the [college] classes” because the college curricula featured different skills or content. In science, for example, “the objectives that we have to teach for chemistry are very different for the high school than for the community college.” One district required teachers to document online which objectives students were meeting, but “there’s no way to analyze the college standards with the online program that the [K-12] district provides.” One US History teacher described doing a practice state exam with her students, for which the correct answer about Malcolm X was that he promoted violence. “But we had read about Malcolm X in the college textbook—and so one student called me over and said, ‘Miss, this isn’t true.’ I had to tell her that was the answer the state wanted her to choose.”

Teachers pointed out that part of what differentiated dual credit curriculum from its counterpart at the college was the amount of scaffolding required. As one teacher explained, “regular adult students have already had four years of high school instruction and [they have a] foundation. So when you're teaching a [college course] for kids who haven't had that, you're going to have to do some bridging.” A ninth grade dual credit biology teacher offered an example: “a lot of stuff like the parts of the atom and bonding students don't learn until their sophomore year. So I have to give them an introduction in order to build on it.” One former community college math instructor shared, “I always told myself I wouldn't water down the [dual credit] curriculum, but because of their age and because of their coursework load, sometimes I wonder, should I be a little more flexible?” Many participants also felt the college class was too fast-paced for high school students. “As an instructor at BRCC,” said one English teacher, “I know what it takes to write a well-written paper at the college level. And I know that a lot of the kids in my [dual credit] class just need more time.”

Ultimately, participants perceived that neither the college nor the school district understood what curriculum actually looked like in a dual credit classroom. “They think by just offering dual credit, it's college material,” said one teacher. “In reality... It's not so simple.”

### **Grading Expectations: “Ethically It Just Doesn't Feel Right”**

Grading posed a series of challenges for dual credit teachers. To begin with, the community college and K-12 districts provided different guidelines for weighting final grades. The college mandated that the majority be based on tests, while the high school emphasized participation. In one school district, for example, “we're required to have 50% of [students'] grade based on homework. Tests are only 20%.” At another district, high school grading requirements were “40% daily assignments, 40% tests, 20% homework.” Due to divergent



grading formulas, dual credit teachers were required to keep two gradebooks, and students sometimes earned two different grades in the same course. One teacher elaborated, “When [students] pass the tests, they can pass the college class. But when they don’t do the daily work, they fail the high school part.” Other times, students reported to class daily and fulfilled the high school requirements, but did poorly on the tests, compromising their college grade. Teachers responded to these discrepancies in various ways. Some were able to prioritize the college formula because of an administrator’s situated support: “Our principal’s given us leeway, but if he leaves, we’re going to have to come up with a whole new game plan.” Other teachers took the lead from their community college department chairs. Most preferred to use the college grade because, in the words of one teacher, “if the college standard does not supersede the high school standard then there is no college standard.”

Another logistical difficulty pertained to how scores actually translated to letter grades. At the community college, a 60 was passing with a D, while for the K-12 districts, anything lower than a 70 was deemed a failing grade, an inconsistency that “just sort of adds to the workload.” Institutional schedules also posed a problem for inputting grades; the college operated on semesters while the school districts went by quarters. As a result, explained one teacher, “we often have to go back and re-change the high school grade, depending on what happened with their college grade.” Several teachers raised these issues with their principals, but surmised that “their hands are tied.” In the words of one participant, “I think central office doesn’t want to respond and deal with it.”

In addition to navigating the logistics of two grading systems, teachers struggled with student evaluation from an ethical standpoint. Participants felt pressured to create safety nets for students that were typical for high school classrooms, but would not be afforded in a college

setting. Teachers were consistently expected to “give make up work,” for example. During one professional development, a principal distributed failure reports, instructing teachers to document which students were struggling and what interventions had been implemented. “It’s not that I don’t want you to fail anybody,” he explained, “It’s that I want to make sure we’re doing everything possible to meet the needs of those students.”

