A LEAN IMPROVEMENT MODEL FOR COMMUNITY COLLEGE

ADJUNCT FACULTY PROFESSIONAL DEVELOPMENT

TO IMPROVE STUDENT SUCCESS

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A Thesis

Presented

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in

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by

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PREFACE

The idea for this thesis was born out of my personal experiences as a community college adjunct instructor. I lived through the hardship of being a new adjunct in an environment that provided minimal support. As much as it pains me to admit it, I am sure I did not do everything I could have to promote the success of my students at the beginning of my teaching career. I simply did not know enough about college support systems and modern teaching techniques to be completely effective. As I became better acquainted with the college, I discovered that there were support systems available for adjunct faculty—I was just not aware that they existed. Once I was aware of these support systems, I found it difficult to take full advantage of them because the activities often conflicted with my responsibilities outside of adjunct teaching. It is my hope that the Lean improvement model presented in this thesis is used to improve the efficiency and effectiveness of adjunct faculty support at community colleges. I want all adjunct instructors to acquire the skills and knowledge they need to fully support the success of their students.

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ABSTRACT

Budget strapped community colleges employ a high percentage of adjunct faculty to help them control costs. Unfortunately, high exposure to community college adjunct faculty has been linked to reduced student success rates. This creates a dilemma for community colleges. Studies have shown that adjunct faculty members have lower performance levels than full-time faculty in key areas that promote student success. Professional development training for adjunct faculty has been presented as a logical way to close this performance gap and improve student outcomes. However, the structure of traditional professional development creates some obstacles to its use for this purpose. This thesis presents a Lean improvement model for use in the creation and delivery of community college adjunct faculty professional development programs. Use of the model is expected to help community colleges overcome the challenges of using professional development as a vehicle to improve adjunct faculty instructional practices and increase student success.

CHAPTER 1

INTRODUCTION

Background

Community colleges play an important role in postsecondary education and training in the United States (U.S.). They offer many advantages over other institutions of higher education such as affordable tuition, flexible course scheduling, open enrollment policies, and convenient locations. This allows increased access to higher education for an underserved part of the American population. As a result, community colleges have become a focus of increasing interest for those involved in higher education reform.   President Barack Obama has targeted community colleges as a key component of his proposed American Graduation Initiative in which he hopes to produce an additional five million graduates by the year 2020 (The White House, n.d.). In the Health Care and Education Affordability Reconciliation Act (2010), Congress pledged two billion dollars over four years for community colleges to develop education and job training programs for workers that have lost jobs due to foreign trade. The White House has even proposed making community college tuition-free for all American students that are willing to work toward graduation (The White House, Office of the Press Secretary, 2015).

Despite this increased interest and support from the federal government, community colleges are facing some serious financial challenges. College administrators

nationwide have seen funding from state and local sources decrease significantly over the past few years.

On average, state governments spent 28% less per student on higher education in 2013 than in 2008. With the exception of Wyoming and North Dakota, every state cut funding for higher education in that same five-year period (Oliff, Palacios, Johnson, & Leachman, 2013).

These spending cuts have proven especially troublesome for community colleges that are chartered with keeping higher education affordable and accessible for their students. While other colleges and universities have turned to tuition increases to offset state and local funding cuts, community colleges are limited in how much revenue they can generate in this manner (Desrochers & Kirshstein, 2012).

Another financial challenge facing community colleges is the trend of tying government funding to institutional performance. Many government entities now require colleges to report detailed information on the cost to obtain a degree as well as student success metrics such as graduation, retention, and transfer rates. These government entities are increasingly using this information to make funding decisions. Over 25% of the states in America currently use performance-based funding in at least one sector of higher education, and many more are moving in that direction (Jones, 2013). In these states, student success metrics can directly affect community college funding (Zarkesh & Beas, 2004). It is likely that in the near future, federal funding to community colleges is going to be impacted as well. Barack Obama has specifically proposed tying federal

funds to college performance in his plan to reform higher education (The White House,

Office of the Press Secretary, 2013).

The Growing Use of Adjunct Instructors

      With a limited ability to raise tuition to compensate for budgetary shortfalls,

community colleges have had to turn to other ways to control costs. One of those ways is

by increasing the use of adjunct instructors. Adjunct instructors are part-time employees

contracted by colleges and universities to teach courses on a semester-to-semester basis.

Colleges generally pay adjunct faculty less than full-time faculty for teaching a class, and

very few colleges offer health or retirement benefits for adjunct staff. Consequently, the

courses taught by adjunct faculty are considerably less expensive to run than courses

taught by full-time faculty (Brill & Herzenberg, 2010).

      The tightening of budgets at colleges and universities has made the cost savings

associated with using adjunct instructors very attractive to college administrators. As a

result, there has been a rapid increase in the use of adjunct instructors in higher education

over the past few decades.

      For example, only 22% of college instructors in 1970 were classified as part-time

or adjunct. By 1991, the percentage had risen to 35% (Snyder, Tan, & Hoffman, 2006).

The most current information from the National Center for Education Statistics (NCES)

showed that 50% of the faculty employed by post-secondary, degree-granting institutions

in 2011 were on a part time basis (Snyder & Dillow, 2012). In community colleges,

where the options for increasing revenue were more limited, this trend was even more

pronounced. The same NCES data showed that in 2011 a remarkable 70% of community college faculty were adjunct instructors.

The Adjunct Effect on Student Success

Although effective in helping community colleges control costs, the use of a high percentage of adjunct instructors has produced some unintended consequences for community college students. Several studies have shown that high exposure to adjunct instructors in introductory community college courses results in reduced student success levels.

Jacoby (2006) has used data from the Integrated Postsecondary Educational Data System to examine the relationship between the percentage of adjunct faculty that a community college employs and institutional graduation and program completion rates. He has concluded that an increased ratio of adjunct faculty at community colleges results in reduced graduation and completion rates. Using a more student-centered perspective, Doctors Kevin Eagan and Audrey Jaeger have conducted several studies on how taking more credit hours with community college adjunct instructors has affected individual student success measures. In their first study, these researchers have concluded that increased exposure to part-time faculty reduces the likelihood that a student is going to persist from the first to the second year at a community college (Eagan & Jaeger, 2008). In subsequent studies, they have concluded that an increased level of exposure to part-time faculty reduces the likelihood that a student is going to complete an associate's degree (Jaeger & Eagan, 2009) and transfer to a four-year college (Eagan & Jaeger, 2009; Jaeger & Eagan, 2011).

The findings of Jacoby, Eagan and Jaeger present a dilemma for community college administrators. While the increased use of adjunct faculty helps them control operational costs, the resulting negative impact on student persistence, transfer, and completion rates can reflect poorly on a college and may result in reduced overall satisfaction and enrollment levels. In addition, lower student success rates can decrease the amount of financial support that community colleges receive from government entities that base funding on performance metrics. Several authors have proposed reasons why increased exposure to adjunct faculty results in reduced student success, but only a few researchers have conducted studies in this area. These researchers have identified some fundamental differences between community college adjunct and full-time faculty that help to explain this phenomenon.

Schuetz (2002) conducted a comprehensive analysis of the instructional practices of adjunct and full-time instructors both inside and outside of the classroom, using data from the "2000 Center for the Study of Community Colleges Survey." Based on the results of this analysis, she concluded that adjunct instructors have overall lower performance levels than their full-time counterparts in some key areas that promote student success. Schuetz found that because of their part-time and often short-term association with a college, adjunct instructors were less familiar with campus services such as tutoring and advising than full-time instructors. They also had less ability to recognize a student's need for these services. As a result, they were less likely to refer students to college support services than full-time faculty. In addition, Schuetz found that adjunct instructors had less total teaching experience on average than full-time

instructors, and they received less training in modern teaching methods. Consequently, they were less likely to use newer, more effective teaching techniques in the classroom. Finally, Schuetz concluded that because of the limited time that adjunct instructors spent on campus, many of them did not promote meaningful and lasting interactions with their students outside of class. They were also less likely than full-time faculty to encourage student involvement in outside activities at the college. This finding was significant because increased involvement with instructors and stronger college connections have been shown to increase student interest and retention, particularly in the community college environment (McClenney & Marti, 2006).

A 2013 study on community college faculty conducted by the Center for Community College Student Engagement ([CCCSE] 2014) reported findings similar to those of Schuetz. One comparable finding was that part-time community college faculty members were more likely to be new to teaching and had fewer years of overall teaching experience than full-time faculty. The study also concluded that part-time community college faculty spent less time with students, were less likely to advise students, were less likely to refer students to college support services, and were less likely to use high impact teaching practices than full-time faculty.

Community college adjunct instructors bring high levels of subject matter expertise to the classroom, and they often provide students with a valuable real world perspective that many full-time faculty members do not possess. They are also deeply committed to their students. When surveyed, the majority of adjunct faculty said that what matters most to them is providing effective instruction and supporting their students

(CCCSE, 2014). However, their reduced training and experience with teaching and their reduced familiarity with college policies, procedures, and support systems negatively affects their ability to help students succeed. This adjunct effect is particularly detrimental in the community college environment where a higher percentage of students enter underprepared to handle college level work (Jones, 2012). These students require a level of support that many adjunct instructors are not prepared to provide.

Professional Development as a Solution

Most colleges and universities consider professional development to be an important component of faculty support within their institutions. Community colleges have used professional development programming for decades to provide continuing education and personal enrichment for their full-time faculty and staff. Administrators are well versed in providing training classes and seminars for educators. Expanding these programs to include adjunct faculty is generally accepted as the most practical way for community colleges to provide adjuncts with the training and support they need to improve their instructional practices (Sorcinelli, Austin, Eddy, & Beach, 2006).

Community colleges are increasingly recognizing the need to support adjunct faculty through professional development. In a national survey of college and university professional development administrators, community college respondents rate "training and support for part-time/adjunct faculty" as one of the top three institutional challenges that they face. They also rate this need as the most important issue to support (Sorcinelli, Austin, Eddy, & Beach, 2006). There is also evidence that an increasing number of community colleges are including adjunct faculty in professional development activities.

In a national survey of publicly supported two-year colleges, 78% of respondents said that they offered new faculty orientation training, 76% offered faculty handbooks, 72% offered training on institutional policy updates, 70% offered training on instructional practices, and 68% offered training on departmental curriculum development for both full and part-time faculty (Grant & Keim, 2002). Unfortunately, recognizing the importance of adjunct faculty support and offering to include adjuncts in professional development activities are not enough to guarantee that adjuncts are going to gain the additional knowledge and skills they need to support their students or that student outcomes are going to improve as a result. There are some serious challenges that community colleges must address if they are going to use professional development to improve adjunct faculty instructional practices and student outcomes.

One main challenge is that professional development administrators rarely consider the needs of adjunct faculty or students in the design of professional development programs. Professional development in higher education has traditionally focused on the needs of full-time faculty and staff. Administrators perform needs assessments for programming by conducting surveys, interviews, and focus groups with full-time employees. As a result, full-time employee opinions are the primary driver of program offerings (Grant & Keim, 2002; Sorcinelli, Austin, Eddy, & Beach, 2006). While this may be effective for satisfying a wide range of full-time faculty needs and wants, it is not necessarily effective for meeting the needs of adjunct faculty or the students of the college. Professional development activities designed around full-time faculty needs may do little to help adjunct faculty improve their own instructional

practices and foster the success of their students. These activities also do little to encourage adjunct engagement in professional development.

A second challenge is the relatively low level of adjunct participation in professional development activities. In a study of part-time community college faculty, Umbach (2008) has found that adjunct faculty are 68% less likely to attend teaching workshops than full-time faculty. In another survey of part-time faculty, Meixner, Kruck, & Madden (2010) found that only 25% of respondents have attended their college's new faculty orientation program. This clearly presents a problem. If adjunct instructors do not participate, even the best professional development programs cannot help them improve their knowledge and skills. Such a low level of participation reduces the ability of professional development training to have any significant impact on adjunct faculty instructional practices or student outcomes.

