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How Can Human-Centered Design Be Used To Implement A Teacher-Designed, Standards-Based Curriculum?

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HOW CAN HUMAN-CENTERED DESIGN BE USED TO IMPLEMENT A TEACHER-
DESIGNED, STANDARDS-BASED CURRICULUM?

by

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A capstone submitted in partial fulfillment of the
requirements for the degree of Master of Arts in Education.

Hamline University

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To my little family. I know this took longer than expected. But like all 3 of you:
totally worth the wait.

To Stephanie – thank you for lifting.

To Dad – thank you for fighting.

To Mom – thank you for pushing.

To Francine & Joey, Olivia & Christopher, Elizabeth, and Ava – thank you for loving.

To Dan and Doreen – thank you for believing.

To Sara – thank you for friendship.

To Dave – thank you for wisdom.

Brian, Tina, and Matt – thank you for your books, your guidance, and for taking risks.

“And now...let us step out into the night and pursue that flighty temptress, adventure.”

Albus Dumbledore

-J.K. Rowling

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CHAPTER ONE

Introduction

The Summer

In the fall of 2011, I had the opportunity to student teach in a first grade classroom in the same district that I was educated in and graduated from. Immediately after completing my experience in December, I was hired into a vacated, full-day kindergarten position in the same district; in fact, I attended this very elementary school for two years growing up. From 2011 until the summer of 2016, I taught kindergarten, full-day as well as half-day, in this district. During this time, I learned and grew exponentially, took on the role of Culturally Relevant Teaching (CRT) representative at my site, was mentored in my district's Technology Mentorship program, and was even nominated for Minnesota Teacher of the Year. I am not a kindergarten expert, but it is certainly what I know best.

In the summer of 2016, my district embarked on a curriculum redesign journey using Human-Centered Design (HCD), a framework often used in technology industries, which focuses on the experience of the user when interacting with a particular tool or product. In this case, the users were the teachers, students, and families in the school district. In the phased-implementation approach, pre-kindergarten (pre-k) and kindergarten were the first curricula to be redesigned. Every pre-k and kindergarten teacher in our district was invited to participate in some or all of the twenty-day experience. I looked for every reason not to participate; *this will never work; we've all seen shiny, new initiatives fail shortly after beginning; they are not offering enough money for me to give my time.* As design coaches from our curriculum development department visited personally with me in the spring of 2016, I learned more about what was actually going to happen. I made the decision to give it a try, cautiously optimistic that

I may have the opportunity to help shape what kindergarten looked like in our schools.

However, after day one I was convinced I had made the correct decision to fully participate in the curriculum redesign experience, though I had no idea how the summer of 2016 would ultimately change my life.

Before joining the curriculum redesign, the Teaching and Learning Services (TLS) department of our district had already spent over a year developing a plan to use HCD as the guiding framework behind an entire pre-k – 12 curriculum redesign which would move us into a true standards-based instruction (SBI) model. One of the mantras of the summer work became, “Curriculum is not stuff, it is a conversation.” This helped to reframe our view of curriculum. The goal was not to redesign a box of lessons, resources, and other materials; rather, to intentionally use collaborative work around Minnesota state standards and benchmarks to drive our instruction.

The nearly 60 kindergarten and pre-k teachers who volunteered to participate were split into groups based on areas of high-interest; English language arts (ELA), math, science, social studies, and social and emotional learning (SEL). Each group closely examined the state standards and benchmarks for their subject area. Everyone was trained in “unpacking” benchmarks to provide a common process for figuring out the intent and outcomes for each one.

After all of the benchmarks were unpacked, all groups used the R.E.A.L. process (which will be explained in the review of the literature) to determine which benchmarks should be prioritized. Ultimately, these prioritized benchmarks would become the items on the new, standards-based, progress report for kindergarten and pre-k, something sought/desired by teachers for many years. The redesign work confirmed the need, as groups began discovering

that many previously reported items were not linked to state benchmarks (not to mention the host of logistical, grammar, and formatting errors).

The summer ended with prioritized benchmarks for the subject areas of ELA, math, science, social studies, and SEL. Each prioritized benchmark had corresponding success criteria to create a more common grading practice, supporting unpacked benchmark documents which go in-depth around the purpose and outcomes for each benchmark, and a progress report that was based completely on prioritized benchmarks. The TLS department felt, however, that it was not enough support to merely give all of these resources to the 66 kindergarten teachers in our district (pre-k had their own department to develop an implementation plan). One week before the 2016-17 school was set to begin, I was hired to be a kindergarten Instructional Leader (IL) for the district, primarily to support in the implementation and continued design of the standards-based curriculum (SBC).

The Project

Not more than one week into the job, it became clear why my position was added. Our kindergarten teachers, those that participated in the summer experience and those that did not, had joy points and pain points, questions and recommendations, excitement and anxiety in regard to the new direction of kindergarten, and the school district as a whole. One of the most integral facets of HCD is user feedback. For years, teachers in my district had experienced a traditional curriculum cycle: qualified educators in the curriculum department would vet different resources, purchase them for all, then reevaluate seven years later. It was a cycle that administrators, teachers, and even the curriculum department agreed was not the most effective way to determine what should be taught and what should be used to teach it.

As an IL, kindergarten teachers had a direct line for feedback about the redesigned curriculum; and I had a framework in HCD to use and apply that user feedback. In this way, every kindergarten teacher, regardless of their summer participation, became a curriculum designer.

The Overview

While typically used in the field of technology, HCD has increased in popularity over the last two decades as a framework for creating an optimum user-experience in retail, food service, and medical services, to name a few. HCD has been proven effective in many fields, and public education has certainly come under harsh scrutiny in recent years; perhaps a return to an educational model which focuses on its users (students, families, teachers) would prove a worthwhile cause. With this in mind, I decided to study this experience in great depth to help inform the framework our district could use when following grades go through the same process in the coming years, as well as for continued support of the kindergarten redesign in its second year.

My evolution from a teacher and designer in the summer of 2016 into an IL partly responsible for the implementation of the new curriculum presented unique advantages and disadvantages. As someone who directly worked on, wrote, tested, and lived through the design of the teacher-designed SBC, I was naturally possessive and defensive of it. Fortunately, one of the main proponents of HCD is the feedback and iteration cycle. This cycle, when implemented properly, eliminates much of the bias from the designer and listens empathically to the needs of the user. In this way, all teachers were able to have their voice be heard and our district was able to take advantage of the *professional capital* within the district, building our Collective Teacher Efficacy (CTE) to create a collaborative curriculum.

I will explore the following essential question: How can HCD be used to implement a teacher-designed, standards-based curriculum? Chapter four of this project will conclude the project, focusing heavily on the strengths and weaknesses of the project, its possibilities for the future, the growth I have undergone as a result of this project, and most important, the possibility of HCD positively effecting education. Chapter three will cite the research that guided the methods used, as well as provide the full context of the project. Chapter two will review some of the most important studies in reference to HCD, SBI, implementation of curriculum and grading practices, and collaborative professional development.

CHAPTER TWO

Literature Review

Overview

This review of the literature will explore the multiple facets of education and design that will play a major role in this project. How can Human-Centered Design be used to implement a teacher-designed, standards-based curriculum? In order to answer this question, Human-Centered Design (HCD) and Standards Based Curriculum (SBC) will be reviewed in-depth. Next, the review will examine strategies for implementation of curriculum and grading practices. Finally, the review will focus on collaborative professional development initiatives that will aid in the implementation of a SBC.

Human-Centered Design

Overview of HCD

Human-Centered Design (HCD) is often used interchangeably with many terms; ergonomics, user centered design, cognitive systems engineering, and usability engineering, to name a few. They are all related, but with slightly different goals. According to Ritter, Baxter, & Churchill (Ritter, Baxter, & Churchill, 2014), User-Centered Design (UCD) focuses on how a user interacts with a particular system. HCD expands on this focus to understand how human capabilities and characteristics are affected by systems, then evaluating, testing, and reiterating to fit the user's needs.

In short, the most important element in a design meant for humans is the human. Nielsen states, "Any object, product, system, or service that will be used by humans has the potential for usability engineering" (Nielsen, 1993, p. xi). According to the International Organization for Standardization (International Organization for Standardization, 2010):

Human-centered design is a creative approach to interactive systems development that aims to make systems usable and useful by focusing on the users, designing around their needs and requirements at all stages, and by applying human factors/ergonomics, usability knowledge, and techniques. This approach enhances effectiveness and efficiency, improves human well-being, user satisfaction, accessibility and sustainability; and counteracts possible adverse effects of use on human health, safety and performance.