Teachers, in turn, felt they had limited autonomy to implement college-level expectations. For instance, one teacher tried to fail a student who slept through the final, mimicking what would happen in a college course. However, after “it blew up with [the high school] administration,” he had to let the student take the test. When another participant was struggling with a student she described as “lazy,” her principal advised her to “call the mom or send her an email every time something is due so she can remind him.” But, the teacher continued, “ethically it just doesn’t feel right. That’s not how college works.” Another teacher expressed a similar sentiment: “I’m not following my BRCC students around [saying], ‘Hey, if you haven’t turned in something, I am going to call your mom!’” Participants appreciated that they were dealing with high school students rather than adults. They also recognized that their principals faced district pressure to maintain high passing rates. Nevertheless, teachers felt that giving second chances was ultimately a disservice to students because “it just enables poor study habits” and “[students] transfer these behaviors to the college.” The counselor at one school corroborated this concern when she shared, “My juniors and seniors, they get mostly As in their dual credit classes here, but mostly Bs and Cs when they take classes over [at the college].” These tensions around grading led one teacher to worry that “dual credit is just a name. It’s not... challenging our kids.”

## **Discussion**

*I think the school districts and the colleges have interestingly not worked out some of the finer details of how [dual credit] is supposed to work. So those of us in the field are dealing with these conflicts.*

*—12th Grade Dual Credit English Teacher*

Across the categories of administrative, pedagogical, curricular, and grading expectations, the theme of confusion recurred as teachers struggled to interpret the inconsistencies associated with separate systems of governance. The school district, for example, preferred student-centered learning, but the college wanted teachers to lecture. While the high school curriculum focused on tested skills and content, the college curriculum stressed thinking. High school grading incorporated effort, while college grading was based only on results. These contradictions created implementation problems for teachers who were accountable to both systems because they were paid by the school district, but credentialed by the college. Faced with ambiguous or conflicting messages, dual credit teachers confronted questions such as: Should students be taking notes from lecture, or working in groups? Which curricular objectives and skill sets should be prioritized? How much preparation should students receive for the state's standardized tests? Should grades reflect effort, participation, or exam performance? Should academic support be offered to a struggling student? Should a parent or guardian be notified? Or should the student alone be responsible for a failing grade?

A traditional policy perspective (McLaughlin, 2006; Schofield, 2004) suggests the logistical contradictions that plagued teachers might be resolved by aligning expectations at the institutional level of the partnership. Although it is important to address blatant policy contradictions, complexity theory suggests that the challenges of dual credit policy implementation cannot be resolved so simply because authentic change is not enacted by

mandates, but mediated by webs of relationships in complex systems. Our data demonstrate how the conflicting terms of the partnership increased the interpretive burden of teachers, and this, in turn, supported the variability of course implementation across the region. With respect to pedagogy, many teachers emulated district standards most of the time and made adjustments when college evaluators visited. Some breached and others complied with high school mandates such as a nine-minute time limit on lecture. Participants also variably resolved mismatched curricula, negotiating divergent content standards and inconsistent skill set priorities behind the closed doors of their classrooms. When assigning a student's final grade, teachers had to choose whether to prioritize the high school or college grading expectations.

Complexity theory uses the notion of path dependencies to explain the levers of organizational change (Liebowitz & Margolis, 1995). Path dependencies emphasize how information sharing is associated with cultural contexts rather than administrative structures. Accordingly, the mixed messages teachers received resembled the interpretive slants of each system's history. With respect to pedagogy, for example, the school district's preference for experiential learning demonstrated a caretaker viewpoint, suited to the compulsory schooling of minors. The college's preference for lecture, by contrast, reflected the assumption that teachers are experts and students are responsible for learning from them. High school curriculum was consistent with the K-12 culture of standards and testing, while college curriculum reflected the postsecondary culture of academic freedom. That high school grading rewarded participation also reflects a K-12 compulsory context, while the college's emphasis on performance assumes a self-selected clientele. College standards, by inference, were suited to teaching conditions such as professional autonomy, adult-aged students, Family Educational Rights and Privacy Act (FERPA) protections, and college scheduling.

Also demonstrative of path dependencies, the extent to which teachers felt beholden to high school standards depended in large part on their district context and school administration. Case in point was the school where the principal had longevity and the teachers hardly mentioned mixed policy messages. On the opposite end of the spectrum was the principal who passed out failure reports to his dual credit teachers. Somewhere in the middle was the principal who granted teachers some flexibility with respect to grading, but a teacher at the site noted the need for a “whole new game plan” if and when that principal left. Ultimately, dual credit information was circulated through the interpretive biases of each system’s distinct path dependencies, an analysis consistent with the prior finding that secondary and postsecondary stakeholders hold different perspectives on dual credit rigor (Howley, et al., 2013).