Two reasons cited for decreased adjunct faculty participation in professional development are inconvenient locations and inconvenient offering times for training activities. Many adjunct faculty members teach classes at satellite campuses or even online from their homes. These locations are often remote from the college's main campus where most professional development training takes place. Because instructors who teach remotely are rarely on the main campus, it is very inconvenient for them to attend the training classes offered there. Even if adjunct faculty members do teach courses on the main college campus, they may still have difficulty attending professional development training because of the times that the classes are offered. In focus groups and surveys, adjunct faculty members routinely indicate that they cannot attend

professional development programming because their colleges offer classes and seminars at times that conflicted with a second job or other outside obligations (CCCSE, 2014; Madden, Kruck, & Meixner, 2010).

Another reason cited for poor participation in professional development was that many colleges failed to make their adjunct instructors aware of available training. For example, in a study by Meixner, Kruck, and Madden (2010), over half of new adjunct faculty members said that they did not take part in orientation training because they were not aware that it was available to them. In a separate study conducted by Street, Maisto, Merves, and Rhodes (2012), 94% of part-time faculty respondents stated that their hiring institutions never offered any type of departmental or institutional orientation prior to the start of their first class.

This result is remarkable considering that most community colleges when surveyed report that they offer orientation activities for their adjunct faculty (Grant & Keim, 2002; Sorcinelli, Austin, Eddy, & Beach, 2006). It indicates that many community colleges are not doing an adequate job of making adjunct faculty aware of available professional development resources.

A third challenge is that faculty members often do not put their professional development training into practice. Consequently, professional development training efforts do not always result in positive behavioral changes in the classroom. In a study of university science faculty, Ebert-May et al. (2011) have concluded that even when faculty members self-report that professional development training improves the quality of their teaching, there is little evidence to support their claims. Using direct classroom

observation, these authors have discovered that respondents continue to use teacher-centered practices in the classroom instead of the student-centered practices they have learned in professional development workshops. This study supports the results of earlier research on the disparity between instructor perceptions of training effectiveness and actual behavior change in the classroom (Fung & Chow, 2002; Kane, Sandretto, & Heath, 2002; Murray & McDonald, 1997). These studies show that faculty perceptions of the effectiveness of professional development training are often overstated.

Ebert-May et al. (2011) determined two main reasons that the faculty members in their study did not successfully transfer training into the classroom. One reason was that faculty members did not have opportunity to try new teaching techniques directly after they learned them. A second reason was that faculty members did not receive any feedback or support when they were finally able to put what they learned into practice. These findings were not surprising. Research in the field of training and development showed that the effective transfer of training into the workplace required the ability of participants to use newly acquired knowledge in practical application directly after training takes place. It also required supervisory and organizational support for post training deployment (Saks & Belcourt, 2006).

Unfortunately, the situation described by Ebert-May and her associates is typical for professional development in community colleges. It is common for colleges to provide their professional development training in the form of workshops or seminars. Offerings on a particular topic are usually presented once per semester and sometimes only once per year. There is also little follow up and support for post-training

deployment (Murray, 1999; Murray, 2002; Sorcinelli, Austin, Eddy, & Beach, 2006). As a result, community college instructors often attend a workshop or seminar at a time when they cannot immediately put their training into practice. When they finally do get to a point in their teaching where they can implement new techniques, there is little support available for their efforts.

A fourth challenge is the relatively shallow and superficial evaluation systems for conventional professional development programs. Traditionally, professional development evaluation systems have been participant focused. Most colleges and universities do not assess professional development program effectiveness beyond the satisfaction of program attendees.

In a study of 238 American community colleges, Murray (2002) found that by far the most common type of evaluation for professional development programming was participant feedback. Less than 10 respondents indicated that they used any type of independent evaluation technique to determine if faculty training resulted in improved teaching performance or improved student outcomes. The results of a study conducted by Hines (2007) supported Murray's results. In her study, Hines surveyed both two-year and four-year college professional development program directors. The respondents indicated that their program assessments consisted mostly of faculty satisfaction surveys and self-reported changes in teaching and learning. Efforts to measure the actual impact on teaching and learning were minimal. Hines concluded that the professional development program directors in her study tended to focus efforts on faculty satisfaction rather than on improving institutional performance.

While feedback from faculty is an important part of professional development evaluation, their opinions alone do not provide enough information to determine if training programs actually result in positive changes at the college. These types of participant-focused assessment practices discourage accountability for demonstrating that professional development training has produced results. These practices can also lead to wasted time and resources. This does not serve the needs of adjunct faculty and students, nor does it advance the mission of a college.

One final challenge is the limited funding available to expand professional development programming for adjunct faculty. Although the majority of community colleges allocate a portion of their budget for professional development services, their financial challenges limit how much they can provide for this purpose. There is some concern that if funding remains static, expanding professional development for adjunct faculty may come at the expense of programming for full-time faculty and staff (Hurtado, Eagan, Pryor, Whang, & Tran, 2012). This may cause resistance to the idea of expanding professional development offerings for adjunct faculty.

Limited funding and financial challenges further emphasize the need to provide the most efficient and effective programs possible. While it is always desirable for community college professional development organizations to identify and eliminate wasteful programming, it is even more important when budgetary constraints limit how many programs they can provide for their faculty members. In addition, it is important for professional development organizations to be able to demonstrate that their

programming produces results. This can help them gain support among college

administration for additional funding.

Quality Improvement and Lean
in Higher Education

This thesis proposes the application of Lean quality improvement methods to

community college adjunct faculty professional development (AFPD). The intended

purpose is to help community colleges overcome the challenges associated with using

AFPD to improve adjunct faculty instructional practices and increase student success.

Lean is a quality improvement methodology that many industries have successfully

embraced as a more effective way to manage business operations and customer

relationships. Originally developed by Toyota after World War II, Lean has gradually

found its way to the U.S. where it has been successfully adapted to improve performance

in a wide range of manufacturing and service environments (Womack & Jones, 2003).

However, despite the benefits realized by other industries, higher education has been

slow to adopt Lean as a method of quality improvement. A thorough literature search has

only produced a handful of examples of Lean as applied to administrative processes at

colleges and universities.

Other quality improvement methodologies have been more popular with colleges

and universities in their attempts to improve the efficiency and effectiveness of their

operations. These include methodologies adopted from industry such as Total Quality

Management (TQM) and Quality Function Deployment (QFD), as well as methodologies

developed specifically for use in higher education such as the Academic Quality

Improvement Program (AQIP) (Quinn, Lemay, Larson, & Johnson, 2009). These quality

improvement methodologies have provided some reported benefits for the organizations

that use them. Although Lean shares some similarities with TQM, QFD, and AQIP, it

differs in some key ways that make it a more appropriate choice for the application

presented in this thesis.

Lean incorporates some of the best principles of TQM, QFD, and AQIP. These

principles include meeting stakeholder needs, using proven quality tools and techniques,

valuing the contribution of employees, and supporting an institutional culture of

continuous improvement. However, one main difference between Lean and the other

quality methodologies used in higher education is that Lean's core principles are

concentrated on finding and eliminating the waste in a system, with waste defined as any

activity that does not benefit the customer (Waterbury, 2008). Womack and Jones (2003)

discuss this in terms of Lean Thinking. They state that:

> It [Lean Thinking] provides a way to specify value, line up value-creating actions
>
> in the best sequence, conduct these activities without interruption whenever
>
> someone requests them, and perform them more and more effectively. In short,
>
> lean thinking is *lean* because it provides a way to do more and more with less and
>
> less - less human effort, less equipment, less time, and less space - while coming
>
> closer and closer to providing customers with exactly what they want. (Womack
>
> & Jones, 2003, p. 15)

Essentially, Lean employs a blend of proven quality improvement tools and

techniques to focus on doing the right thing, at the right time, in the right place, and in the

right quantity to serve customer needs and wants. In other quality methodologies,

improvement activities can be concentrated around processes that do nothing to benefit the customer of an organization. Lean focuses improvement on activities that can help an organization meet and exceed customer needs.

Another difference between Lean and other quality improvement methodologies is that Lean "is not a tactic or a cost reduction program, but a way of thinking and acting for an entire organization" (Lean Enterprise Institute, 2009, para. 5). Lean focuses on what and why things are done in the entire system as opposed to simply concentrating on the improvement of individual processes. This is why quality professionals often describe Lean as a transformation instead of merely an implementation. Jim Womack (2008) submits that successful Lean transformation requires consideration of three key areas of an organization: purpose, process, and people. He states that any organization undergoing a Lean transformation should ask itself three questions:

- What is your purpose?

- What processes achieve your purpose, and how Lean are they?

- How do you engage your people to agree on your purpose and create Lean processes, with fulfilling work, to achieve the purpose? (p. 3)

Considering these questions helps an organization avoid common causes of failure in quality improvement initiatives such as poor planning, a lack of support from management, a lack of buy-in from team members, mid-project changes in scope, and a lack of follow up after project initiation (Marchwinski, 2012). Lean provides effective tools and techniques to help an organization address these three questions, which in turn helps them avoid common quality improvement pitfalls.

Based on the previous descriptions of Lean, its application to professional development is a logical choice for ensuring that the services provided to community college adjunct faculty result in improved instructional practices and improved student outcomes. Lean incorporates the principles of several quality improvement methodologies that have already proven to have some benefit in higher education. It also has some demonstrated success in college and university administrative applications. This indicates that it is possible to incorporate Lean into the unique culture of higher education. Lean focuses improvement on the processes within AFPD that can have the highest impact on adjunct faculty instruction and student outcomes. Its attention to purpose, process, and people can help professional development organizations avoid common causes of quality initiative failure. Finally, Lean's focus on waste elimination and providing value for the customer ensures that: (1) the program design is targeted to appropriate customer groups, (2) program delivery is optimized for customer needs, (3) programs are effectively evaluated, and (4) financial resources are preserved.

Statement of the Problem

Due to budgetary constraints, it is likely that community colleges are going to continue to have a high percentage of adjunct faculty teaching introductory courses. To ensure that the quality of the education they provide remains high, community college administrators need to minimize the negative impact that adjunct instructors can have on student outcomes. Because of their overall reduced training and experience with teaching and their reduced familiarity with college policies, procedures, and support systems, many adjunct instructors lack critical knowledge and skills that they need to effectively

support the success of their students. Professional development programming is a way that community college administrators can support their adjunct faculty in the acquisition of this knowledge and these skills.

Unfortunately, the way that professional development currently operates in community colleges presents some challenges when trying to use it for the specific purpose of improving adjunct faculty instructional practices and increasing student success levels. These challenges, which were discussed previously, are summarized as follows:

- Professional development programming is typically designed around the needs and wants of full-time faculty and ignores the needs of adjunct faculty and students.

- A low percentage of adjunct faculty participate in professional development programming, which limits its potential as a vehicle for positive change.

- Faculty members often do not put professional development training into practice, which inhibits improvement in their instructional practices.

- Traditional professional development evaluation systems are too shallow to assess their impact on adjunct faculty instructional practices or student outcomes.

- Funding for professional development is limited; therefore, obtaining resources for AFPD may be difficult.

Community college administrators must address and resolve these issues if professional development is going to be an effective vehicle for improving adjunct faculty instructional practices and student outcomes.