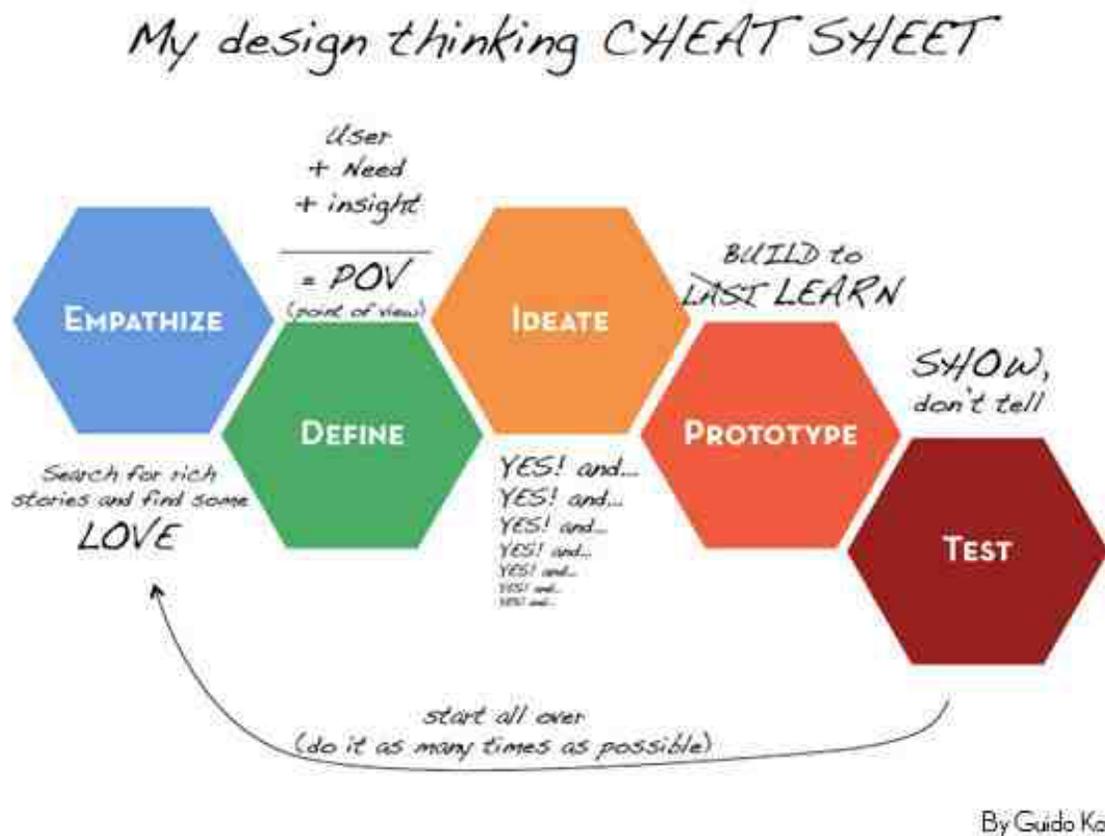
In the past, HCD was commonly thought of as a tool meant solely for designing computer systems. However, HCD (and its various forms) has been used to design systems for many fields that are not specific to computer design. For instance, HCD has been used to evaluate Adaptive Cruise Control and Forward Collision Warning in newer cars (Fancher, Bareket, & Ervin, 2001). HCD has also been used to engage users in the design of safer ships and shipping systems in a study conducted for the Department of Shipping and Marine Technology in Gothenburg, Sweden (Costa, 2016). There are countless more examples of HCD being used to enhance the user experience, ranging from online dating to MRI machines.

According to the international design and consulting firm IDEO, HCD is most effective when designers adopt specific mindsets. To achieve success, designers must foster confidence in their own creativity; be willing to take the risk of actually designing something; view failure as opportunities for learning and growth; practice true empathy constantly and consistently; embrace ambiguity and explore many different possibilities; and remain optimistic. Finally, designers must constantly iterate (IDEO.org, 2015).

As posited on Kovalskys' *My Design Thinking Cheat Sheet* (2013), the process of empathize (finding stories and truth, rather than my own bias, define (find user's point-of-view

and gain insight), ideate (develop ideas after listening to user feedback), prototype (create something), and test is a process that should repeat as many times as possible (Figure 1).

Figure 1 My Design Thinking Cheat Sheet



However, with all of this focus on designing for humans, it is also important to make an effort to understand the humans that are being designed for. This presents a daunting challenge, as the opinions, views, and needs of people vary so greatly, even within a similar group. According to Moore, when implementing anything new to a system of people, there will generally appear five different groups of users: innovators (risk-taking drivers of change), early adopters (respected influencers who enjoy integrating new ideas in useful ways), early majority (pragmatists who generally wait until something has been proven successful to adopt), late

majority (skeptics who often adopt changes out of necessity rather than choice), and laggards (averse to change and often feel uncomfortable by uncertainty) (Moore, 2014). With this in mind, HCD can be utilized to gain insight from a diverse pool of stakeholders, all of whom have an important place in the overall design of a product, service, or experience designed using HCD.

Five Principles of Human-Centered Design

While HCD has a proven record with technological systems, it is far less tried in the field of education. However, Schneider and Stickdorn developed five principles of HCD as it relates specifically to service industries, like education; *user-centered*, *co-creative*, *sequencing*, *evidencing*, and *holistic* (Stickdorn & Schneider, 2011).

User-Centered means that every idea must, first and foremost, be viewed through the user's eyes. In education, that could refer to any combination of teachers, students, families, community members, and administrators. Co-Creative means that every stakeholder becomes a designer, knowingly or unknowingly. For instance, if a parent gives feedback about an aspect of something that has been designed for their student, that feedback would be used to inform future decisions or designs. Sequencing refers to the timeline for design. In the world of education there are real time constraints, which means that some aspects of design must be prioritized over others. Evidencing, specifically in education, could shed light on some of the more inconspicuous facets of the educational world; for instance, a paragraph on a progress report explaining why the grading scale has changed from "S, S+, or S-" to a "1,2,3,4" scale. Evidencing attempts to keep users in the loop. Finally, Holistic means to keep as much of the entire context in mind as possible, recognizing that designs do not happen in a vacuum; rather, the goal of a design is for it to have life in the real world. For this reason, its impact must be weighed thoroughly.

Standards-Based Instruction

Overview

According to David J. Benson of The Colorado Coalition for Standards-Based Education (Benson, 2012), the learning cycle for standards-based instruction continually answers these four critical questions:

1. What do students need to know, understand, and be able to do?
2. How will we teach effectively to ensure students learn?
3. How will we know that students have learned?
4. What do we do when students don't learn *or* when they reach proficiency before expectation?

In the following sections, the words *standard* and *benchmark*, while similar in definition, are used intentionally to represent two different aspects of state academic standards. For example, the Minnesota Academic Standards for Math in kindergarten (Minnesota Department of Education, 2015) has three strands of study; Number and Operation, Algebra, and Geometry. From there, each strand has one or more developmentally appropriate standards. Number and Operation has two standards; (1) *understand the relationship between quantities and whole numbers up to 31* and (2) *use objects and pictures to represent situations involving combining and separating*. Each standard has one or more benchmarks, or measures that can track whether or not students are making progress towards being proficient in a standard. One of the five benchmarks for standard one of Number and Operation is, “Find a number that is 1 more or 1 less than a given number.”

When referring to standards-based systems, and to answer the four questions of the SBI learning cycle, standards and their benchmarks take center stage. The next four sections will go in-depth on the research behind the four essential questions and methods for addressing them.

What do students need to know, understand, and be able to do?

Teachers must have a clear understanding of the standards. According to Guskey and Bailey, standards describe precisely what students should know and be able to do at the end of a particular school experience; a grade level or a unit, for instance (Guskey & Bailey, 2010). Robert Marzano explains that districts designing a standards-referenced system must first reorganize the standards and benchmarks in such a way that they can be used to monitor progress by using formative and summative evidence (Marzano R. J., 2010). According to their review of both national and state standards, Marzano, Kendall, & Gaddy (1999) found that if districts truly taught every single state benchmark to proficiency, it would take over twenty years. This stark truth accentuates how critical it is that districts determine what the priority benchmarks are for each grade. These prioritized benchmarks represent the essential learning goals for the grade level, content area, or course (Heflebower, Hoegh, & Warrick, 2014).