The data demonstrate that teachers were at the center of a policy expectation stalemate. They were being asked to implement a reform in the space between two complex systems, a context ungoverned by its own path dependencies. Thus, there was no accountability structure to define the unique roles and responsibilities of dual credit teachers. They did not have systematic guidance from the partnership to guide dual credit course implementation. As one teacher lamented, “There’s nobody.” The absence of a coherent accountability structure in the middle space not only produced variability in course implementation, but also led teachers to question whether they were fostering an authentic college-level academic experience for their students. Many participants viewed K-12 expectations as safety nets that did not exist in postsecondary settings. They worried that providing students with make-up work options or slowing down the pace of instruction constituted “watering down” of the curriculum. Group work was likewise seen as disingenuous of college-level teaching. Participants with experience as adjunct college instructors were even more likely to view the school district’s guidelines as restrictive or harmful

to student progress. To these teachers, compromising college-level standards was seen as an “injustice” or an embarrassment because college students would “look at me like I was nuts.” At the same time, dual credit teachers were conflicted about holding students with fewer years of schooling accountable to the same academic standards as college-aged students. Many teachers pointed out that dual credit curriculums took for granted a certain level of prior knowledge that high school students did not necessarily possess, and the pace of the college curriculum made it difficult to embed foundational skills and content. Teachers also recognized the importance of preparing students to pass the state’s K-12 mandated end-of-course exams.

The implementation experiences described by dual credit teachers exemplify how knowledge organic to one complex system can be difficult to translate into another. Complexity theory suggests teacher implementation challenges are evidence of organizational learning as new information is encountered, shared, interpreted, acted upon, and reshaped. When inorganic change information is introduced into a complex system, change momentum is diffused by the adaptive processes and relationships of the system as an independent, organic whole (Sydow et al., 2009). Forming new dynamics of accountability within one complex system—let alone across two—is a progression mediated by the inertia of extant path dependencies (Mason, 2008). Thus teacher knowledge about postsecondary expectations did not organically translate from the complex system of higher education into that of the K-12 districts. Rather, teachers’ efforts to mimic the path dependencies of the college were absorbed by the inertia of K-12 path dependencies. From a complexity theory perspective, then, dual credit teacher experiences suggest early processes of organizational learning and support the premise that institutional reform is a long-term and process-oriented proposition. These data also highlight the particular difficulties of implementing change at the intersection of two complex systems.

### **Implications**

Dual-credit policies show promise for increasing college access and success (Hoffman, Vargas, & Santos, 2009; Klopfenstein & Lively, 2012), in part, because they are conceptualized to bridge the middle space between high school and college (Hofmann, 2012). In reality, however, the policy design merely transplants coursework from higher education into a high school classroom. Our data demonstrate that simply setting up an agreement, credentialing teachers, and approving courses for dual credit are insufficient to expose high school students to authentic college-level work on multiple counts. First, widespread standards variability across the K-12 and college systems inevitably undermines the effectiveness of any dual credit initiative. Due to standards misalignment, this Texas partnership did not circulate clear and accurate information, which research suggests is essential for policy effectiveness (Domina, 2007). The unresolved terms of the partnership left teachers to settle inconsistencies unsystematically. By implication, without basic standards alignment, dual credit teachers are implicitly set up to fail; they will, by default, carry the interpretive weight of resolving the dual credit stalemates uncovered by this study.

Our findings therefore suggest the need for administrative stakeholders to insure the administrative, pedagogical, curricular, and grading expectations of the partnering systems are not only aligned, but also clearly communicated to teachers implementing the coursework. For example, clarity is needed around logistical issues such as how long teachers should lecture or which numeric score translates to which grade, as well as ethical issues such as how much support to offer a struggling student. Ultimately, the partnership itself—and the efficiency of its change momentum—will be encumbered until standards inconsistencies are addressed at the institutional levels.

Yet our also data infer that even if inconsistent standards had been resolved at the institutional level, the latent path dependencies of two separate systems were demonstrably resistant to the kind of innovative changes necessary to transform college access disparities. While secondary and postsecondary standards in the study reflected the culture organic to each complex system, teacher accountability to both sets of standards was the manifestation of dual forms of inertia that absorb and resist policy reforms. The process of breaking down and rerouting path dependencies explains why organizations change slowly over time. The dual credit reform agenda represents unique challenges for schools and colleges because these partnerships must not only to transform the path dependencies of two complex systems, but also forge entirely new path dependencies through the middle space vacancy between them.