Purpose of the Study

This thesis investigated the application of Lean methods to community college AFPD programs. It theorized that the successful Lean methods used in other environments could be adapted and applied to the creation of a comprehensive AFPD program that could help community colleges realize the goals of improved adjunct faculty instructional practices and increased student success levels. The purpose of this study was to provide college professional development departments with a Lean improvement model that they could apply to the creation and delivery of AFPD programs. The Lean concepts, tools, and techniques used in the model were determined to be particularly effective at overcoming the challenges of using professional development as a vehicle for eliminating the adjunct effect at community colleges.

One unique perspective of this study was in the application of Lean to community college professional development. Lean improvement models had been developed and used on a very limited basis for the improvement of college and university administrative processes such as student advising and registration. However, a thorough literature search did not produce any results for the Lean improvement of professional development or community college processes. Another unique perspective was that the professional development programs in this study had the specific goals of improving adjunct faculty instructional practices and improving student outcomes. Traditionally, professional development administrators had not designed or evaluated programs, based on how much they actually improved instructor or student performance. As discussed previously, full-time faculty input had traditionally been the determinant of AFPD program design, and

AFPD program evaluation had primarily relied on participant impressions to assess effectiveness.   Because the Lean improvement model developed in this study tied AFPD to adjunct faculty and student performance, the model had to include processes for choosing the most effective AFPD program offerings and for evaluating the impact of these programs on the performance of the two identified groups.

Theoretical Basis of the Study

Many industries had successfully used Lean quality improvement methods to improve their operations. There were numerous respected publications that focused on how to apply Lean tools and techniques in both manufacturing and service organizations. Some of the most popular Lean tools and concepts implemented in other industries were used as a framework for this study. However, the acceptance of Lean as a valid quality improvement model by community college administrators and professional development specialists presented somewhat of a challenge. Higher education had its own unique culture that could hamper the successful implementation of a Lean improvement initiative. College administrators, faculty, and staff had traditionally been skeptical of the value of adopting business models to improve institutional performance. An attitude prevailed among many that education was fundamentally different from the corporate world, and business models would not work in an educational setting (Waterbury, 2008). To help gain acceptance, the few existing studies that provided examples of successful Lean application to higher education were used to provide targeted ideas and information for Lean implementation in the community college's professional development environment.

Professional development for higher education is its own discipline with many publications on how to establish and sustain effective programs. The discipline encompasses many areas from keeping faculty members current in their subject matter expertise to promoting faculty health and wellness.

The Lean improvement model developed in this thesis had the very specific goals of improving adjunct faculty instructional practices and improving student success rates. Although it could be argued that any professional development activity that enriched faculty would indirectly benefit students, activities for adjunct faculty that could be directly tied to improving student outcomes would prove the most beneficial in attaining the goal of increased student success. Consequently, the latest research and best practices in professional development relating to adjuncts and the improvement of adjunct faculty instructional practices provided supplementary information for the Lean improvement model.

One of the critical components of a Lean improvement program is the ability to evaluate and improve the processes within that program. For this to occur there must be a system in place that allows for the objective evaluation of program effectiveness. The most current evaluation of professional development programming is participant focused. Assessment is conducted through surveys and focus groups where faculty participants provide feedback and opinions on program usefulness. While important, these faculty opinions are not adequate for a complete assessment of the programs in this application. Because of the specific goals of the professional development programs in this study, an evaluation system that can measure the direct impact of AFPD on a faculty's instructional

performance and student success measures is required. To attain this more

comprehensive level of assessment, this study has applied the best practices from

corporate training and development to the development of the evaluation system in the

Lean improvement model. This system includes components that allow for both the short

and long-term assessment of professional development activities.

Limitations of the Study

Although any institution of higher education can find value in the results of this

thesis, the scope is limited to community colleges in the U.S. Even though all types of

colleges and universities share some common challenges, there are a few that are unique

to community colleges. This study has particularly addressed these challenges. This

study is also limited to professional development activities that are provided with the

intent of improving adjunct faculty instructional practices. Professional development

departments often provide programming for their faculty members on personal

enrichment topics such as health and wellness or personal financial management. It is

not uncommon for community colleges to invite adjunct faculty to take part in this type

of programming. Although this can benefit both adjunct faculty and the colleges that

employ them, the topic is outside of the scope of this thesis. This study only considered

AFPD activities that should ultimately result in improved student success rates.

Another limitation of this study was its particular focus on adjunct faculty. The

study was limited to professional development programs created specifically for adjunct

faculty and did not include those created for full-time faculty or staff. In addition, this

study was limited to adjunct faculty members who taught at least a portion of their

classes in person at the community college. It did not include adjunct faculty members who taught all of their classes online. Although the information provided in this thesis might apply to online faculty, the study did not research or address their particular needs in the development of the AFPD Lean improvement model.

Definition of Terms

Adjunct Effect: The adjunct effect is the negative impact that a high exposure to adjunct faculty can have on student success metrics.

Eight Wastes: A list of the eight categories of waste that can be used as a tool to identify waste in a process or value stream (Lean HE Hub, 2015).

High Involvement Service: A service provided by an organization in which its customers invest a great deal of time and energy into the production and delivery of that service.

Lean Improvement Model: A Lean improvement model is a targeted, step-by-step guide for Lean improvement that incorporates the most relevant Lean tools, techniques, and practices for a particular application.

Lean Quality Management: A set of management practices that engages everyone in an organization in the understanding of problems, continuously improving processes, and aligning resources to achieve the organization's purpose, all while using the fewest resources possible (Shook & Marchwinski, 2014).

PDCA: PDCA is an acronym for Plan, Do, Check, and Act. It is a tool used in process improvement to facilitate continuous improvement and enact positive change (Shook & Marchwinski, 2014).

Performance-based Funding: Government funding for higher education that is tied to student success metrics such as retention, completion, and transfer rates.

Professional Development: A formal training program comprised of classes, seminars, and conferences with the purpose of improving the knowledge, skills, and performance of educational administrators, faculty, and staff.

Scope Creep: A term used to describe the expansion of a Lean improvement project's goals beyond the original objectives while the project is still in progress.

Value Stream: A value stream is all of the value and non-value added steps that an organization uses to bring a product or service from conception through delivery to the customer (Shook & Marchwinski, 2014).

Value Stream Map: This diagram describes the flow of materials and information in the production of a product or service. It is a Lean improvement tool used for analyzing and improving the flow of information and materials in a value stream (Shook & Marchwinski, 2014).

CHAPTER 2

REVIEW OF THE LITERATURE

Lean quality management has been widely used in the corporate sector of society to decrease cycle times, reduce costs, and improve the quality of goods and services. There are many examples of successful Lean initiatives at manufacturing and service companies. Despite these successes, higher education has been slow to adopt Lean as a method of quality improvement.

An extensive literature search for this study produced only a few scattered examples of Lean applied to college and university processes. To develop a functional Lean improvement model for community college AFPD, research both in and outside of the field of Lean quality management was required. This study gathered information from several different disciplines including Lean quality management, higher education, faculty professional development, and corporate training.

The purpose of this literature review was to examine the primary resources that were analyzed and adapted for the creation of the AFPD Lean improvement model. The literature review also discussed how these resources provided evidence and support for the validity of the model. The review began with an examination of the key principles of Lean quality management and described the most significant sources of Lean application to higher education. An analysis of the primary Lean tools used in the development of the AFPD Lean improvement model followed. The literature review concluded with an

analysis of AFPD customer identification and an examination of the performance

evaluation system that was adapted for the AFPD Lean improvement model.

<center>Lean Quality Management</center>

One of the seminal works in Lean quality management reviewed for this study

was *Lean Thinking* by James Womack and Daniel Jones (2003). This text provided a

thorough analysis of Lean methodologies and presented clear descriptions of the five key

principles of Lean: value, value stream, flow, pull, and perfection. Womack and Jones

defined these five principles as follows (2003):

- Value: A capability provided to a customer at the right time and at an appropriate price as defined in each case by the customer (p. 353)

- Value Stream: The specific activities required to design, order, and provide a specific product from concept to launch, order to delivery, and raw materials into the hands of the customer (p. 353)

- Flow: The progressive achievement of tasks along the value stream so that a product proceeds from design to launch, order to delivery, and raw materials into the hands of the customer with no stoppages, scrap, or backflows (p. 348).

- Pull: A system of cascading production and delivery instruction from downstream to upstream activities in which nothing is produced by the upstream supplier until the downstream customer signals a need (p. 351)

- Perfection: The complete elimination of waste so that all activities along a value stream create value (p. 350)

The authors also provided several examples of how manufacturing organizations used

these five principles to execute successful Lean initiatives that resulted in more efficient and

effective customer-focused operations.

In addition to the five principles of Lean, an important concept in Lean quality management was consideration for the people involved in Lean initiatives. Womack (2008) suggested that no Lean improvement could happen unless each process in a value stream had someone responsible for continually evaluating it. He also said that every person involved in value stream processes must be engaged in continually improving them (Womack, 2008). Michael Ballé (2014) expanded upon this concept by suggesting that every Lean leader should lead with respect for his or her people. He provided seven steps to leading with respect, which included (Ballé, 2014, p. 9):

1. Meet with people one-on-one to understand their situation personally.

2. Challenge employee improvement activities to ensure they deliver better, more customer oriented results.

3. Listen to employees and understand the difficulties they face.

4. Teach problem solving skills to employees at all levels.

5. Support employee improvement ideas.

6. Develop teamwork across functional boundaries.

7. Learn as you lead your team.

Ballé stated that without this level of attention to the people involved in Lean improvement, an organization would be disappointed with the results of a Lean initiative. In fact, many sources revealed that a key reason for Lean failure was that organizations neglected the people involved in Lean implementation (Barry, 2013; Dahlgaard & Dahlgaard-Park, 2006; Liker & Rother, 2011).

Lean in Higher Education

A thorough investigation failed to turn up any published information on Lean quality practices applied to professional development in higher education or to community colleges in any operational area.   The few published sources discovered about Lean in higher education generally limited Lean improvement to the business operations of colleges and universities. However, these examples of successful Lean improvement demonstrated that it was possible to adapt Lean for application to higher education's unique culture. Descriptions of the most significant and relevant studies used in the development of the AFPD Lean improvement model follow.

One of the most comprehensive studies of Lean in higher education was a doctoral dissertation by Theresa Waterbury (2008). In this publication, she developed a Lean improvement model for use in higher education environments. Waterbury provided a thorough analysis of the history of quality in education with recommendations for how to overcome some of the specific challenges of applying Lean in colleges and universities (2008). Waterbury structured her model around the plan, do, study, and act (PDSA) tool commonly used in quality improvement initiatives. Embedded in this model were steps that built off of Womack and Jones's (2003) concepts of value, value stream, flow, pull, and perfection.   Waterbury provided evidence of her model's validity by including examples of its application to the business operations at Winona State University.

Balzer's *Lean Higher Education* (2010) targeted college and university administrators interested in improving institutional performance through the application of Lean principles and practices. His text provided recommendations on how to gain

acceptance for Lean in higher education and included a detailed description of value stream mapping in the educational environment. Like Waterbury, he embedded the five principles of Lean within his model. Balzer provided proof of concept for his model by showing how Lean projects had improved business processes at six different baccalaureate universities in the U.S.

In their paper (2007), Moore, Nash, and Henderson discussed the implementation of a comprehensive Lean initiative at the University of Central Oklahoma. They employed a simplified four-step model for their Lean initiative and utilized only a few Lean tools such as continuous improvement and value stream mapping.   Their focus was on keeping Lean improvement simple so they could implement changes quickly. They presented a detailed example of improvement to their facilities department and stated that their Lean initiative had improved other business areas of the college as well. Benefits realized included cost savings, efficiency gains, employee performance improvement, and increased faculty and student satisfaction.