To ensure the prioritized benchmarks are consistent, there must be a process for determining which benchmarks will be priority and secondary. As Larry Ainsworth posits, “In the absence of an agreed-upon set of criteria for prioritizing the standards, educators will, out of necessity, make up their own” (2003, p. 13). To guide the prioritization process, Ainsworth’s R.E.A.L. strategy (2013, pp. 25-27) is often used by schools and districts. The acronym stands for:

Readiness for the next level of learning (prerequisite concepts and skills students need to enter a new grade level or course of study). Will proficiency of this standard provide students with the essential knowledge and skills that are necessary for future success?

Endurance (lasting beyond one grade or course; concepts and skills needed in life). Will proficiency of this standard provide students with the knowledge and skills that will be of value beyond the present? For example, proficiency in reading informational texts and being able to write effectively for a variety of purposes will endure throughout a student's academic career and work life.

External Exams (Assessments) The concepts and skills that students are most likely to encounter on annual standardized tests, college entrance exams, and occupational competency exams students will need to prepare for.

Leverage (crossover application *within* the content area and to other content areas; i.e., interdisciplinary connections). For example, proficiency in creating and interpreting graphs, diagrams, and charts and then being able to make accurate inferences from them will help students in math, science, social studies, language arts, and other areas. The ability to write an analytical summary or a persuasive essay will similarly help students in any academic discipline.

As a result of this organized and common procedure, a consensus should be reached regarding which standards and benchmarks are priority and which ones are supporting. It is important to keep in mind that supporting standards still hold importance. As Ainsworth posits, “The supporting standards often become the *instructional scaffolds* to help students understand and attain the more rigorous and comprehensive Priority Standards” (2013, p. xv).

The process of unpacking, understanding, and prioritizing standards and benchmarks is not as straightforward as it seems and can prompt even the most well-read teacher to reevaluate their position on any number of them. The results, however, of properly unpacked benchmarks can have a remarkable impact on learning, as the knowledge, skills, and abilities that educators expect students to acquire have become the foundation for aligning entire educational systems.

How will we teach effectively to ensure students learn?

Signposts. After determining exactly which standards and benchmarks are priority, the next step of the redesign process focuses on promoting practices that have been proven to be effective. However, the goal is not to dictate exactly how each standard, benchmark, and lesson will be taught; rather, allowing teachers to continue to be part scientist and part artist, allowing for as much autonomy as the constraints of ‘effective practice’ will allow. Hattie summarizes the findings from his previous book *Visible Learning* into six “signposts” to empower teachers in their role as effective instructors:

1. Teachers are among the most powerful influences in learning.
2. Teachers need to be directive, influential, caring, and actively and passionately engaged in the process of teaching and learning.
3. Teachers need to be aware of what each and every student in their class is thinking and what they know, be able to construct meaning and meaningful experiences in light of this knowledge of the students, and have proficient knowledge and understanding of their subject content so that they can provide meaningful and appropriate feedback such that each student moves progressively through the curriculum levels.

4. Teachers and students need to *know the learning intentions* and the criteria for student success for their lessons, know *how well they are attaining* these criteria for all students, and know *where to go next* in light of the gap between students' current knowledge and understanding and the success criteria of 'Where are you going?', 'How are you going?', and 'Where to next?'
5. Teachers need to move from the single idea to multiple ideas, and to relate and then extend these ideas such that learners construct, and reconstruct, knowledge and ideas...
6. School leaders and teachers need to create schools, staffrooms, and classroom environments in which error is welcomed as a learning opportunity... (Hattie, 2012, p. 22)

The research suggests that teachers thrive when the signposts are clear so long as they leave room for creativity and collaboration, in part to foster the enjoyment and motivation of the teacher. The power of intrinsic motivation for teachers should not be underestimated, as it can serve a guiding light of sorts when the going gets tough. Dr. Willingham, as cited by Hattie and Yates, points out the natural tendency for the the human brain to resist thinking, a notion which, at first glance, seems provocative (2014). However, as the authors go on to point out, "Human beings are naturally resistant to squandering resources whenever effort is involved," which is evident in our brain's problem-solving and pattern-making skills (Hattie & Yates, 2014, p. 5). For this reason, learning is, in fact, quite difficult work. While there are many methods and practices that can promote effective teaching and learning, districts would be wise to start relatively small. As Senge points out, as cited by Knight (2011, pp. 12-13), "Small, well-focused actions can sometimes produce significant, enduring improvements, if they're in the right place."

Clear and appropriate expectations. Teachers engaging in the prioritization process are not only determining priorities; they are also engaging in work that will give them a deeper understanding of the benchmarks they teach, which adds to student growth. The National Council for Accreditation of Teacher Education notes, “many studies confirm that the best teachers have mastered their subjects, understand the learning process, and are experts in a wide range of teaching methods” (1996). The unpacking and prioritization process empowers and deepens teachers’ understanding of each benchmark, primary and secondary. A firm understanding of the benchmark(s) being taught can increase the effectiveness for both the teacher and the student. “To meaningfully engage students in learning, students must know their learning objectives (targets), how they will be expected to perform at a proficient level and the purposes for their learning” (Benson, 2012, p. 22). This approach to teaching is different from some traditional methods in that it intentionally models for students what success in a particular area looks like, rather than the teacher expecting students to achieve success based solely on the instruction. Hattie supports this, stating:

...effective teaching occurs when the teacher decides the learning intentions and success criteria, makes them transparent to the students, demonstrates them by modeling, evaluates if they understand what they have been told by checking for understanding, and re-telling them what they have told by tying it all together with closure. (2009, p. 236)

However, clear expectations must also be appropriately challenging, because if a student is given a challenging goal without the prerequisite knowledge and skill, it sometimes leads to poorer performance (Hattie, 2009). For this reason, teachers must be attuned to each student’s individual strengths and weaknesses, their areas of mastery and those that need further guidance,

and their interests and prior knowledge. Assessment is one tool to help determine where students are and will be covered later in this review.

Student Driven Instruction and Authentic learning. Authentic learning occurs when students engage in the experience of learning, rather than merely going through the motions of learning. This may seem painfully obvious, but upon closer examination, it takes a great deal of teacher effort, preparation, and intentionality to create opportunities for authentic learning in the classroom consistently. According to Knight (2013), authentic learning is motivational and important to the student; it engages the student because it is student-driven, it fosters true learning, and it empowers the student to transfer acquired knowledge to real-world situations. Authentic learning puts the emphasis on the process of learning and actually using acquired skills. As Ostroff states, “We are bad at remembering facts. Even the best students do not remember the details from material they have mastered and aced tests on if they are not used” (2016, p. 146).

According to Jackson, it is important to keep in mind that authentic learning, which is similar to *active learning*, “...is a concept rather than a true educational model. . . [that] has people participate in their own learning process by involving them in some type of activity where they physically become part of the lesson” (1995, p. 5). This type of learning can be uncomfortable for teachers because it is impossible to predict exactly what will happen and where it will go. However, Jackson further surmises, teachers can be sure that this method will be significant to those involved and that they will be able to retain the acquired knowledge for a longer time than knowledge acquired during passive learning. One of Hattie and Yates’ six principles of knowledge acquisition states that “To learn, your mind has to be active” (2014, p. 115). Hattie and Yates (2014) go on to say that, while some can certainly learn through passive

experiences that require no overt response, there are dangers to this type of learning. Distraction, falling asleep, or not realizing that you have failed to learn anything are possible dangers to passive learning, all stemming from a lack of student motivation and engagement.

Student-driven instruction works hand-in-hand with authentic learning. According to Hattie and Yates (2014), when students put in work towards achieving a worthwhile goal, along with the feeling of ownership felt for something they have produced, they will naturally place a positive spin on whatever it is they have achieved, and could possibly perceive it as more successful than the teacher evaluates it. It is important to keep this in mind when evaluating student work, as it can help build empathy for a student, an integral ingredient of student-driven instruction.