While college access partnerships are promising in theory, separate systems of governance constrain their implementation in practice. If dual credit programs are to bridge high school and college, middle space accountability is an imperative. Partnering institutions will need to figure out not just how standards align, but how accountability to these new standards is tracked so that teachers do not shoulder the responsibilities of policy implementation alone. Partnership stakeholders will need to develop appropriate mechanisms to fill the structural vacancies of the middle space, share coherent information, and monitor how institutions, not just their agents, are held accountable across it. Accordingly, these data underwrite a call for higher education researchers to examine middle space accountability designs using a variety of theoretical frameworks. More research to understand the cultural disconnects that create reform inertia is necessary as well. To develop more efficient models of institutional collaboration, higher education will have to do more than passively allow K-12 systems to offer dual credit options.



In closing, this research is not the first to highlight the disconnect between secondary and postsecondary systems (Breland, et al., 1999; Breland & Gaynor, 1979; Coffman, 1966), nor is it the first to question the alignment of college access policy intentions with program implementation (Deil-Amen & Rosenbaum, 2002; Wolcott, 1987; Yancey, 1999). We offer these data to demonstrate not only the challenges of enacting reforms across the middle space of college access, but also the institutional biases—both structural and cultural—that absorb change momentum and oppose innovation. The problems of information sharing exposed by this research reflect the separatist histories of K-12 and higher education approaches to college preparation. Secondary-postsecondary partnerships will remain restricted if both sectors do not work together to define and legislate joint activities according to new rules, without merely trying to apply the long-held assumptions of one system or the other. Accountability that formally bridges the middle space of college access is long overdue.

### References

- ACT. (2015). *The condition of college and career readiness 2014: First generation students*. Iowa City, IA.
- Adelman, C. (2006). The toolbox revisited: Paths to degree completion from high school through college. Washington, D.C.: U.S. Department of Education. Retrieved from <http://www2.ed.gov/rschstat/research/pubs/toolboxrevisit/index.html?exp=3>
- An, B. P. (2013). The impact of dual enrollment on college degree attainment: Do low- SES students benefit? *Educational Evaluation and Policy Analysis*, 35(1), 57–75.
- Bailey, T. & Karp, M. M. (2003). *Promoting college access and success: A review of credit-based transition programs*. Washington, D.C.: U. S. Department of Education, Office of Adult and Vocational Education.
- Barnett, E. & Stamm, L. (2010). *Dual enrollment: A strategy for educational advancement of all students*. Washington, D.C.: Blackboard Institute.
- Berger, A., Adelman, N., & Cole, S. (2010). The early college high school initiative: An overview of five evaluation years. *Peabody Journal of Education*, 85(3), 333–347.
- Brewer, D., Goldman, C., Brewer, A., & Gates, S. (2004). *In pursuit of prestige: Strategy and competition in US higher education*. Piscataway, NJ: Transaction Publishers.
- Browbrow, D. B., & Dryzek, J. S. (1987). *Policy analysis by design*. Pittsburgh, PA: University of Pittsburgh Press.
- Carnevale, A. P., Smith, N., & Strohl, J. (2010). *Help wanted: Projections of jobs and education requirements through 2018*. Washington, DC: Center on Education and the Workforce, Georgetown University. <https://doi.org/10.1016/j.nepr.2010.11.020>
- Carnevale, A., & Strohl, J. (2010). How increasing college access is increasing inequality, and