Emiliani's article (2004) represented a rare example of Lean improvement applied to teaching and classroom management in higher education. His paper described the application of Lean principles and practices to the design and delivery of graduate school business courses. In his study, Emiliani concluded that by utilizing Lean principles in his course design, he was able to create clearer course expectations, even student workload across the semester, and decrease the time students spent on mastering course learning objectives. He emphasized the importance of including students in the Lean

improvement process, for they were both his primary customers and participants in the process of education.

El-Sayed, El-Sayed, Morgan and Cameron in their paper (2011) examined the use of Lean principles for course and program assessment in higher education. They discussed the importance of the five principles of Lean in program assessment. The authors placed particular emphasis on properly identifying the customer for higher education and determining value by listening to the voice of the customer. They concluded that using Lean in this application could lead to more rapid assessment of and improved quality in educational programs at colleges and universities.

<div align="center">Lean Tools</div>

The authors of the previous studies described above have used several common Lean tools in their Lean models and applications. It is relevant, therefore, to discuss these tools and explain why they are appropriate and useful for Lean applications in higher education. The AFPD Lean improvement model created for this thesis has incorporated all of the tools discussed in the following sections.

<u>PDCA Cycle</u>

A common tool used in Lean improvement is the PDCA cycle. The acronym PDCA stands for the four stages in the cycle: plan, do, check, and act. A brief description of each stage of the PDCA cycle is as follows (Shook & Marchwinski, 2014):

- Plan: Determine goals for a process and need changes to achieve them.

- Do: Implement the changes.

- Check: Evaluate the results in terms of performance.

- Act: Standardize and stabilize the changes or begin the cycle again depending on the result.

The PDCA cycle was based on the scientific method, and it was created to facilitate continuous improvement in quality improvement projects. It was developed and popularized by W. Edward Deming starting in the 1950s, and was based on the earlier work of Walter Shewhart. Deming later renamed the cycle PDSA for plan, do, study, and act (Moen & Norman, 2006). Because of its development history, quality improvement professionals may also refer to the PDCA cycle as the Shewhart cycle, the Deming cycle, or the PDSA cycle (Tague, 2005).

The PDCA cycle is particularly useful in higher education's Lean applications because a number of college and university personnel are already familiar with the tool. Many colleges and universities use the PDCA cycle as part of the more popular quality methodologies for higher education such as TQM, QFD, and AQIP. Using a tool educational professionals are familiar with fosters acceptance and makes applying Lean easier for them to understand. It also provides an uncomplicated method of planning for, and encouraging, continuous improvement in a Lean application.

Waterbury (2008) structured her Lean improvement model for higher education around the PDCA cycle, although she used the PDSA terminology in her dissertation. Stepping through the stages of the cycle provided her with a systematic way to manage continuous improvement for her model.

Value Stream Mapping

The value stream map is a visual flow diagram that represents every step in a process. It is a valuable tool for identifying and improving the value stream in Lean

improvement. One of the most respected resources on value stream mapping is *Learning to See: Value Stream Mapping to Create Value and Eliminate Muda* by Rother and Shook (2003). In this publication, these authors provide detailed information on how to create a value stream map. Rother and Shook's description of value stream mapping is very comprehensive, and some of what they discuss does not necessarily translate to all types of value streams. However, the basic information can be universally adapted to meet the needs of any organization.

The examples of value stream mapping in higher education are relatively simple compared to those provided by Rother and Shook for manufacturing processes. Balzer (2011) explains that this is desirable for value stream mapping of educational processes. He recommends keeping value stream mapping uncomplicated when first introducing it to higher education. He uses a simple series of rectangles, triangles, and arrows for his visual maps where rectangles signify process activities, triangles indicate wait times, and arrows indicate flow direction. He also recommends that the value stream map be kept to one page.

Although examples of value stream mapping in higher education are rare, those in the field are somewhat familiar with the concepts of curriculum and process mapping. Educators frequently use curriculum mapping as a tool to plan, execute, track, and communicate instructional activities (Uchiyama & Radin, 2009). Process mapping is a familiar tool used in quality improvement methodologies that are more common in higher education such as TQM, QFD, and AQIP. If value stream mapping is kept relatively

uncomplicated, making the jump from curriculum and process mapping to value stream mapping should not garner much resistance.

<u>The Eight Wastes</u>

In the Toyota Production System, Taiichi Ohno (1988) identifies seven types of waste that can occur in a system. His original list includes overproduction, waiting, conveyance, processing, inventory, motion, and correction. As Lean has evolved, an eighth waste has been added that appears to have no single origin. This waste is often identified as skills or unused human potential. The Lean HE Hub (2015) provides clear definitions of the eight wastes on their website, which are listed as follows:

- Transportation: Unnecessary movement of materials, people, information, equipment, or paper.

- Inventory: Excess stock, unnecessary files and copies, and extra supplies.

- Motion: Unnecessary walking and searching; things not within reach or readily accessible.

- Waiting: Idle time that causes the workflow to stop, such as waiting for signatures, machines, or phone calls.

- Over-processing: Processing things that don't add value to the customer, such as asking for student details multiple times, excessive checking, or duplication of work.

- Over-production: Producing either too much paperwork/information, or producing it before it is required. This consumes resources faster than necessary.

- Defects: Work that needs to be redone due to errors (whether human or technical) or because incorrect or incomplete information was provided.

- Skills: Not using the full potential of staff by wasting available knowledge, skills, and experience (Eight Wastes, para. 2).

Variations of this list of eight wastes are commonly used as a tool in Lean improvement to help identify waste in a current state value stream.

Douglas, Antony, and Douglas (2015) have suggested that systematically stepping through each waste while reviewing the current-state value stream map is a useful way to organize waste identification and removal for higher education. Their paper made slight refinements to the definitions of the eight wastes for applications specific to higher education. Emiliani (2004) suggests using the eight wastes to identify waste in college and university processes, except he uses the term behaviors in place of skills. He defines behaviors as any employee behavior that does not add value to the value stream (Emiliani & Stec, 2004). These include micromanaging, blame, condescension, or any personal behavior that is counterproductive to Lean engagement. Balzer (2011) suggests using a more comprehensive framework of waste identification for his model based on Lareau's 26 types of identified waste in office operations (2003). Despite these variations in the definition of waste, all sources for Lean improvement in higher education recommend using some sort of structured waste identification system for improving the value stream.

<div align="center">Customer Identification</div>

When executing Lean improvement initiatives, the external customer should be the focus for value creation and waste elimination (Womack & Jones, 2003). Consequently, an organization must define its customers before Lean improvement activities can begin. For processes that are internal to an organization such as AFPD, there are two distinct customer groups to consider. The business community identifies these groups as internal and external customers.

Pereira and Da Silva (2003) define internal customers of higher education as the people who receive goods and services from external suppliers or from processes executed within a college or university. Depending on the process, internal customers of higher education may be students, faculty, administrators, or support staff. Pereira and Da Silva define external customers of higher education as the people who pay for, and benefit from, the education provided by colleges and universities. These external customers may be students, parents, future employers, or even the community at large.

The Internal Customer of
Community College AFPD

Based on Pereira and Da Silva's definition of an internal customer, it is easy to identify the internal customer of AFPD as adjunct faculty. Adjunct faculty members are the direct recipients of AFPD services. They are the people who attend professional development training classes and seminars; therefore, gaining acceptance for this is not a challenge. It is typical for professional development departments to focus on faculty when designing and delivering professional development services (Stefani, 2011). However, focusing AFPD services on adjunct faculty alone is insufficient. It is important to consider the primary customer that a community college serves so that professional development staff can direct their activities in the proper areas.

The External Customer of
Community College AFPD

Choosing a primary, external customer is important for a Lean initiative because focusing on one customer is more likely to lead to success for an organization. Research conducted by Simmons (2014) supports this claim. He has found that the most successful

businesses identify one primary customer to help them determine where they should focus their resources. He states, "By not identifying one primary customer, companies that consider themselves 'customer focused' soon become anything but" (p. 50).

Unfortunately, the complicated network of varied and interconnected stakeholders in higher education makes identifying a primary, external customer more difficult and controversial than in other industries. There are many publications that have concluded that colleges and universities can benefit greatly if they consider students as their primary, external customers (Emery, Kramer, & Tian, 2001; Mark, 2013; Pereira & Da Silva, 2003). Other publications conclude that engaging students as customers degrades the educational environment and that higher education should identify future employers or society as their primary external customers (Delucchi & Korgen, 2002; Gillespie & Finney, 2010; Lomas, 2007). Even within a single institution, opinions on customer identification can vary among faculty, administrators, and staff.

Despite these conflicting views on customer identification in higher education, the last decade has seen a demonstrable shift toward a student-as-customer delivery model by colleges and universities in the U.S. Historically, colleges, and universities have treated students as raw materials in the educational process, and they have considered an educated student to be the product (Ewell, 1993). They rarely have solicited student input in the development of the educational process.

Beginning in the 1990's, however, many colleges and universities began moving away from the traditional student-as-product model of education. Colleges and universities began adopting a more student-focused model of providing educational

services in an attempt to court students in an increasingly competitive market. Administrators began using student feedback to make key institutional changes in the hope that improved student satisfaction levels would bring more students to their campuses (Gillespie & Finney, 2010).   At the same time, colleges started moving away from a teaching-centered focus and began adopting a more learning-centered focus for educational services. Educational reform resulted in colleges placing a greater emphasis on students and student learning (Barr & Tagg, 1995). This was particularly evident in community colleges where student learning and student success were increasingly at the heart of college mission statements (Ayers, 2015).

In reviewing the published work on successful Lean initiatives in higher education, it was evident that most of the authors considered students to be the primary, external customer of higher education (Balzer, 2011; El-Sayed et.al, 2011; Emiliani, 2004; Moore et. al, 2007; Waterbury, 2008). Although these authors recognized the various stakeholders of higher education in the background sections of their studies, their models and examples all focused improvement activities around the needs of students. It followed that the AFPD Lean improvement model would yield the best results if it focused improvement activities on students as the external customer of community colleges.

<div align="center">Performance Evaluation</div>

Measuring performance is important so that professional development staff can make data driven, strategic decisions for AFPD. It is not enough to plan and execute Lean improvement in an organization. There must also be assessment to determine if

Lean improvement is producing the desired results, and this requires a comprehensive set of measurement tools. For community college AFPD, professional development staff must consider the needs of both students and adjunct faculty. Determining if the changes made in the course of Lean improvement actually improve service to these customers is critical in determining if professional development staff should make the changes permanent or if additional changes are necessary.

Evaluation of professional development programs for adjunct faculty has traditionally been very limited. Most professional development organizations have assessed program quality based solely on the results of participant feedback (Mrig, Fusch, & Kietz, 2016; Stefani, 2011). Although viewpoints of faculty are important to consider, they do not provide enough information to evaluate performance in the AFPD Lean improvement model. It is important to determine if the programs are actually improving the instructional practices of faculty and if they are positively affecting student outcomes. Unfortunately, an extensive literature search did not yield any resources on educational professional development in higher education that evaluated beyond the perceptions of faculty participants.

To find relevant information for the evaluation of AFPD, this study researched evaluation techniques in the field of corporate training and development. Like training and development in the corporate sector, community college AFPD sought to improve the performance of employees with the purpose of serving the external customer, and this made the goals for evaluation similar. Research provided a useful model from the field of training and development, known as the Kirkpatrick model, which could be easily

adapted for a comprehensive assessment of AFPD.   Donald Kirkpatrick originally

developed this model over 50 years ago. The business community used it extensively for

training evaluation, and Kirkpatrick updated his model several times since its inception.

The most current version of the model, developed by Donald and James Kirkpatrick

(2007), was widely accepted as an evaluation tool by administrators of corporate training.

The authors based the updated Kirkpatrick model on four levels of evaluation, which they

described as follows (Kirkpatrick & Kirkpatrick, 2009):

- Level 1. Reaction: Did participants approve of the training event? Was it enjoyable and useful?