Risk-taking and building trust. Environments where students are not only safe to, but encouraged to, take risks is supported by educational research as an extremely effective teaching tool, as asserted by researchers like Shepard or Stronge (Shepard, 2000) (Stronge, 2002). Connel & McCarthy also support creating environments where risk-taking is encouraged;

Children are born to take risks. In fact, a child's growth and development depends on it. A young child lives life on the edge of discovery, constantly stretching his current abilities to conquer new things. And when he does, he's wiring his brain with three essential values he will carry with him for the rest of his life:

1. Courage to try
2. Perseverance to try again
3. Independent decision making to make and modify his choices and bring him closer to his goal. (Connell & McCarthy, 2014, p. 14)

One major factor in low student engagement and/or achievement is the feeling of uncertainty often associated with learning. Hattie & Yates point out, “Since there is never any guarantee that thinking will result in a satisfactory result, any invitation to think brings along with it an invitation to be punished through failing to live up to expectations” (2014, p. 5). Risk-taking, and being willing to make an error, in the classroom directly supports authentic learning, student driven instruction, and student motivation and engagement. In fact, Hattie states, “Errors need to be welcomed” and “...should not be seen as embarrassments, signs of failure, or something to be avoided. They are exciting, because they indicate a tension between what we *now* know and what we *could* know” (2012, p. 139). According to Ostroff, curiosity, a key component of student driven instruction, is a shared endeavor that should be cultivated by both the teacher and the students (Ostroff, 2016).

Creating this type of safe, curious environment requires a great deal of trust; trust between the student, teacher, and other students. Feltman’s definition of trust in the workplace can also be used for students and teachers in the classroom; trust is the decision to vulnerable with something you value, to subject it to someone else’s actions (2009). Fortunately, Feltman also lays out a framework for building trusting relationships by emphasizing four key components of trust: sincerity, reliability, competence, and care.

When dealing with students who exhibit negative or uncooperative behaviors, classrooms built on honesty and trust have been found to be more successful than those that often employ negative tactics for managing behaviors. According to Hattie & Yates, “...aversive control methods such as punishment, criticism, shouting, sarcasm, belittlement, or overt rudeness are tactics that produce only a superficial level of student compliance”, and compliance “is not a

strong educational goal, especially if achieved at the detriment of other more important educational goals” (2014, p. 14).

According to Ostroff, “For our most at-risk students, time to wonder and wander is essential. Not surprisingly, these students (of whom society expects the least) have had their curiosity the most dulled by rote learning, high restrictions, and classrooms focused on obedience” (2016, p. 7). When encouraging risk-taking and building trust in the classroom, teachers must be attuned to students’ comfortability and confidence while they are in school as well as out of school, especially underserved students. According to Hattie & Yates, when teachers invest in fostering supportive relationships with students who may otherwise find trouble thriving in the school setting, they have the potential of mitigating the risk of negative outcomes (2014). They go on to accentuate the importance of the school environment specifically for students with unsupportive home environments, as individual teachers often and unknowingly serve as effective role models for students who are lacking that type of positive adult influence in their home and social lives.

How will we know that students have learned?

Formative and summative assessments are key components and tools for answering the question of “how will we know that students have learned?”. However, this is not only a question teachers need the answer to. Clearly communicating student progress to the student and family/support for the student plays a vital role in the student’s chances to succeed.

Formative and summative assessment. According to Opitz and Ford, “It’s essential to look at your learners to identify where they are and what they need to become more joyful learners,” which is the true reason schools assess students (2014, p. 25). While teachers often develop their own tests, quizzes, and other assessments, “many of the assessments are selected

by school administrators, districts, and state boards of education,” which can create an environment that places extra emphasis on areas that will be assessed by means out of the teacher’s control, “...often to the detriment of joyful learning experiences” (Opitz & Ford, 2014, pp. 33-34). To sway the tide over the last two decades towards assessment that is student-centered yet still uses data and gathered evidence as justification, formative assessments have become increasingly popular. According to Dyer:

Formative assessment is defined as planned classroom practice to elicit evidence of learning minute-to-minute, day-by-day in the classroom; along with non-summative assessments that occur while content is still being taught. Both of these can inform teachers of what students know or do not know, and help students understand what it is they are ready to learn next, so teachers can adjust their instruction accordingly for each of their students (Dyer, 2013).

Marzano describes that formative assessment is often contrasted with summative assessment. Summative assessments are typically used at the end of an instructional episode to assess what students were able to take away and remember, while formative assessment occur while instruction on a particular subject or benchmark is still happening (2010). Brookhart’s definition of the two types of assessment states, “Formative assessment means information gathered and reported for use in the development of knowledge and skills, and summative assessment means information gathered and reported for use in judging the outcome of that development” (2004, p. 45). While both summative and formative assessment play important roles, research has shown formative evaluation to have a significant, not to mention larger, effect size than summative assessment, as noted in a study by Fuchs and Fuchs in 1986, as cited by Hattie:

Fuchs and Fuchs (1986) examined the effects of systematic formative evaluation by the teachers and found that this technique increased achievement for students with a mild learning disability ($d = 0.70$). The formative evaluations were effective across student age, treatment duration, frequency of measurement, and special needs status. When teachers were required to use data and evidence based models, effect sizes were higher than when data were evaluated by teacher judgment. In addition, when the data was graphed, effect sizes were higher than when data were simply recorded (2009, p. 181).

To further support the high effect size of formative assessment, a study by Black and William resulted in this conclusion:

The research reported here shows conclusively that formative assessment does improve learning. The gains in achievement appear to be quite considerable, and as noted earlier, among the largest ever reported for educational interventions. As an illustration of just how big these gains are, an effect size of 0.7, if it could be achieved on a nationwide scale, would be equivalent to raising the mathematics attainment score of an “average” country like England, New Zealand, or the United States into the “top five” after the Pacific rim countries of Singapore, Korea, Japan, and Hong Kong (1998, p. 61).

Despite being accepted as a powerful educational tool, Marzano concedes that guidelines for formative assessment are typically very general, in contrast with summative assessment which has very clear specifics (2010). Popham, in an attempt to clarify the characteristics of formative assessment, emphasizes the process of learning and evaluating, recognizing that to adequately understand what a student has learned it may take multiple activities over a period of time (2008). Popham also states that the assessments can be both formal and informal, so long as they “elicit evidence regarding students’ status” in regard to progress towards mastery of a

skill or body of knowledge (2008, p. 6). The next step is to use the gathered evidence; either the teacher uses it to adjust the ongoing instruction or the student uses it to adjust the way that they are learning the particular skill or body of knowledge.

To help understand why formative assessment has been proven to be so effective, Knight (2013) compared the similarities and attributes of successful video games to effective assessments. He posits that video games would not be as popular as they currently are if there were no scores, no clear goals, or no movement towards new levels after players had mastered the level they are at. In fact, the greater (reasonable) challenge, the more engaging the game. Knight goes on to advocate for formative assessment by emphasizing its ability to greatly increase student engagement. Students, he asserts, respond so positively and dramatically to formative assessment because of the clarity of learning goals, the clear and frequent feedback towards those goals, and the ability to adjust and individualize strategies and challenge levels to ultimately reach those goals. And, while the purpose of video games is to entertain, some of the same strategies developers use to maintain engagement can be transferred to the classroom. What's more, the increased engagement can actually translate into students' increasing belief that they can be successful and make meaningful progress towards their goals (2013, pp. 56-57). Knight cites a study by Amabile and Kramer (2011) of professionals from different companies in different industries which came to this conclusion:

Real progress triggers positive emotions like satisfaction, gladness, even joy. It leads to a sense of accomplishment and self-worth as well as positive views of the work and, sometimes, the organization. Such thoughts and perceptions (along with those positive emotions) feed the motivation, the deep engagement, that is crucial for ongoing blockbuster performance. (Knight, 2013, p. 68)

By tapping into the science of engagement, by capitalizing on the motivation derived from small successes, and by helping teachers see student progress, formative assessment can be a profound motivation for teachers.

Providing feedback. Formative assessments, which are synonymous with *checks for understanding*, are nothing new to education (Schmoker, 2011). Practices like circulating the room, randomly calling on students or pairs, having students signal understanding, or using whiteboards are hardly revolutionary. However, they can be incredibly effective if implemented on a consistent basis. Knight lists and describes many more strategies for formative assessment during instruction and gives examples of when certain strategies would be most effective. Some of the strategies are exit tickets (short tasks students can complete before leaving class), Turn-to-Your-Neighbor (compare answers or ideas with another student and check for similarities and differences), game show (developing a classroom version of popular TV game shows), and bell work (meaningful and intentional tasks for students to work on when arriving to school/class) (2013).