- what to do about it. In R. D. Kahlenberg (Ed.), *Rewarding strivers: Helping low-income students succeed in college* (pp. 71-207). New York, NY: The Century Foundation.
- Coburn, C. E. (2005). Shaping Teacher sensemaking: School leaders and the enactment of reading policy. *Educational Policy, 19*(3), 476–509.  
<https://doi.org/10.1177/0895904805276143>
- Cochran-Smith, M., Ell, F., Ludlow, L., Grudnoff, L., & Aitken, G. (2014). The challenge and promise of complexity theory for teacher education research. *Teachers College Record, 116*(5), 1-38.
- Crouse, J. D., & Allen, J. (2014). College course grades for dual enrollment students. *Community College Journal of Research and Practice, 38*(6), 494–511.  
<https://doi.org/10.1080/10668926.2011.567168>
- Cuban, L. (2013). Why so many structural changes in schools and so little reform in teaching practice? *Journal of Educational Administration, 51*(2), 109-125.
- D’Amico, M. M., & Dika, S. L. (2013). Using data known at the time of admission to predict first-generation college student success. *Journal of College Student Retention: Research, Theory & Practice, 15*(2), 173-192.
- D’Amico, M. M., Morgan, G. B., Robertson, S., & Rivers, H. E. (2013). Dual enrollment variables and college student persistence. *Community College Journal of Research and Practice, 37*(10), 769–779. <https://doi.org/10.1080/10668921003723334>
- Domina, T. (2007). Higher education policy as secondary school reform: Texas public high schools after Hopwood. *Educational Evaluation and Policy Analysis, 29*(3), 200-217.  
doi:10.3102/0162373707304995
- Dougherty, C., Mellor, L., & Jian, S. (2006). *The relationship between advanced placement and*

- college graduation*. Austin, TX: National Center for Educational Accountability.
- Edwards, L., Hughes, K. L., & Weisberg, A. (2011). *Different approaches to dual enrollment: Understanding program features and their implications*. New York, NY: Community College Research Center.
- Farruggia, S. P., Bottoms, B., Leighton, M., Wellman, M., Moss, T. (in press). Student, family, and pre-matriculation achievement factors predicting college student success in a diverse, urban context. In: Nata, R. V. (ed.) *Progress in education*, Hauppauge, NY: Nova Science.
- Figlio, D., & Loeb, S. (2011). School accountability. *Handbook of the Economics of Education*, 3, 383-421.
- Frederick, W. C. (1998). Creatures, corporations, communities, chaos, complexity: A naturological view of the corporate social role. *Business & Society*, 37(4), 358-389.
- Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine.
- Goddard, R. D., LoGerfo, L., & Hoy, W. K. (2004). High school accountability: The role of perceived collective efficacy. *Educational Policy*, 18(3), 403-425.
- Grubb, J. M., Scott, P. H., & Good, D. W. (2017). The answer is yes: Dual enrollment benefits students at the community college. *Community College Review*, 45(2), 79-98.  
<https://doi.org/10.1177/0091552116682590>
- Harman, G. (1984). Conceptual and theoretical issues. In J. R. Hough (Ed.), *Educational policy: An international survey* (pp. 13-29). London, UK: Croom Helm.
- Hentschke, G. C., & Wohlstetter, P. (2004). *Cracking the code of accountability*. USC Urban Ed. Los Angeles: University of Southern California: Rossier School of Education.  
[http://www.edsource.org/pub\\_new-fed-policies.html](http://www.edsource.org/pub_new-fed-policies.html)

- Hess, F. M., & McShane, M. Q. (2013). Common Core in the real world. *Phi Delta Kappan*, 95(3), 61-66.
- Hoffman, N., Vargas, J., & Santos, J. (2008). Blending high school and college: Rethinking the transition. *New Directions for Higher Education*, (144), 15–25. <https://doi.org/10.1002/he>
- Hofmann, E. (2012). Why dual enrollment? In D. Hofmann, E. & Voloch (Ed.), *New Directions for Higher Education: No. 158. Dual enrollment: Strategies, outcomes, and lessons for school-college partnerships* (pp. 1–10). San Francisco, CA: Jossey-Bass.
- Howley, A., Howley, M. D., Howley, C. B., & Duncan, T. (2013). Early college and dual enrollment challenges inroads and impediments to access. *Journal of Advanced Academics*, 24(2), 77–107.
- Jobs for the Future. (n.d.). Reinventing high schools for postsecondary success. Retrieved from <http://www.jff.org/initiatives/early-college-designs>
- Johnson, E. S. (2008). Ecological systems and complexity theory: Toward an alternative model of accountability in education. *Complicity: An International Journal of Complexity and Education*, 5(1).
- Kanno, Y., & Harklau, L. (2012). *Linguistic minority students go to college: Preparation, access, and persistence*. New York, NY: Routledge.
- Karp, M. M. (2015). Dual enrollment, structural reform, and the completion agenda. In J. Taylor, J. L.; Pretlow (Ed.), *New Directions for Community Colleges: No. 169. Dual enrollment policies, pathways, and perspectives* (pp. 103–111). San Francisco, CA: Jossey-Bass.
- Karp, M. M., Bailey, T. R., Hughes, K. L., & Fermin, B. J. (2004). *State dual enrollment policies: Addressing access and quality*. Washington, D.C.: U.S. Department of Education, Office of Vocational and Adult Education.