- Level 2. Learning: Did participants meet the learning objectives of the training event? Did they acquire the intended knowledge, skills, and attitudes?

- Level 3. Behavior: Do participants apply what they have learned during a training event when they are back on the job? If so, how well do they apply what they have learned?

- Level 4. Results: Does the training produce the desired end results for the organization?

Several published works provided evidence of the Kirkpatrick model's success.

For example, Smidt et al. (2009) evaluated 12 studies on training effectiveness and

concluded that the Kirkpatrick model was an effective method for training evaluation.

Kirkpatrick's model was also proven to be adaptable for applications outside of corporate

training. Examples included K-12 education (Guskey, 1999), distance e-learning

(Galloway, 2005), blended learning (Misut et. al., 2013), and college program evaluation

(Praslova, 2010). It followed that the Kirkpatrick model could be successfully adapted

for use as an evaluation tool in the AFPD Lean improvement model.

CHAPTER 3

METHODOLOGY

Design of the Study

This study used proven theory and practice from the disciplines of Lean quality management, professional development, and corporate training to develop an AFPD Lean improvement model for community colleges. The objective was to provide community college professional development departments with a roadmap that they could follow to increase the efficiency and effectiveness of AFPD activities. The ultimate goal was to increase community college students' success by improving the quality of adjunct faculty instructional practices and increasing adjunct connectedness to the college through AFPD training.   This study identified students as the primary external customer and adjunct faculty as the primary internal customer of community college professional development. It considered the needs of both customer groups in the creation of the AFPD Lean improvement model.

The main framework of the AFPD Lean improvement model was constructed around the PDCA cycle described previously in this paper. This useful Lean tool provided a model that facilitated organized planning for changes to AFPD processes and the continuous improvement of those processes. The five main principles of Lean were embedded within the PDCA cycle of the model. In each section of the PCDA cycle, Lean concepts and tools were used to construct detailed steps in the model so that AFPD professionals could follow through in a stepwise fashion.

Figure 1 shows a visual representation of the complete AFPD Lean improvement model. In addition to the model's definition, this study included a theoretical example of the AFPD Lean improvement model's application to a real community college AFPD process for illustrative purposes.
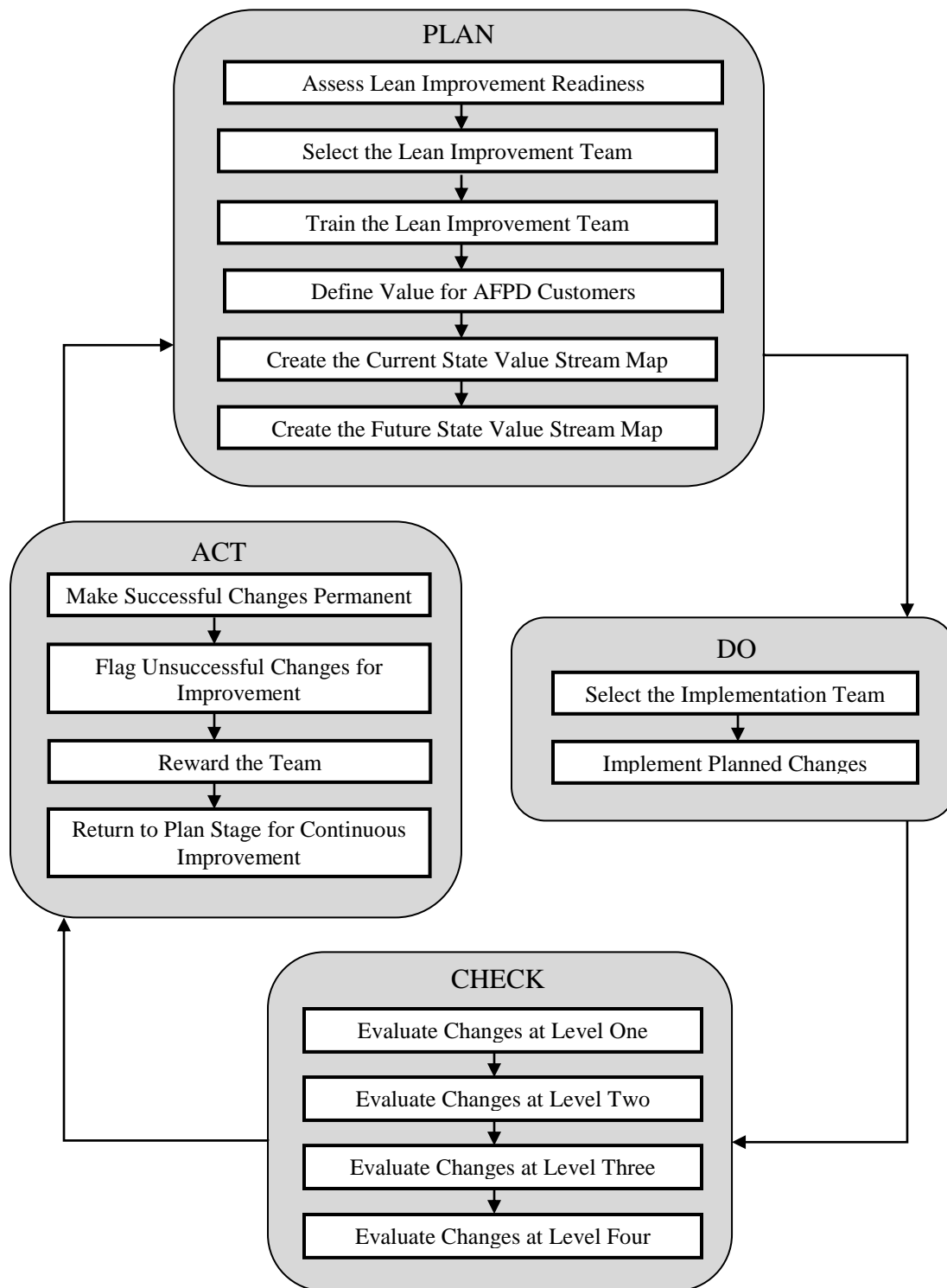
Figure 1. Diagram of the AFPD Lean improvement model. Developed by the author of this thesis.

Plan

The AFPD Lean improvement model begins with the development of a plan, which is the first step in the PDCA cycle. The plan stage is where goals for the program are set, the current state of the program is evaluated and a plan for improvement is created. The readiness of the organization for Lean improvement is assessed, and the team is selected. The Lean concepts and tools used in the plan stage are value definition, value stream mapping, the eight wastes, flow, and pull.

Assess Lean Improvement
Readiness

Before beginning a Lean improvement project, an organization should give careful consideration as to whether or not everyone involved are ready to implement Lean successfully. Whether an organization initiates Lean improvement on a large scale or small, an evaluation of the workplace climate should be one of the first tasks undertaken. Many community colleges already have some mechanism in place to complete this task, for institutional surveys on workplace attitudes are common in higher education. If surveys are not available, the judgments of key personnel may be sufficient to assess workplace climate. This approach is appropriate when an organization implements Lean improvement on a smaller, departmental level where key personnel have better overall knowledge of the department's working conditions. Whichever method they use, an organization should evaluate the climate surrounding all associated work areas involved in a Lean improvement project.

For an AFPD Lean improvement project to be successful, the workplace climate in and around the professional development department at the college must be one that

allows faculty and staff to work cooperatively. Employees should take pride in providing

excellent service, and they should be comfortable raising issues with peers and superiors.

A general environment of mutual respect among employees at all levels should exist. If

an analysis indicates that the workplace climate is not suitable, it may be best to delay

Lean implementation until the identified issues are remedied. Initiating Lean

improvement before the key people involved are ready to support it can lead to rapid

failure.

<u>Project Definition</u>

If the conditions in the professional development organization and associated

areas of a community college indicate that it is ready for Lean improvement, the next step

is to define the project. This is an important step because it determines the scope of a

Lean improvement project. Keeping a project of manageable size is important,

particularly for an organization that is new to Lean improvement. A project that is too

large or complex may prove frustrating for Lean team members and can lead to failure.

Once the team members mature in their experience with Lean, they are going to be better

equipped to tackle projects that are more complex.

The individual initiating Lean improvement at a community college should

carefully review the AFPD processes currently in place at the college and choose one

where improvement can have a significant, measureable impact on the organization. This

process should have starting and stopping points that are clear and easy to define. It

should also be a process where the college can realize improvement in a relatively short

amount of time. This approach can increase the likelihood of success for a first project,

which can increase the confidence of the Lean improvement team. It also should provide

evidence of the value of Lean improvement to high-level administrators at the college,

which can help gain support for future Lean projects.

 Lean Improvement Team Selection

      Once the project for Lean improvement has been defined, the next step is to

choose the members of the Lean improvement team. This process includes the selection

of the team champion, the team leader, and the rest of the Lean improvement team. Lean

improvement takes time and often requires upfront costs to make changes to the existing

system. Having the support of a high-level college administrator who understands that

this initial investment will pay off is critical. This individual can be the champion for the

program when other high-level administrators at the college raise questions about its

value. The person in this role should have some ability to direct the allocation of

resources at the college to ensure that the Lean improvement team has the resources

needed to make the program a success.

      Aside from a high-level champion, the Lean improvement team needs a team

leader. Typically, the team leader is the individual that initiated the idea of Lean

improvement at the college.   Ideally, he or she has a stake in the outcome of Lean

implementation. It is important that every member on the Lean improvement team

respect the team leader. Team members must trust that this individual can direct them to

the desired result. The team leader should also be someone that is well regarded at the

college. He or she must be comfortable crossing institutional boundaries to gather

resources and information from other departments at the college. Finally, the team leader

must be knowledgeable about Lean improvement methods. He or she must have the skill set needed to train others in how to use Lean tools and techniques. If the team leader does not have enough knowledge about Lean to train the other members of the team, he or she must be responsible for bringing in a Lean expert that can support this activity.

Once the team champion and team leader are chosen, the individuals that make up the bulk of the Lean improvement team must be recruited. The number of team members depends on the size and scope of the project chosen. However, care should be taken to make sure there is adequate representation from all functional areas of AFPD programming at the college. Lean team members should be people who are very familiar with at least one of the processes required to create and deliver these programs. This would include faculty and professional development staff who have experience either developing or teaching the programs. It is also important to recruit one or more adjunct faculty members for the team. Having adjunct faculty representation is important because they bring a critical perspective to AFPD Lean improvement. Furthermore, it demonstrates to adjunct faculty that the college respects them and values their input. Providing a small stipend or a promotion in title for adjunct participants can be helpful in encouraging their participation. Involvement in improvement activities at the college is well outside the standard job description for adjunct faculty, and it is respectful to recognize this when recruiting for the Lean improvement team.

Beyond functional knowledge, the attitudes and characteristics of the people chosen for the team are very important. Team members should be interested in participating, have a willingness to support Lean implementation, and should be

respected as a peer or leader at the college. They must be willing to approach Lean

improvement with an open mind and consider changes that may seem radical to those in

higher education.

Lean Improvement Team Training

The next step after selecting the Lean improvement team is to make sure that all

team members have sufficient knowledge of Lean concepts, tools, and methods to be able

to apply the AFPD Lean improvement model correctly. This requires that the team

receive training on these Lean topics. If there is an individual at the college that can

provide this training, using this internal leadership can save on cost. However, it is not

common for community colleges to employ individuals with the necessary background to

provide Lean training. In this case, the team leader and the team champion must ensure

that the college hires an outside contractor to provide Lean training for the team.