One of the traits, if not the most important, that makes formative assessment so effective is feedback. According to Marzano:

Feedback can be given formally or informally in group or one-on-one settings. It can take a variety of forms. . .its most important and dominant characteristic is that it informs the student, the teacher, and all other interested parties about how to best enhance student learning. (2010, p. 3)

However, as Hattie points out (2009), the type of feedback and the climate of the place where the feedback is gathered and conveyed is paramount to its success on student achievement. Hattie states, "...increasing the amount of feedback in order to have a positive

effect on student achievement requires a change in the conception of what it means to be a teacher; it is the feedback to the teacher about what the student can and cannot do that is more powerful than feedback to the student” (2009, p. 4). Indeed, most of the feedback elementary students receive is from their peers, and it is often incorrect feedback. So, while there is no denying the evidence of the power of proper feedback, it must be accompanied by the proper tools and strategies for gathering and communicating. One tool that can be pivotal in a successful standards-based system is a standards-based report card.

Standards-based report card. According to Guskey and Bailey, “...the first issue that must be addressed in developing a standards-based report card is deciding its purpose. Specifically, . . .what information to communicate, who is the primary audience for that information, and how they would like that information to be used” (2010, p. 59).

While the reporting system itself plays an integral role, Marzano points out that the report card alone is not the key factor to higher student success, saying “...no major study (that we are aware of) has demonstrated that simply grading in a standards-based manner enhances student achievement” (2010, p. 18). According to Marzano, when standards-based grading works in conjunction with effective formative assessments, a strong case can be made for higher student achievement.

What do we do when students don’t learn or reach proficiency before expectation?

One of the most obvious and hard-to-solve obstacles in public education is the simple fact that not all students learn the same way or at the same rate. In fact, none of them do! This becomes particularly challenging when students are unable to, or at a much slower rate than a majority of their peers, master concepts. On the other end of the spectrum, some students of the same age are able to, for a number of reasons, master concepts much quicker than their peers.

To address the varying rates of learning, it is important to explore practices and strategies that could be made common throughout a district to help all students, not only students who learn more similarly to their peers than others.

Instructional leaders. There are different types of leaders that schools have used to promote student achievement. Hattie describes two types, transformational leaders and instructional leaders:

Transformational leaders are attuned to inspiring teachers to new levels of energy and commitment towards a common mission, which develops the school's capacity to work together to overcome challenges and reach ambitious goals, and then to ensure that teachers have time to conduct their teacher. Instructional leaders attend to the quality and impact of all in the school on student learning, ensure that disruption to learning is minimized, have high expectations of teachers for their students, visit classrooms, and are concerned with interpreting evidence about the quality and nature of learning in the school. (2012, p. 174)

According to a meta-analysis conducted by Robinson, Lloyd, and Rowe in 2008, as cited by Hattie (2012), the use of instructional leaders revealed a .42 effect size, as compared to only .11 with transformational leaders. Instructional leaders can bring fresh eyes and fresh ideas to teachers who are not quite sure what to do with information gathered through assessment.

The main purpose for these types of leaders is to construct adult learning opportunities within sites. Coaching over time, working with data teams, supporting teacher-learning about how their students learn best, and facilitating collaborative learning experiences for teachers have all been proven to have a positive impact on student learning (Hattie, 2012).

Instructional strategies. Knight describes “high-impact” strategies to be used after assessment has occurred. For instance, if a teacher is recognizing that students are not learning, the teacher should consider the environment and determine if it is learner-friendly. Time on task, number of times teacher praised students and criticized students, and use of the teachers’ power in the classroom are all important considerations when determining if more community-building strategies are needed (2013, p. 74).

Another strategy to consider implementing is modeling. Often, modeling is referred to as “I do it, we do it, you do it,” a sort of model for gradual release. However, Knight notes a possible step to add before independent practice; practicing with a partner. Whatever way is chosen for modeling, it is important that learning is not a secret and that the students understand exactly what the expectations are. To fully support modeling, the teacher must also be sure to give the student time for independent practice and timely feedback on the student’s performance (2013, pp. 75-76).

Response to intervention (RTI). According to Opitz and Ford (2014), RTI is a research-based response to legislation encouraging schools to intervene with struggling students before be referred for special education. However, RTI is not a single approach or strategy. Rather, “it is a process of implementing high-quality, scientifically researched instruction, monitoring student progress, and adjusting instruction based on student response” (2014, p. 63). Similar to formative assessment, RTI continuously checks and records student understanding and performance.

Professional Capital and Collective Teacher Efficacy

Investing in teachers.

As Forman, Stosich, and Bocala point out (2017), often leadership will focus on the framework to go around an instructional strategy or curriculum, as if to take the proper steps to ensure it will survive once implemented. However, that generally leads to teachers “going through the motions of collaboration without seeing changes in instructional practice and student learning” (2017, p. 7). The other end of this spectrum is the implementation of a new curriculum or instructional strategy without the proper framework, a pattern that American educational reform has repeated with limited success. For successful implementation of new curriculum or instructional strategies, both factors must be put into play simultaneously. “When adopting new and rigorous standards for student learning, for example, teachers need opportunities to learn about and use high-quality curricular materials that align with these standards” (2017, p. 8).

Professional Capital

The term professional capital, from Hargreaves and Fullan, refers to the investment in “...high-quality teachers and teaching. In this view, getting good teaching for all learners requires teachers to be highly committed, thoroughly prepared, continuously developed, properly paid, well networked with each other to maximize their own improvement, and able to make effective judgments using all their capabilities and experience” (2012, p. 3). Further, professional capital is made up of three components; human capital (the quality of the individual), social capital (the quality of the group), and decisional capital (the development of expertise and professional judgment of individuals and groups to make more and more effective decisions over time).

Hargreaves and Fullan point out that many studies have been conducted that put the focus of student achievement on individual teachers, citing research by William Sanders which claims, that individual teacher quality is the most important factor in student learning. Hargreaves and

Fullan believe this finding to be abused and taken out of context (2012, p. 15). In fact, studies are finding that there is a strong, positive correlation between collective teacher efficacy, internal accountability, and higher levels of student achievement.

Collective Efficacy and Accountability

Higher success rates for students may begin with teachers believing in their own ability to teach, motivate, and guide students. This belief in one's talents is called self-efficacy. Bandura (1994) defines self-efficacy as, "...people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self-efficacy beliefs determine how people feel, think, motivate themselves and behave." A group that shares the same beliefs about organizing and managing action phases to produce skills at certain levels, collective efficacy is achieved (Bandura, 1997, p. 477). Finally, when collective efficacy is high amongst teachers in a school or district, collective teacher efficacy exists. Goddard defines collective teacher efficacy as, "...teacher's perceptions that their effort, as a group, can have a positive impact on students" (2001, p. 467).

Both self-efficacy and collective teacher efficacy link to productive teaching behaviors. Forman, Stosich, and Bocala state that individual teacher efficacy can produce effective teacher behaviors, such as, "...setting high expectations for students, maintaining on-task behavior, emphasizing student inquiry over teacher-to-student information transfer, and concentrating on academic instruction" (2017, p. 188). They go on to point out that teachers with high self-efficacy are likely to exhibit attitudes and behaviors that specifically attend to the needs of struggling students. These attitudes and behaviors include positive responses to incorrect answers rather than punitive responses and a tendency to use student-centered approaches to learning.

Collective teacher efficacy is often thought of as a harmonious, conflict-free, school environment in which the staff foster strong bonds with each other. However, as Forman, Stosich, and Bocala point out, "...friendly relationships among educators and relatively high levels of student performance can make the status quo quite appealing and uncertainty that comes with improvement efforts unwelcome" (2017, p. 1). True collective teacher efficacy embraces the diverse self-interests, ideas, and talents of all stakeholders. It has the ability to increase teachers' commitment to working with everyone around them towards common goals and shared intentions. When high collective teacher efficacy is present, factors like demographics and socioeconomic status play a lesser role in determining student and school achievement. There is clear agreement amongst scholars on the positive effects of collective teacher efficacy, begging the question, *how is it achieved?*

Donohoo (2017) identifies 6 "enabling conditions" to foster high collective teacher efficacy. The first, "advanced teacher influence," refers to giving teachers multiple and increasing opportunities to be a part of decisions that will affect the entire school. The second, "goal consensus," echoes research about SBI and the power of teachers understanding and agreement on standards, expectations, methods, and reporting. The third, "teachers' knowledge about one another's work," focuses not only on knowing what another teacher is teaching, but how and the results. The fourth, "cohesive staff," refers to the general agreement by the entire staff on issues, methods, and philosophies. The fifth, "responsiveness of leadership," refers to the degree to which teachers and administrators feel trusted and supported by one another. Finally, the sixth, "effective systems of intervention," echoes the fourth question of SBI, *what do we do when students don't learn or reach proficiency before expectation?*, and

emphasizes the importance of intervention programs that support individualized and guided instruction.