- Karp, M. M., Calcagno, J. C., Hughes, C. L., Jeong, D. W., & Bailey, T. R. (2007). *The postsecondary achievement of participants in dual enrollment: An analysis of student outcomes in two states*. New York, NY: Community College Research Center, Teachers College, Columbia University.
- Kena, G., Musu-Gillette, L., Robinson, J., Wang, X., Rathbun, A., Zhang, J., ... Ballard, D. (2014). *The condition of education 2014*. Washington, D.C.: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.
- Klein, A. (2007). Acceleration under review. *Education Week*, 26(44), 22–27.
- Klopfenstein, K., & Lively, K. (2012). Dual enrollment in the broader context of college-level high school programs. *New Directions for Higher Education*, 2012(158), 59-68.
- Klugman, J., & Butler, D. (2008). Opening doors and paving the way: Increasing college access and success for talented low-income students [White Paper]. The Goldman Sachs Foundation: New York, NY. Retrieved from [http://www.princeton.edu/teacher/pupp/PUPP\\_GSF\\_White\\_Paper\\_Opening\\_Doors\\_02-09](http://www.princeton.edu/teacher/pupp/PUPP_GSF_White_Paper_Opening_Doors_02-09)
- Kyburg, R. M., Hertberg-Davis, H., & Callahan, C. M. (2007). Advanced Placement and International Baccalaureate programs: Optimal learning environments for talented minorities? *Journal of Advanced Academics*, 18(2), 172-215.
- Ladd, H. F., & Lauen, D. L. (2010). Status versus growth: The distributional effects of school accountability policies. *Journal of policy analysis and management*, 29(3), 426-450.
- Levin, H. M. (1974). A conceptual framework for accountability in education. *The School Review*, 363-391.
- Levin, H. M., & Calcagno, J. C. (2008). Remediation in the community college: an evaluator's perspective. *Community College Review*, 35(3), 181-207.

- Lewin, R. (1999). *Complexity: Life at the edge of chaos*: University of Chicago Press.
- Liebowitz, S. J., & Margolis, S. E. (1995). Path dependence, lock-in, and history. *JL Econ. & Org.*, *11*, 205.
- Long, M. C., Iatarola, P., & Conger, D. (2008). Explaining gaps in readiness for college-level math: The role of high school courses. *Education Finance and Policy*, *4*(1), 1–33.
- Marken, S., Gray, L., & Lewis, L. (2013). *Dual enrollment programs and courses for high school students at postsecondary institutions: 2010–11* (NCES 2013-002). Washington, D.C.: US Department of Education, National Center for Education Statistics.
- Mason, M. (2008). Complexity theory and the philosophy of education. *Educational Philosophy and Theory*, *40*(1), 4-18.
- McLaughlin, M. W. (2006). Implementation research in education: Lessons learned, lingering questions, new opportunities. In M. Honig (Ed.), *New directions in education policy implementation* (pp. 209–229). Albany, NY: SUNY.
- Merisotis, J. P., & Phipps, R. A. (2000). Remedial education in colleges and universities: What's really going on? *The Review of Higher Education*, *24*(1), 67-85.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, CA: Sage.
- Miller, T., Kosiewicz, H., Wang, E. L., Marwah, E. V. P., Delhommer, S., & Daugherty, L. (2017). *Dual credit education in Texas: Interim report*. Santa Monica, CA: RAND.
- Mitleton-Kelly, E. (2003). Ten principles of complexity and enabling infrastructures. *Complex systems and evolutionary perspectives on organisations: The application of complexity theory to organisations*, 23-50.
- Monaghan, D. B., & Attewell, P. (2015). The community college route to the bachelor's degree.

*Educational Evaluation and Policy Analysis*, 37(1), 70-91.

Morrison, K. (2008). Educational philosophy and the challenge of complexity theory.