Hiring an expert to provide Lean training can be expensive. Because of the cost

and time required, it may be tempting for college administrators to send only one team

member for training or to skip formal Lean training altogether. This can be very

detrimental to the success of a college's Lean initiative. Insufficient employee training on

Lean is widely recognized as a common cause of Lean failure. Committing the proper

resources for upfront training can prevent the wasted effort of a failed Lean initiative

down the road.

Value Definition

Once a Lean improvement team has been formed, the project can move on to the

next step in the Lean improvement model, defining value. Defining value is a critical

component of any Lean improvement initiative. Professional development provides a high customer involvement service within community colleges. Therefore, it is essential for professional development organizations to include their customers in defining and creating value for their services. To foster the cooperative working environment required to define value in AFPD, it is important for professional development organizations to recognize both adjunct faculty as their internal customers and students as the primary, external customers of the college. Each of these customer groups must have a role in defining value for these services.

For effective Lean implementation, it is necessary for an organization to consider the needs of the primary, external customer. Consequently, professional development departments have a responsibility to provide services that create maximum benefit for the students of the college. Getting student input on which instructor characteristics best promote student success is required to direct the types of training offered to adjunct faculty. For adjunct faculty as the internal customer, a focus on providing training that is effective and efficient is necessary to ensure successful value definition. Gaining input from these instructors on what they need and want from training can increase the likelihood of their active participation.

Professional development staff members also have a responsibility for defining value. It is important for them to consider customer input, but they have research-based knowledge in the areas of teaching and learning, adjunct support, and professional development training that adjuncts and students do not have. Including this knowledge in defining value makes it more likely that adjuncts and students will acquire the outcomes

they desire. By including all perspectives in defining value for their services, professional development organizations are able to provide research-based training that benefits both adjuncts and students while avoiding a provider-driven definition of value that only serves the needs of the provider.

The team should gather for a value identification session. Items that may be useful at this meeting include summaries of recent student evaluations of adjunct instructors, adjunct faculty surveys on professional development services, peer-reviewed research on what types of professional development activities yield improvement in adjunct faculty instructional practices, and research on which instructional practices are most likely to yield student success. Using all available information, the team should come up with a prioritized list for both adjunct faculty and students on what they need and want most from AFPD. These lists can help focus the plan for improvement when creating the future state value stream map later in the model.

Several of the values identified in this step may be common to all community college adjunct faculty and students. However, it is important that each professional development department using the AFPD Lean improvement model go through a value analysis. Each college has its own unique culture, and student and adjunct faculty characteristics can vary from college to college. While it may be tempting to skip this step and use value lists gathered from other sources, the risk is that the unique needs of a community college's student body and adjunct faculty are going to be ignored. This can lead to the delivery of unnecessary professional development activities or missed

opportunities to deliver activities that are needed. This adds waste to the system, which

is counter to the Lean improvement process.

<u>Current State Value</u>
<u>Stream Map Creation</u>

Before process improvement activities begin, it is critical that an organization

knows exactly how the process is currently running from beginning to end. Without this

knowledge, there is a risk that improvement teams may jump in and try to optimize one

small part of a value stream with no regard for how it can affect process steps down the

line. While one small step may be improved, there may be more waste created overall if

the entire process is not considered. To avoid this situation, a current state value stream

map should be created, which displays each step in the process as it is running before any

improvement activity takes place.

There are several steps to creating a current state value stream map. The first step

is to choose one person to be in charge of the mapping process. This person is usually

the team leader because he or she must be capable of moving across organizational

boundaries to gather all the information required to map the entire process. Next, a

specific set of processes must be chosen for mapping. This set is to focus on initial

improvement activities in one area and prevent the improvement process from becoming

too complicated.

Once the processes for mapping have been chosen, the start and end points for

mapping must be defined. This sets the boundaries for the value stream and limits the

scope of improvement activities. It is important to note that even though the value stream

map is limited by boundaries, how it fits into the overall operation of the college must be

considered so that the primary, external customer of the organization is always

considered.

Beginning at the chosen start point, the Lean team leader should walk through the

entire process from beginning to end, getting an idea of the flow and sequence of the

process. Once he or she has done this, the leader should go back through and gather

information at each process step. This information includes what employees do at each

step, how long each step takes, and how long the wait times are between steps.

Knowledgeable personnel should directly measure or, if measurement is not possible,

estimate process and wait times. Input from all those involved in each process step is

required for information gathering. The people directly involved in each process step are

best able to provide accurate details of what is happening.

As the team leader walks through the steps of the process, he or she should

generate a rough sketch of the current state map by hand, in pencil. This allows the team

leader to create the map as he or she walks through each step, adding and rearranging

information as it is learned. Using simple boxes to indicate process steps, triangles to

indicate idle wait time, and arrows to indicate flow can make mapping simple. Time for

each process step and idle times should be indicated on boxes and triangles. Once the

map is completed, the team leader should get input and approval from all Lean team

members to ensure that it accurately represents the current state value stream.

There are several excellent computerized value stream mapping tools available on

the market, and the team leader may be tempted to use one of these tools to make the

initial current state value stream map look more polished. However, using these

programs is not advisable in the early stages of value stream mapping. The computer

programs can be complex, for they are generally designed for advanced value stream

mapping in manufacturing environments. They have a great deal of functionality that is

not required for the value stream mapping of professional development services. The

point of walking through the process and creating a map is to understand the flow of

information, not to make an attractive diagram. Drawing by hand allows the creator to

focus on understanding the process. Once an accurate current state value stream map has

been defined and agreed upon, the team leader can always go back to a computer

program and generate a polished map for publication, if necessary.

Future State Value
Stream Map Creation

With a complete current state value stream map in hand, the next step is to create

a future state value stream map. The completed future state value stream map is to be

used as the plan for improvement that gets implemented in the next phase of the PDCA

cycle. Careful and thoughtful attention to the creation of the future state value stream

map can pay off in increased improvement of AFPD processes. There are a few Lean

tools and concepts used in the creation of the future state value stream map, including the

eight wastes, flow, and pull.

Identify Waste. A list of eight wastes was identified previously as a useful tool in

the identification of waste in a value stream. These were listed as transportation,

inventory, waiting, motion, over processing, over production, defects, and skills. The

eight wastes could be an effective tool for identifying waste in the current state AFPD

value stream. Systematically stepping through each of the eight wastes, while reviewing the current state value stream map, could be a useful way to organize waste identification.

The team leader and all members of the Lean improvement team should gather for this exercise. Starting with the first waste on the eight wastes list, the team should go through the current state value stream map and identify any waste of that type that they observe in the value stream. The team should record all identified wastes in a format that is easy for the entire team to view on a white board or large flip chart. They should then repeat this exercise for each of the additional eight wastes. The team can use the final list of identified wastes in subsequent steps to remove waste from the value stream, rework the processes, and improve flow.

Consider Flow and Pull. Once the Lean team has identified the waste in the current state value stream, the next step is to evaluate the current state value stream map in terms of flow and pull. The ideal of a process in flow is that it moves in one continuous motion from beginning to end with no gaps or wait times. One benefit of having AFPD processes that flow is that adjunct faculty can obtain the training they need in a timely manner. One big impediment to flow in AFPD processes is the batch-and-queue nature of how training classes are typically scheduled and offered. It is common for adjunct faculty to fill out a requisition to attend a training class, wait for their supervisor to approve the requisition, and then wait again for professional development to offer the class. Many colleges only offer training on certain topics once a semester or once a year. Many only offer training during normal working hours, which can make scheduling difficult for adjuncts. Adjunct faculty may have to wait a significant amount

of time between each of these steps even if they have an immediate need for the information provided in the training class.

The batch-and-queue nature of AFPD offerings also negatively affects the Lean concept of pull in a process. The ideal pull process begins only when the customer initiates a request for a product or service. The benefit of a pull system in AFPD is that adjunct faculty determine when training is delivered. They can get the training they need at the exact moment they need it. It also helps to eliminate waste because they only attend training on topics they want and need.   In the traditional batch-and-queue system of AFPD training delivery, classes may be delivered at a time when adjuncts do not immediately need the material or when they are unable to attend.

Creating an AFPD system with flow and pull requires an open mind and a willingness to completely change how processes are viewed. Team members should review the current state value stream map with ideas for how wait times in the system can be removed and how adjunct faculty can initiate activity in the value stream. Generally, the ability to have training delivered to adjunct faculty on demand should be the objective. Having that training delivered in the most expedient manner also needs to be a consideration. It is important that the AFPD Lean improvement team members consider all possibilities for making this happen, even if it necessitates radical changes. Bringing these ideas to the next step is necessary to create significant, positive change.

Map the Future State. The goal of a future state value stream map is to create an implementation plan that the team feels can become a reality in a relatively short amount of time. This process can allow the organization to realize improvement quickly. The

Lean improvement team should gather for creation of the future state value stream map.

Each team member should come to the meeting with ideas for how to eliminate waste

from the current state value stream and how to realign the processes to facilitate flow and

pull in the system. Team members should also revisit the list of customer values to

determine if there are any unmet needs, and if so, determine what they can change to

address this need. Initially, the exercise may resemble a brainstorming session where the

team trades and discusses ideas. Once the team comes to agreement, the team leader

draws a first draft of the future state value stream map in a format that is easily viewable

on a white board or large flip chart. Iterations of the map may follow, based on input

from all team members. The final future state value stream map should (1) eliminate as

much current state value stream waste as possible, (2) ensure that adjunct faculty and

student needs are met, and (3) provide a plan that can be implemented in a reasonable

amount of time.

  As discussed previously, the ultimate goal of Lean is to remove all activities from

a system that do not create value for the customer. This means eliminating every waste

identified in the eight wastes exercise as well as those not identified. It also requires

creating a process with perfect flow and pull. Unfortunately, this is not always possible.

Sometimes an organization must tolerate non-value added activities for legal compliance

reasons, sometimes technology limitations prevent their elimination, and sometimes

eliminating them is cost prohibitive. A Lean improvement team should not hold off on

all improvement activities while waiting for these situations to change. Doing so may

delay Lean improvement indefinitely. The way to manage this is to keep these activities

in the future state value stream but identify them as non-value added. This way the team can target them for removal if conditions change in the future.

Do

The next stage in the AFPD Lean improvement model is "do," the second step in the PDCA cycle. The do stage is where the detailed plan created in the previous stage is deployed by the organization. For the AFPD Lean improvement model, the plan is the future state value stream map. A comprehensive implementation plan is required to make the future state value stream a reality, and implementation usually requires its own team. It may or may not be appropriate for members of the Lean improvement team to be directly involved in the implementation process. Generally, professional development staff members are the ones who drive changes in the process. It is likely that the expertise of people outside of the original Lean improvement team is going to be required for implementation, such as internal support departments or even outside contractors. Adjunct faculty are less likely to be involved, for they don't typically hold responsibility for designing and delivering professional development programs.

The AFPD Lean improvement team should recruit appropriate personnel for the implementation team. The team leader should bring any new team members involved in implementation up to speed on the project and the project goals. The team leader also should arrange for Lean training for these individuals, if necessary. Time specific goals should be set for the implementation plan such as monthly or bi-monthly goals. To ensure that the team meets these goals, the team leader should assign specific implementation tasks to individual team members to ensure that they are completed.

It is important to note that this stage may generate the most resistance from the college administrators, faculty, and staff who are not directly involved in the Lean improvement process. Implementing the future state value stream may require some cost and effort; therefore, the Lean improvement team should expect some push back when trying to carry out Lean implementation activities. This is where the support of the Lean team champion and other college administrators are going to be critical. These individuals must make sure the appropriate resources are free to assist with the implementation. It is also important for higher administration to communicate the importance of the project to the employees who work on it. This ensures that the project is a priority at the college and that employees do not push Lean improvement work aside for their other responsibilities. Once they have implemented the program, the Lean improvement team can use the benefits realized in overall time, cost, and results to gain support for further improvement projects.