For the six “enabling conditions” to exist, effective leadership and accountability are required. Elmore (2005) explains that there is a misconception about what accountability means in public school. Accountability is not determined by policies; rather, accountability is determined by the culture of individual schools. Elmore goes on to describe three sources that form school leader conceptions of accountability: individual responsibility, collective expectations, and formal means for teachers to account for what they are doing. Elmore states, “The alignment of individual values with collective expectations, reinforced by the processes of accountability, results in internal accountability. As internal accountability develops, schools become more effective” (Elmore, 2005, pp. 135-136).

The literature above all played a crucial role in the design and implementation strategies for the new kindergarten standards-based curriculum. HCD was the guiding framework supporting all of the work that occurred, as well as the work to be done in the future. In the next chapter, the following question will be explored, as well as the method for studying it: How can HCD be used to design and implement a standards-based kindergarten curriculum?

CHAPTER THREE

Methods

Overview

Human-Centered Design (HCD) has been used to improve, redesign, and create effective systems and products in many fields including medicine, online gaming, robotics, transportation, and shipping (cite *Human Centered Design*). Because of its growing popularity and success, I thought it could have a positive effect on education. I have often heard teachers' frustrations about expectations for them and their students that they seemingly had no influence over; and true or perceived, this can have a negative effect on the self and collective efficacy of both teachers and students. I believe education will benefit from a system that puts the user at the center of the curriculum development process.

How can Human-Centered Design be used to implement a teacher-designed, standards-based curriculum? The answer, as well as the design of this project, may be: the design cycle and principles of Human-Centered Design (HCD) will foster the framework and mindsets necessary for developing and implementing a standards-based curriculum (SBC). There are districts that have already taken steps towards using the professional capital which already exists in their district to develop the curriculum that will be taught there. While using teachers in this way is hardly a new concept, it often breaks down when teachers begin teaching and their time and attention turns towards their students, and not on the life of the curriculum they helped design (Gross, 1998). To belay this trend, I am proposing the use of Instructional Leaders.

An Instructional Leader (IL) is a teacher used by schools to promote student achievement by working directly with teachers. The typical responsibilities of an IL, as described by Hattie (2012), are to attend to the quality of student learning, ensure to the minimization of disruptions,

communicate high expectations of teachers for their students, frequent classroom visits, and concern for interpreting evidence of learning.

This project is a guide for an IL tasked with facilitating the development and implementation of a SBC. It will outline the IL's roles and methods for an entire school year in a district implementing a SBC. Ideally, the district using this guide will already have a teacher-developed iteration of its SBC. The role of the IL will be to support the implementation of the curriculum, as well as continue its development, by using the principles of HCD. To maximize effectiveness, the IL should support one or two grade levels, not an entire K-12 district.

Design Cycle and Five Principles of Human Centered Design

HCD in Action

Before the IL begins supporting the implementation of the SBC, it is essential they become familiar with the design cycle and principles of HCD, as these will set this implementation strategy apart from others that are more commonly used.

The Design Cycle

As posited by Kovalskys' *My Design Thinking Cheat Sheet* (2013), the process of empathize (finding stories and truth, rather than my own bias, define (find user's point-of-view and gain insight), ideate (develop ideas after listening to user feedback), prototype (create something), and test is a process that should repeat as many times as possible [Figure 1]. For this project, the curriculum has already been designed, so the IL will be continuing the design cycle with the teachers using the SBC. Since the SBC has been designed, the school year will begin in the "test" phase of the the design cycle. Throughout the course of the school year, the IL will move through the entire design cycle multiple times.

To create an easy to remember formula, I have shortened the design cycle for the IL as well as the teachers to “Try! Respond! Think! Repeat!”. *Try!* is in reference to actually testing or using the SBC, or aspects of it, in the classroom. *Respond!* refers to the feedback loop between teachers and the IL, where teachers will be giving as well as gaining feedback on aspects of the SBC. The IL, as well as teachers during the PD sessions, will seek to find the truth in the stories, gain insight, develop ideas that are responsive to the feedback, and prototype the next iteration (if it is necessary and/or feasible). *Think!* asks the teachers to ideate and prototype. While it may not be feasible to implement changes mid-year, new ideas and prototypes can add to the design moving forward. There could also be opportunities for some to test their ideas in classrooms or with teachers while school is in session. *Repeat!* is the reminder to the IL and teachers that design is not complete, and that the design cycle will continue.

Five Principles of Human-Centered Design

User-Centered, Co-Creative, Sequencing, Evidencing, and Holistic; these are the guiding principles that must be adopted by the IL in order to stay true to the HCD model (Stickdorn & Schneider, 2011). Every communication, interaction, and decision must align with at least one of these principles.

User-Centered means that every idea must, first and foremost, be viewed through the user’s eyes. Co-Creative means that every stakeholder becomes a designer, knowingly or unknowingly. Teachers will be used to design lessons, scope and sequences, and give feedback. Students and parents will help design the experience as well through their feedback and experience with the curriculum.

Sequencing refers to the timeline for design. In the world of education there are real time constraints, which means that some of the work will have more immediate deadlines than others.

Evidencing sheds light on some of the more inconspicuous facets of the curriculum; for instance, a paragraph on a progress report explaining why the grading scale has changed from “S, S+, or S-” to a “1,2,3,4” scale. Evidencing attempts to keep users in the loop.

Finally, Holistic means to keep as much of the entire context in mind as possible. In this project, a curriculum is being implemented in a grade level; however, it is important to pay attention to how it impacts other grade, families, etc.

Understanding and implementing the cycle and principles of HCD will be vital to the integrity of the project. What follows is the framework that will be used to implement a teacher-designed SBC using HCD as the framework.

The Project

Overview

This project of using HCD to implement a teacher-designed, SBC has two main components. First, the IL will design and facilitate three PD sessions with the teachers using the SBC. Second, in-between PD sessions, the IL will use the design cycle to gather feedback from teachers, reiterate facets of the curriculum, and communicate changes and developments to the SBC. This will be referred to as Instructional Leader Design Work.

Professional Development

The IL will design and facilitate three PD sessions. Each session will occur on workshop days and should be at least a half-day, and the possibility of full-day sessions will be up to administration and teacher feedback as the workshop days are planned by the PD department of the school or district. These three sessions will happen towards or at the end of the trimesters (if the district is on a semester or quarter schedule, this can be modified to fit).

These PD sessions have three outcomes: participants will understand upcoming expectations through communication and activities; participants will build Collective Teacher Efficacy (CTE) through collaborative and empathy-building activities; and finally, participants will give feedback about and design iterations for facets of the SBC. The attached project includes activities, rationale, outcomes, and materials.

Instructional Leader Design Work

As teachers go through the *Try! Respond! Think! Repeat!* process, the IL will be the facilitator for feedback, reiteration, and communication. While different aspects of the design cycle will be worked on collaboratively during the three PD sessions, the IL will spend the time between those sessions gathering feedback from teachers in one-on-one settings as well as small group settings, process feedback to make changes to aspects of the SBC, and provide weekly communication to all teachers using the SBC to update on its status and upcoming steps.

Feedback. Feedback will be collected both in traditional and non-traditional settings. The most important facet of HCD is to keep the user in mind every step through the process, which can be surprisingly difficult to achieve (Garrett, 2011). The IL's role in gathering feedback from all of these stakeholders is crucial to informing next steps, and feedback will be collected during one-on-one visits and group visits to schools.

The IL will visit every site and meet with every grade-level team at least once every trimester. The IL will set the agenda for these meetings, which should last no longer than 45 minutes. The goal is to gain insight about facets of the SBC by the users implementing it. Listening with empathy to gain insight, rather than the inevitable bias of the IL, may present a challenge. For this reason, the agenda set by the IL must be rooted in the principles of HCD and the HCD design cycle. These meetings also serve an invaluable role, as iterations or

developments to the SBC can be field tested in small groups. Field testing is immensely important in HCD as it gives direct feedback from the user about the latest iteration of the product.