*Educational Philosophy and Theory*, 40(1), 19-34.

Muñoz, M. A., Fischetti, J. C., & Prather, J. R. (2014). An early college initiative in an urban, high-poverty high school: First-year effects on student achievement and non-academic indicators. *Journal of Education for Students Placed at Risk*, 19(1), 36–52.

<https://doi.org/http://dx.doi.org/10.1080/10824669.2014.927746>

Museus, S. D., Lutovsky, B. R., & Colbeck, C. L. (2007). Access and equity in dual enrollment programs: Implications for policy formation. *Higher Education in Review*, 4, 1–19.

O'Day, J. A. (2002). Complexity, accountability, and school improvement. *Harvard Educational Review*, 72(3), 293-329.

Pretlow, J., & Wathington, H. D. (2014). Expanding dual enrollment: Increasing postsecondary access for all? *Community College Review*, 42(1), 41–54.

<https://doi.org/10.1177/0091552113509664>

Schofield, J. (2004). A model of learned implementation. *Public Administration*, 82(2), 283–308.

<https://doi.org/10.1111/j.0033-3298.2004.00395.x>

Selznick, P. (1984). *Leadership in administration: A sociological interpretation*. Los Angeles, CA: University of California Press.

Snyder, T. D., de Brey, C., & Dillow, S. A. (2016). *Digest of education statistics 2014* (NCES 2016-006). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC.

Struhl, B., & Vargas, J. (2012). *Taking college courses in high school: A strategy for college readiness: The college outcomes of dual enrollment in Texas*. Boston, MA.



- Swanson, J. (2008). *An analysis of the impact of high school dual enrollment course participation on post-secondary academic success, persistence and degree completion*. Iowa City, IA: Institute for Research and Policy Acceleration at the Belin-Blank Center for Gifted Education, University of Iowa.
- Sydow, J., Schreyögg, G., & Koch, J. (2009). Organizational path dependence: Opening the black box. *Academy of management review*, 34(4), 689-709.
- Taylor, J. L. (2015). Accelerating pathways to college: The (in)equitable effects of community college dual credit. *Community College Review*, 43(4), 355–379.  
<https://doi.org/10.1177/0091552115594880>
- Texas Education Agency (TEA). (n.d.). Early college high school blueprint. Retrieved from <http://txechs.org/downloads/tea-early-college-high-school-blueprint/>
- Texas Higher Education Coordinating Board (THECB). (2016, June) Overview: Duel credit. As of July 17, 2017:  
<http://www.thecb.state.tx.us/reports/PDF/9052.PDF?CFID=56812608&CFTOKEN=824462>  
[55](#)
- Texas Higher Education Coordinating Board (THECB). (2017, July) 60x30TX 2017 Progress Report. Austin, TX. Retrieved from:  
<http://www.thecb.state.tx.us/reports/PDF/9742.PDF?CFID=76061712&CFTOKEN=967769>  
[12](#)
- Texas House Bill 505. (2015, May 23). Relating to a prohibition of limitations on the number of dual credit courses or hours in which a public high school student may enroll.
- Thompson, C., & Ongaga, K. (2011). “Flying the plane while we build it”: A case study of an early college high school. *The High School Journal*, 94(2), 43–57.

<https://doi.org/10.1353/hsj.2011.0000>

Tobolowsky, B. F., & Allen, T. O. (2016a). (Un)Intended consequences: The first-year college experience of female students with dual credits. *Journal of The First-Year Experience*, 28(1), 27–47. [https://doi.org/10.1016/S0065-2113\(08\)60255-2](https://doi.org/10.1016/S0065-2113(08)60255-2)

Tobolowsky, B. F., & Allen, T. O. (2016b). On the fast track: Understanding the opportunities and challenges of dual credit. *ASHE Higher Education Report*, 42(3), 1–105. <https://doi.org/10.1002/yd.20044>

Venezia, A., & Hughes, K. L. (2013). Acceleration strategies in the new developmental education landscape. *New Directions for Community Colleges*, 2013(164), 37-45.

Venezia, A., & Jaeger, L. (2013). Transitions from high school to college, *The Future of Children*, 23(1), 117-136.

Woods, C. S., Park, T., Hu, S., & Jones, T. B. (2018). How high school coursework predicts introductory college-level course success. *Community College Review*, 46, 176-196.