<div style="text-align:center">Check</div>

The third step in the PDCA cycle is "check," which is the next stage in the AFPD model. The check phase is where the changes that were implemented in the do phase are evaluated to determine if they yielded improvement. The check phase also identifies what further work needs to be done. The Lean improvement team uses a modified version of Kirkpatrick's four levels of evaluation to ensure a comprehensive assessment for all identified customer groups. The AFPD Lean improvement model modifies the Kirkpatrick evaluation system to make use of measurement tools already in place at most

community colleges. This can assist colleges in reducing the costs and time involved for program evaluation.

<u>Evaluate Adjunct</u>
<u>Faculty Perceptions</u>

The first level of evaluation conducted on the implemented future state value stream assesses the immediate reaction of adjunct faculty to the new process. This evaluation level provides feedback on how the participants viewed the training activities and if they have any recommendations for improvements. The perception level assesses whether or not the adjunct faculty participants enjoyed attending the activities, and whether or not they felt that the information presented was useful. The actions for the adjunct perception level are:

- Make a list of items to be evaluated.

- Create an evaluation form for adjunct faculty participants. If the college has a standard format for course evaluations, it can be adapted for this purpose.

- Make the information on the form quantifiable by using feedback formats that allow attitudes and perceptions to be measured numerically. An example of this is the Likert scale.

- Promote honesty by making forms anonymous.

- Add a comments section to encourage additional feedback.

- Incentivize participation by making the form quick and easy to fill out.

Once the feedback forms have been gathered and compiled, the AFPD Lean improvement team gathers to review the documents. The team determines what changes are working, and what items need further improvement to encourage adjunct faculty participation.

<u>Evaluate Adjunct Faculty Learning</u>

The second level of evaluation conducted on the implemented future state value stream is the adjunct faculty learning level. This level allows for immediate feedback on whether or not adjunct faculty met the learning objectives of the training activities.   It provides information on whether or not the programming is effective for helping adjuncts learn and retain the material taught in the training courses. The key actions required for the adjunct faculty learning level are:

- Determine the key learning objectives of the training activity.

- Create a short quiz for adjunct faculty that assesses the desired knowledge, skills, and attitudes outlined in the learning objectives.

- Make sure data from the test is quantifiable.

- Give the test to participants before and after training to assess growth.

- Evaluate every participant.

Once the quizzes are scored and compiled, the AFPD Lean improvement team gathers to determine if adjunct faculty are obtaining the desired knowledge from the training activity, or if improvement is required to ensure that adjunct faculty are getting what they need out of the training.

<u>Evaluate Knowledge Deployment</u>

The third level of evaluation conducted on the implemented future state value stream is the knowledge deployment level. It determines if adjunct faculty put what they have learned into practice. This level provides feedback on how effective the training has been in positively altering adjunct faculty behavior in and out of the classroom. The goal

is that the training has resulted in improved adjunct faculty teaching practices and

improved faculty-to-student engagement. Actions for the deployment level are:

- Evaluate the teaching performance of adjunct faculty. This can be done, using one or more of the following in any combination:

  - student evaluations of the instructor;

  - classroom observation by supervisors;

  - peer evaluations;

  - self evaluations.

- Make sure behavioral objectives from training are included in performance evaluation criteria.

- Make sure evaluation data is quantifiable.

- Conduct some type of evaluation at least once per semester.

- Evaluate every participant.

- Compare results against a control group of adjunct faculty, if possible.

Once the data from the deployment level evaluation is obtained, the AFPD Lean

improvement team gathers to determine which activities are yielding the greatest

improvement in adjunct faculty teaching and engagement and which activities need

improvement.

Evaluating instructor performance in the classroom at the deployment level does

require more time and effort than the perception level or the learning level. Adjunct

faculty must have time to incorporate training into their instruction, and they must be

allowed time to have experienced faculty and staff answer their questions.   In addition,

either a supervisor or peer must take the time to conduct a classroom evaluation for the

adjunct instructors who have taken part in the program. A reasonable evaluation of whether or not training techniques are being implemented in the classroom and whether or not the use of those training techniques have improved instruction requires at least one semester after AFPD training course completion. More likely, it requires two semesters for an adequate evaluation. Most community colleges do not evaluate their professional development activities at the deployment level because of the increased commitment of time and resources. However, it is important to evaluate the implemented future state value stream at this level. If it is not, there will be no information on which professional development activities actually promote the desired improvements. Not having the information risks wasted programming and decreases the likelihood of improved adjunct faculty instructional practices.

One final consideration for evaluating knowledge deployment is how the Lean improvement team approaches teaching performance evaluations with AFPD program participants. It is important to communicate to adjunct faculty that the team is to use the evaluations for improvement purposes only, and that the results are not to affect their standing at the college or their ability to obtain future work. Adjunct faculty should view knowledge deployment evaluation as positive. If they see it as potentially punitive, it may reduce the likelihood that they are going to engage in professional development training and evaluation. It may also erode their trust in professional development and college administration.

<u>Evaluate Student Success</u>

The fourth level of evaluation conducted on the implemented future state value stream is the student success level. This level of evaluation assesses whether or not the changes made to the AFPD value stream result in improved student success. Some of the ways that the Lean improvement team can assess student success are:

- Use college data systems to obtain the pass rate in courses taught by adjunct faculty and compare the results before and after future state value stream implementation.

- Use college data systems to obtain the retention rate of students taught by adjunct faculty and compare the results before and after future state value stream implementation.

- Use college data systems to obtain graduation rates of students taught by adjunct faculty and compare the results before and after future state value stream implementation.

- Use college data systems to obtain transfer rates of students taught by adjunct faculty and compare the results before and after future state value stream implementation.

The student success level is the most difficult and time-consuming level to evaluate. However, evaluation at this level is important because it tells the AFPD Lean improvement team whether or not the project has met its ultimate goal of improving student outcomes.

One valuable shorter-term measure of student success is the pass rate in courses taught by adjunct faculty. The pass rate is typically defined as the percentage of students receiving a grade of C or better in a class. If the overall pass rate in courses taught by adjunct faculty improves after the future state value stream has been implemented, it indicates that the changes made to the AFPD value stream are helping students succeed in

their classes. One benefit of using pass rates as a measure of student success is that most community colleges already track pass rates for their courses, so the data is readily available. Another benefit is that the Lean improvement team can obtain and evaluate the data relatively quickly, typically within one to two semesters.

Another shorter-term measure of student success is retention rate. Most community colleges define retention rate as the percentage of first time, degree-seeking students who continue at the school from the first to the second year. Retention defined in this way is not particularly useful for assessment in the AFPD Lean improvement model because it is too limiting. A more useful definition of retention for the model is continued enrollment in an educational program two semesters after a student completes a class taught by an adjunct instructor. This allows the Lean improvement team to obtain data for a wider range of students and adjunct faculty. If the retention rate increases after the future state value stream has been implemented, it indicates that the changes made to the AFPD value stream are helping students to continue on in their educational programs.

Longer-term measures of student success are more difficult to assess because of the time commitment required to track them. Graduation and transfer rates for community colleges can take three or more years to obtain. In addition, tying these success rates back to adjunct faculty can be complicated, especially if a college's data system is not set up to sort for graduation and transfer rates as a function of instructor type. The Lean improvement team may require a separate system to obtain the data they need.

Graduation and transfer rate trends for individual adjunct instructors may not be useful to track. Depending on the turnover rate of adjunct faculty at a community college, many of these instructors may leave the institution before the Lean improvement team can acquire graduation and retention rate data. However, the team can evaluate graduation and transfer rates as a function of the overall level of student exposure to adjunct faculty. If the correlation between graduation and transfer rates and the students' exposure to adjunct faculty increases after the future state value stream has been implemented, then the team can reasonably conclude that the changes made to the AFPD value stream are helping students meet their program completion goals.

Act

The "act" stage in the AFPD Lean improvement model involves continuous improvement with the goal of reaching a perfect process in flow and pull with no waste. This corresponds to the fifth principle of Lean, perfection. In this stage, the Lean improvement team takes action based on what has been discovered in the evaluation of the implemented future state value stream. The team gathers to review the evaluation results, and if the results indicate that the changes have been successful in producing the desired outcomes, the team makes them a permanent part of AFPD and standardizes them to the value stream. If there have been changes that did not produce the desired outcomes, then the team goes back to the beginning of the PDCA cycle and starts again. They make corrections based on what they learned, and they create a new future state value stream as part of the continuous improvement cycle.

The information from the perception and learning levels of evaluation may be available much sooner than the information from the knowledge deployment and student success levels of evaluation. It is not necessary for the team to complete all levels of evaluation before they make improvements to the system. If feedback from the first two levels indicates that the changes made to the value stream are not providing positive outcomes, alterations to the future state value stream can be made immediately to correct this concern. This results in more timely continuous improvement activity.

It is important in this stage to recognize the successes of the program and the contributions of the Lean improvement team. Rewards for team members can be in the form of public recognition, a monetary bonus, a non-monetary gift, or a promotion in title at the college. The team should gather to celebrate successes and discuss ideas for future improvement. Public recognition of the team's accomplishments is important. This can help foster excitement for further AFPD Lean improvement activities at the college and encourage continued enthusiastic participation by team members.

One final consideration for the AFPD Lean improvement model is record keeping. Creating and maintaining detailed records of all AFPD Lean improvement activities is critical. Because AFPD Lean improvement is iterative and may contain several cycles, it is likely that the program is going to continue for an extended period. Over time, members may leave the Lean improvement team, and new people may join. It is important to maintain a documented history of the program so that the organizational memory is not lost with employee attrition. A specific team member, typically the team leader, should make sure these records are kept up to date.

Applying the AFPD Lean Improvement Model

With the AFPD Lean improvement model defined, the next logical step is for community colleges to use the model to improve the professional development services they provide for their adjunct faculty. The intent is that by doing so, these community colleges can improve the instructional practices of their adjunct faculty and increase the success levels of their students. To facilitate model application for professional development personnel and community college administrators, this section of the thesis provides a theoretical example of how to apply the model in practice in an environment common to many community colleges. Although each organization's experience in using the model may vary to some extent, this example provides guidelines on how to use the Lean tools and techniques described in the model.

The subject chosen to illustrate the model's application is an orientation program for adjunct faculty at a real, midsized community college in the Midwestern U.S. The institution in this example faces challenges similar to most public two-year colleges. The state has cut funding for higher education in recent years, which has forced the college to operate with a lower level of state provided financial support.   The college has also faced pressure by local, state, and federal government entities to improve student success rates. Of particular concern is the institution's graduation rate, which is below the national average for public two-year colleges.

To reduce operating costs, the college relies heavily on less expensive adjunct faculty to provide instruction. Over 65% of the instructors employed by the college are part-time faculty members. To help ease the integration of adjunct faculty into the

college and to promote better adjunct faculty instruction, the professional development department offers an eight-week orientation program specifically designed for part-time faculty. Although feedback has indicated that attendees find the program helpful, participation levels in the program remain low.

Plan

The orientation program for adjunct faculty described above is an excellent candidate for application of the AFPD Lean improvement model.   The college employs a high percentage of adjunct instructors, which can be negatively affecting student success at the college.   College administrators and professional development personnel have recognized a need to help adjunct faculty improve their instructional practices, but the program they developed does not have the proper focus, nor is it well attended enough to have a significant impact in these areas. In addition, the only method of evaluation that the college uses for the orientation program is participant feedback. There is no way to determine if the orientation program is actually improving adjunct faculty teaching or if it is having a positive impact on student success levels. Applying the AFPD Lean improvement model to the adjunct faculty orientation program can help college administrators resolve these issues. It can help the college to focus adjunct faculty training in the areas that can have the greatest impact on adjunct faculty teaching and student success levels, and it ensures that training is provided in an effective and efficient manner.