According to Moore, when implementing anything new to a system of people, there will generally appear five different groups of users: innovators (risk-taking drivers of change), early adopters (respected influencers who enjoy integrating new ideas in useful ways), early majority (pragmatists who generally wait until something has been proven successful to adopt), late majority (skeptics who often adopt changes out of necessity rather than choice), and laggards (averse to change and often feel uncomfortable by uncertainty) (Moore, 2014). In order to effectively support every teacher on this spectrum, the IL will be intentional about identifying individuals who would benefit from individual meetings, either to give further feedback about the SBC, or to gain support implementing aspects of it.

All feedback from a trimester, both individual and group, will be organized in a document and categorized by the insights that emerge. The most common themes (e.g., too many math benchmarks on the progress report) will become the priorities for the next trimester.

Reiteration. The feedback gathered and themed by the IL will drive what aspects of the SBC will be prioritized for reiteration during the following trimester. Obviously, there will be no feedback to drive the work of the first trimester, and the focus will be on teachers using the new SBC and the IL gathering feedback about it. No changes or iterations will be made during the first trimester.

It will important to use the feedback to guide and limit the amount of changes or iterations that occur every trimester. According to Gross, when implementing curriculum, a cycle of change at an appropriate rate is necessary (1998, p. 18). If too many changes are made

at once, it could weaken the teachers' ability to implement effectively. However, if not enough changes are made in the appropriate time, the power in being responsive to the teachers' voices will be weakened. The IL, along with administrators and other leaders in the district, will need to determine how many items may be revised per trimester. This does not mean that feedback cannot be gathered about all subjects or facets of the SBC; rather, that only certain aspects will be eligible for revision at certain times during the school year. The following is an example of how this process may look:

Based on feedback, group and individual, from all of sites during the first trimester, a few facets of the SBC emerged as areas needing significant attention: the number of social studies benchmarks on the progress report, lack of common assessments for the ELA benchmarks, and guidelines for grading SEL benchmarks. While the IL will continue to gather feedback and plan next steps for all of these areas, the feedback suggests that common assessments for ELA benchmarks will be the focus of revision and field testing for the second trimester.

In this scenario, the IL would begin focused work on what ELA assessments are already being used at different sites, researching common assessments used elsewhere that could be an alternative for the district, and/or developing district common assessments with a small group of teachers, reading specialists, or other staff. The assessments would be tested often during the semester, especially during grade-level team meetings at individual sites.

Communication. One of the fundamentals of HCD is understanding that the process is iterative, rather than a sequential method, in order to reach an end goal. The process of gathering and processing feedback, prototyping the next iteration, testing, and repeating can become quite intricate, as different design cycles may be in motion simultaneously while still working towards

the same goal. This presents a challenge, as Kumar points out that the process of iteration may lose its effect if it is not conducted with discipline (2013, p. 9). In response to this challenge, the IL will develop a weekly communication tool for all of the teachers involved with the implementation of the SBC.

The communication should reflect the personality of the IL to help build trust. It should also be the most effective tool for reaching the maximum amount of teachers. For instance, if the teachers involved all use an online tool like Seesaw for sharing information with each other, this would be a natural good fit. If the IL is unsure of how to best communicate with teachers, this is something that could be built into the group meetings during the first trimester.

The purpose of the communication is to keep teachers in the loop of what stage of development the SBC is in. For example, the IL could describe, in response to the scenario presented above, that, based on feedback, the next trimester we will focus on common assessments for ELA, while we will continue to gather and use feedback concerning other areas.

The communication also has the ability to increase the Collective Teach Efficacy (CTE) of the group implementing the SBC. The ability for teachers to experience how their input has informed which direction the curriculum development goes aligns with half of Donohoo's (2017) six enabling conditions for fostering high CTE: advanced teacher influence, goal consensus, and responsiveness of leadership.

This project will be carried out throughout the entire school year. The next chapter will conclude the project by summarizing what has been learned, what aspects were effective, what could be improved, limitations, unexpected successes, and other reflections in regard to how Human-Centered Design can be used to implement a teacher-designed, standards-based curriculum.

CHAPTER FOUR

Results

Overview

How can Human-Centered Design (HCD) be used to implement a teacher-designed, standards-based curriculum (SBC)? This, as a whole, is a subject that I was not able to find much information on. More than that, it is a subject that reignited my passion for education. I truly had an experience after my first exposure to HCD. It revolutionized how I approached problems, in the classroom as well as in life. However, I needed to know that this was more than an emotional experience; that the SBC my colleagues and I designed together more than felt good. I needed to know that it was a viable curriculum; and I needed to know if others could repeat the process and experience this type of collective success. This is why I chose the topic of using HCD to implement a teacher-designed, SBC.

This chapter will be a reflection of my project. I will explore some of the successes and challenges, pros and cons, obstacles and possible solutions to the framework written in chapter three. There will be five cynosures in this chapter; first, I will explore what I learned through this experience; second, I will revisit the review of the literature to explore which works proved most important as well as new connections and understandings gained through this process; next, I will explore future implications, limitations, and recommendations for the future of the project; I will then describe how the results of this project will be communicated and used; and finally, I will summarize this project, its importance, and its immediate future.

What I Learned

The first unexpected takeaway for me during this project was the importance of not isolating myself. Despite my project's emphasis on teacher collaboration and collective-

efficacy, I began the project as a researcher on my own island. This project certainly forced me out of my comfort zone, and I am better for it. I drew upon the knowledge of my peers, as well as educational leaders that I work with. In doing so, I was exposed to a wealth of knowledge and support that I did not know that I needed. They reviewed iterations of my project, lent books, and talked through some of the intricacies of turning ideas into action.

The phrase “knowledge is power” is one that I returned to early and often throughout this project. However, what I found to be more powerful than knowledge is the skill of *remembering* that knowledge is power. This project had a major emphasis on user feedback, specifically that of the teachers working with the SBC. I often found it difficult, with the constant influx of feedback, to remember and refer to the principles of HCD and SBI. For this reason, the literature review was invaluable, as it gave me a resource, meant specifically for my project, that I could continually refer back to. I was not expecting to rely so heavily on the review of the literature, and I am very glad I spent as much time reading and researching as I did.

The next section of this chapter will delve deeper into the important connections that were made between the project and the review of the literature.

Revisiting the Review of the Literature

HCD is hardly a new framework. It has been used for decades, primarily in the field of technology. It began as User-Centered Design, and focused on how a user was able to interact with a specific system. However, I experienced firsthand how HCD could move beyond the interaction of system and user, to use feedback from users to design and reiterate a teacher-designed, SBC (Ritter, Baxter, & Churchill, 2014). It seems a natural step, in my opinion, for educational leaders to use a human-centered approach to developing and implementing curriculum. This project was intentional every step of the way to keep the user’s feedback at the

center of every iteration of the curriculum. The opportunity to use your voice to affect change proved to be an empowering feature for teachers. There was no shortage of feedback throughout this experience. What was difficult was the practice of empathic listening to gain insight from the user feedback. I relied heavily on the work by Stickdorn and Schneider (2011), as there were myriad activities and tips for gaining insight from feedback and learning to remove bias as much as possible.

The principles of HCD were referenced often as guiding principles for everything from the curriculum to the communication sent to teachers every week. These principles, however, not only helped further the design of the curriculum; I observed that when teachers using HCD attempted, in earnest, to adopt the mindsets expected of Human-Centered Designers (fostering creative confidence; willingness to take risks; viewing failure as opportunity; practicing empathy; embracing ambiguity; remaining optimistic), there was a marked increase of positivity surrounding the curriculum (IDEO.org, 2015). And while Collective-Teacher Efficacy (CTE) does not merely wish to create good feelings, as pointed out by Forman, Stosich, & Bocala (2017), the positivity in the room during PD sessions created an environment where CTE was high.

Increasing the CTE among the teachers using the SBC, while certainly a secondary goal at the onset of this project, became more and more important as the project progressed. CTE has one of the highest effect sizes on student growth, and can even neutralize achievement factors like race or socioeconomic status (Forman, Stosich, & Bocala, 2017). However, achieving high CTE means more than creating a happy environment. Often, CTE is mistaken for a harmonious, conflict-free zone. This mistake is understandable but dangerous, as, "...friendly relationships among educators

and relatively high levels of student performance can make the status quo quite appealing and uncertainty that comes with improvement efforts unwelcome” (Forman, Stosich, & Bocala, 2017).

It proved a difficult challenge to incorporate activities and opportunities that were engaging yet added specifically to the design of the SBC. It was difficult enough to find activities that a diverse group of teachers would engage in; it was a whole different obstacle to make sure they added to the learning about standards-based instruction (SBI) that all of the teachers were engaged in over the last year.

The prioritization of benchmarks and standards is critically important to SBI; however, I did not anticipate how strongly teachers were going to feel about the separation of priority and secondary benchmarks. As Ainsworth posits, “In the absence of an agreed-upon set of criteria for prioritizing the standards, educators will, out of necessity, make up their own” (2003). This thought was made apparent by how protective many teachers were about adding and/or subtracting benchmarks from their traditional curriculum. The focus on the prioritized benchmarks, I believe, played a crucial role in setting the stage for authentic learning. Teachers using the SBC were motivated to foster true learning by empowering students to transfer knowledge to real-world situations, as encouraged by Knight (2013).

Future Implications, Limitations, and Recommendations for the Future

As with any quest for knowledge, the road is filled with exciting plans, temporary setbacks, and ideas to move the journey onward.

Future Implications

The pairing of HCD with SBI certainly seems like uncharted water. As no proven framework for this particular problem exists yet, there are many issues yet to be designed for.

However, the design cycle and principles of HCD have left me feeling optimistic and hopeful about the the possibilities the pairing could have.

HCD has the potential to completely shift the way curriculum is developed in our educational system. Often in traditional curriculum cycles, money is earmarked for buying boxed curricula from major developers. However, in this paradigm, the money and focus is on teachers, instructional leaders, specialists, and administrators who are empowered to develop and/or find resources to teach state benchmarks. This shift towards investing in the considerable professional capital which already exists in many school districts could mark a return to truly personalized learning, not to mention the positive effects of the increased value on teacher voice and input.

Further, when teachers are responsible for curriculum development, not to mention compensated for it, there is a possibility to increase the internal accountability within schools and districts. This could be the difference between true accountability, which seeks to guide and encourage, versus compliance, which seeks to enforce. Simply put, teachers who are committed to each other will act more responsibly than those driven solely by external accountability.

Limitations

While I see many positive possibilities, there are certainly a number of limitations that were accentuated throughout this experience. For instance, using HCD as a framework is relatively new to education, and many teachers and administrators were skeptical about this new approach. While the feedback showed a progression towards satisfaction with the approach as well as the product, considerable time and energy was devoted towards listening to unhappy users and trying to relay a clear message. Many misconceptions were brought to light by using the feedback cycle. These misconceptions were not easily dissuaded, and by the end of the

project, some of them still remained. Misunderstandings like these had negative effects on the CTE of the overall group using the SBC.

Building CTE offered further challenges in regard to communication. In the weekly communication sent via email to teachers, I tried to appeal to both the figurative head and heart of the user. I observed that communications that were heavy in facts and data were often not popular, as evidenced by the number of follow-up emails sent and received to answer questions I addressed in the initial communication. The other side of this coin is communications with too much “fluff” or items that were solely meant to create good feelings yet lacked content were not well received; this was evidenced by the number of emails sent and received to answer questions not even addressed in the initial communication. To be sure, the line of professionalism in a career where employees often sing, dress in character, and play with children is broad to say the least, and striking a balance between head and heart was quite difficult.

A more serious limitation of communications from the IL is the appearance of the IL seeming like an authority figure. While I certainly did not view myself as an authority figure, I often found myself in situations which were outside of my duties as an IL. For instance, principals asking for my input about an employee or their performance, specifically for disciplinary reasons. Being put in this position gave the appearance of a professional link between the IL and principal. In actuality, the IL is meant to support the teachers more than anyone else.

It is also important to remember that this project and everything surrounding it did not exist in a vacuum. This project was completed by one grade level in a fairly large district, and the logistics of the PD sessions and IL design work were substantial. With PD sessions at the end of each trimester, there was a stress being borne by many, as these are grading times as well

as unit ends. Additionally, with so much work being done during PD sessions, there was a marked lack of energy come the end of the day. These logistical issues likely have obvious solutions, like doing half-day PD sessions or changing the dates. Once again, however, the entire context needs to be taken into consideration, as changing one thing in a school district likely creates a ripple effect that reaches further than can be planned for.

Another logistical factor I had previously underestimated was the amount of materials necessary, and the costs that go along with them. Sticky-notes, pens, markers; seemingly mundane items for teachers become in high-demand with a project like this. Teachers were encouraged constantly to “go visual”, “one thought, one sticky note”, or “write as many ideas as you can”.

Another, more significant cost is the budget for training teachers. The PD sessions could have been more productive had more teachers been familiar with HCD. However, to offer HCD trainings for teachers would be a significant undertaking. While it may payoff in the long-term context, it would be a major, short-term expense.

Recommendations for the Future

The most glaring solution to some the issues I experienced during this project is a delegation of responsibilities, perhaps to two teachers working to support a grade level as opposed to one. There was much emphasis on teacher collaboration during this project; however, I found myself often processing field research, feedback, and making iterations by myself. I definitely could have benefitted from a collaborative relationship. Perhaps, two half-time teachers could support one grade, or two teachers could be responsible for two or three grade levels.

As an IL, I had the unique opportunity in that I could be part of classrooms and schools where the SBC was being implemented. This perspective was incredibly important to the iteration process. This opportunity in the future could be expanded even further. I did not feel as though I was able to be a true coach to the teachers that I was supporting. However, a person in this position would have a natural opening to implement a true coaching model.

An important modification that could be made to the position of IL would be specific training in building CTE. While I did my best to utilize my resources and research, focused professional development specifically geared towards building CTE in schools and districts would strongly support the principles of HCD.

Another recommendation I would make for future iterations of this project would be to look into available grants to pay for some of the expenses that could have helped me better support the implementation of the SBC: materials, extra PD sessions for teachers, extra PD for me. However, in true design fashion, there likely exists a solution that has not been recommended yet. I would strongly advocate for a design session with others in the district who have been trained in HCD to develop solutions for some of the financial limitations mentioned without draining money from the general district budget.

Further than that, if the district I will continue to work in can show academic success over time using HCD to implement a teacher-designed, SBC, the methods and materials developed could be marketed and sold to districts looking to do a similar curriculum redesign. Additionally, as this project had an emphasis on professional capital (Hargreaves & Fullan, 2012), there is certainly a possibility for teachers to take on more responsibilities, much like I did as an IL, rather than searching for outsiders to fill the teacher-leader roles in the district.

Communication and Use of Results

The results of a project like this would be difficult to quantify, as this is a project that will need to continue if it is going to ultimately be judged successful. To move away from HCD as a curriculum design and implementation tool after only a year would be much too soon to determine its success. On one hand, if student achievement was high and teachers generally felt positive about their past year, it would be too small a sample size to deem it a trend. Conversely, if the feedback felt more negative than not, it could likely be attributed to the growing pains experienced when shifting a culture, which this project aimed to do.

Fortunately, the feedback from this project, from staff and parents alike, was overwhelmingly authentic; and when using HCD, authentic feedback is more valuable than empty positive or negative feedback. Without authentic and honest feedback, the design cycle cannot continue.

The authentic feedback collected over the year will be used to determine the next steps for the next year's design process. This is made clear in the agenda for PD session 3, in which most of the session is devoted to teachers processing feedback from the school year, determining insights, and selecting the next design projects.

However, information in this form will only be communicated to the participating teachers. To be true to HCD principles, it is also my responsibility to communicate the feedback and next steps to other stakeholders in the school district. At this time, the method for communicating where we are at this point in the process is being designed by designers within the school district.

Summary

The possibility of a framework which uses teachers' innate creativity, proven practices, eliminates top-down decision making, and increases the likelihood for success in and out of the

classroom is one that needs further exploration and development. As for me and this project, I will continue the process: *Try! Respond! Think! Repeat!* Hopefully someday we will see an educational model that keeps students and teachers in the center of the design.

I believe this project has the potential to be incredibly important in the ever-changing landscape of public education. Shifting the paradigm away from a business model which looks for expediency which often puts the user at a disadvantage is more than overdue. Speaking from experience, it is exhausting fighting a seemingly uphill battle; knowing what our students need but not being able, for whatever reason, to deliver it to them. In this model, those needs, paired with proven effective methods, take center-stage. As evidenced in the review of the literature, the power to change our schools may very well already be within the walls of the building. It is time to empower our teachers, seasoned and new, from all walks of life, to make the decisions that are going to shape the next generation of learners.

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