Assess Lean Improvement Readiness. To help assess the general satisfaction level of its employees, the college has recently conducted a Personal Assessment of

College Climate (PACE) survey of college personnel (NILIE, 2016). Surveys like PACE

are an excellent place to start in determining the organization's readiness for Lean

improvement. Administrators can evaluate the results of the survey to determine (1) if

faculty and staff generally feel comfortable sharing new ideas with both peers and

superiors and (2) if a general environment of respect and collaboration exists at the

college. Members of the professional development staff should also evaluate the

environment around their own department at the college. They can examine their

relationship with the adjunct faculty population at the college and determine if there is a

high degree of trust between adjunct faculty members and professional development

personnel. If the evaluation shows that the proper conditions for Lean improvement

exist, it is appropriate to move on to the next step.

Project Definition. The program selected for Lean improvement in this example

is the eight-week adjunct faculty orientation program mentioned previously. The

program provides more in depth coverage of select material from the college's adjunct

faculty handbook, which is available online to every employee of the college. The

college's professional development department offers the orientation program twice a

year in the fall and spring semesters. Adjunct faculty must commit to attending a three-

hour class one evening a week for eight weeks to take part in the program.

Because the college is new to Lean improvement, it is best to keep the project

scope small. Limiting the scope of Lean improvement to the delivery of the adjunct

faculty orientation program can make things more manageable for an inexperienced team.

It also increases the likelihood of Lean improvement success.

Select the Lean Improvement Team. The college in this example is fortunate to have its own dedicated department for professional development. A logical choice for the AFPD Lean improvement team leader is the head of the professional development department.   The department head has the role of initiating all major professional development projects at the college, and it is unlikely that a program of this magnitude would go forward without this person taking the lead. A good choice for team champion is the dean of institutional effectiveness. The administrator in this role is particularly motivated to improve the quality of faculty teaching and to increase student success levels. In addition, the dean has the authority to direct resources at the college and can act as spokesperson for the project with other high-level administrators.

For the regular members of the Lean improvement team in this example, it would be beneficial to include the remaining four members of the professional development department. These employees are typically involved in departmental programs of this magnitude, and gaining their buy-in is important. It is also imperative to recruit one or two adjunct faculty members for the team. For this Lean improvement project, the experienced adjunct faculty member that has helped create and deliver the original orientation program is a logical choice. This person already has extensive experience with adjunct faculty training at the college. Another good choice for adjunct faculty representation is someone who has recently been through the orientation program. This person can provide valuable feedback from the perspective of a program attendee.

Lean Improvement Team Training. As is the case with most community colleges, the administrators, faculty, and staff of the college in this example have little to no prior

knowledge of Lean. It is important that Lean improvement team members receive Lean

training so that they have the necessary background and knowledge to work with the

Lean improvement model. Fortunately, the college in this example has a community

outreach center that contracts out affordable Lean management seminars for local small

businesses. Utilizing this resource can be a cost-effective way to provide training for the

Lean improvement team.

     <u>Define Value.</u> The professional development department of the college in this

example has the results of a survey of the college's adjunct faculty population, which was

conducted as part of an overall professional development needs assessment. The results

of the survey can provide Lean improvement team members with information on what

type of support the college's adjunct faculty members want from professional

development staff. It is an excellent example of how readily available information can be

used to assist in value definition for Lean improvement.

     In addition to the survey, members of the Lean improvement team can research

articles and studies on supporting effective adjunct faculty instruction to help them define

value for adjunct faculty. These publications are useful in uncovering important needs

that adjunct faculty do not self-identify. This can provide a more complete picture of

what adjunct faculty both need and want from professional development.

     Using a combination of these resources, the Lean improvement team creates a

prioritized list of what adjunct faculty value most from professional development. An

example of what a prioritized list may look like for the college in this application is as

follows:

1. The college offers training for adjunct faculty at times when they can attend.

2. Training is efficient and minimizes the time that adjunct faculty must spend to obtain knowledge and skills.

3. The college provides follow-up support from experienced faculty after attending training classes.

4. The college offers training for adjunct faculty on effective teaching techniques, including how to accommodate varied student learning styles.

5. The college offers training for adjunct faculty on effective classroom management, including how to deal with difficult students.

6. The college offers training for adjunct faculty on college resources and student support systems.

7. The college offers training for adjunct faculty on available technology tools and how to incorporate those tools more effectively into the classroom.

8. The college provides adjunct faculty with recognition and rewards for participating in training activities.

This list helps the Lean improvement team determine which training activities adjunct faculty want most and how those activities should be delivered to meet their needs most effectively.

To assist in the definition of value for students, the Lean improvement team can use recent course evaluation surveys of classes taught by adjunct faculty. Conducted at the completion of each class at the college, course evaluation surveys give students the opportunity to provide feedback on instructor performance and course content. The results of these evaluations can identify areas of instructional weakness and can help determine where improvement should be concentrated to serve the student population most effectively. The Lean improvement team can use the results of these evaluations to

determine what students want most from their adjunct instructors and what they feel is

lacking.

To determine student needs that may not surface in course evaluations, Lean

improvement team members can consult subject matter experts and conduct research on

student success to help them define value for students. It is unusual for students to have a

complete understanding of the most effective faculty behaviors and characteristics that

promote student success. Seeking out these additional resources can help Lean

improvement team members develop a more comprehensive list of needs and wants for

defining their student population's values.

Using a combination of these resources, The Lean improvement team creates a

prioritized list of the teaching practices and behaviors that students value most in their

instructors. An example of what a prioritized list may look like for this particular

application is as follows:

1. Instructors clearly articulate expectations for class performance.

2. Instructors provide regular and constructive feedback on class performance.

3. Instructors provide the opportunity for hands-on learning and practical
   application of classroom knowledge.

4. Instructors present various ways to learn material to accommodate students'
   different learning styles.

5. Instructors actively engage with students and encourage open communication
   both in and out of class.

6. Instructors refer students to appropriate academic and non-academic college
   support systems when needed.

7. Instructors recognize and reward class participation.

8. Instructors connect classroom material with career opportunities for students and provide career guidance.

This list can help the Lean improvement team determine which professional development training classes to offer for adjunct faculty. Training classes that help adjunct faculty gain the knowledge and skills required to meet their students' needs are more likely to yield increased student success levels at the college.

Create the Current State Value Stream Map. The next step in this example is to create the current state value stream map for delivery of the eight-week adjunct faculty orientation program. The process starts when professional development staff members schedule the program, and it ends when adjunct faculty members deploy what they have learned into their classrooms. The head of the professional development department, acting as team leader, is responsible for analyzing each step in the process and identifying the sequence for the value stream. He or she must get input from all of the people directly involved in each process step of the adjunct faculty orientation program. The team leader must also determine the time to complete each step and the wait time between steps. As the team leader collects this information, he or she should construct an initial current state value stream map. When the initial current state value stream map is completed, the team leader can transfer the map to a white board or large flip chart to facilitate group discussion. The entire team provides input and makes changes to the original diagram until there is consensus on a final version of the map. To illustrate what a final current state value stream map may look like for the adjunct faculty orientation program, an example diagram is shown in Figure 2.
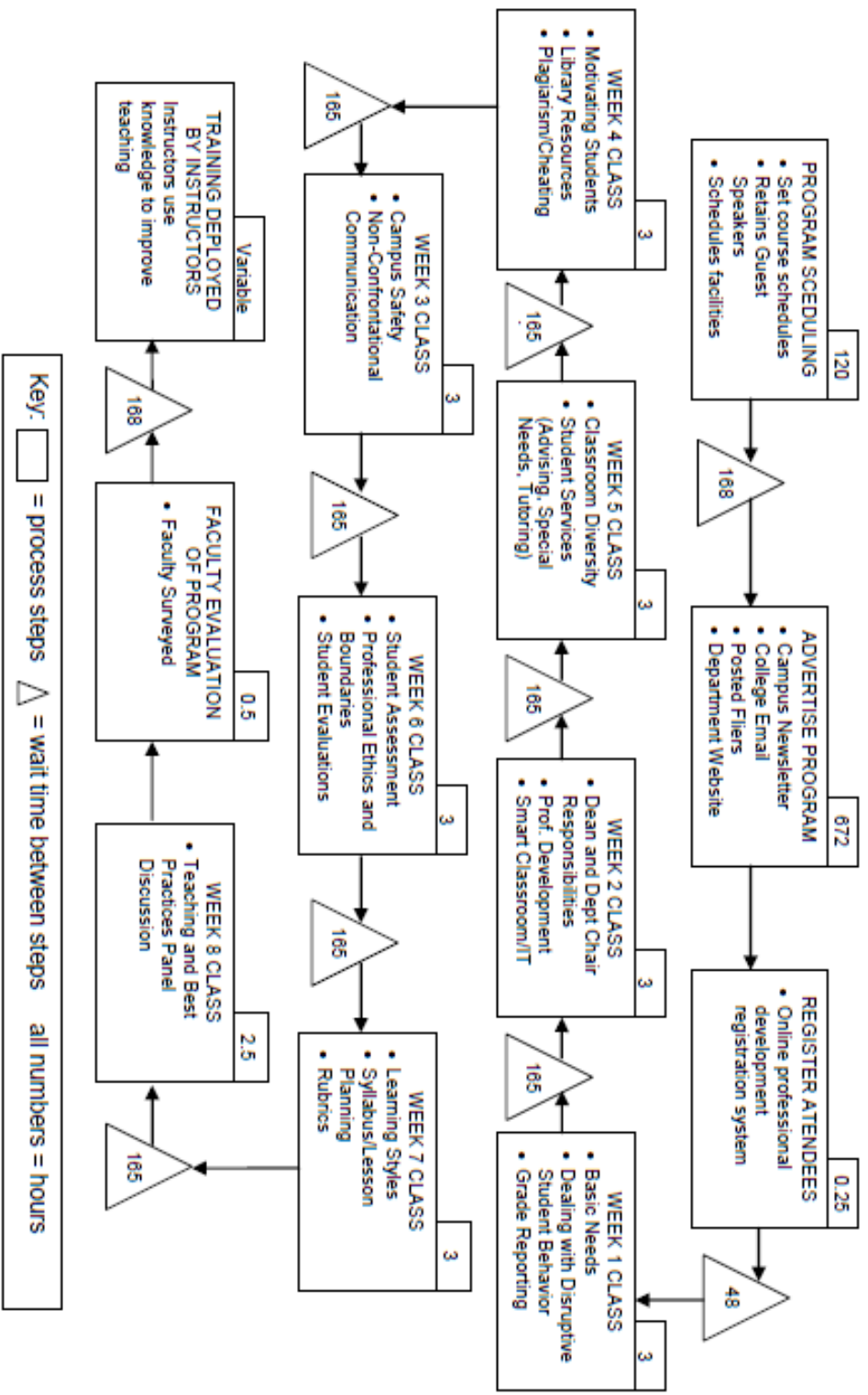
Figure 2. Current state value stream map for the adjunct faculty orientation program. Developed by the author of this thesis.

<u>Identify Waste in the Current</u>
<u>State Value Stream</u>

      The Lean improvement team identifies waste in the current state value stream by applying the eight wastes tool to the current state value stream map. The team starts with the waste of transportation and analyzes the adjunct faculty orientation program's current state value stream for any type of transportation waste that they can identify. They record these wastes in table form on a large white board or flip chart so that all team members can view and make additions to the identified wastes, repeating the same process for each additional waste in the eight wastes tool. Once the last waste in the tool has been analyzed, the team leader creates a final table that summarizes all of the identified wastes in the adjunct faculty orientation program's current state value stream. Table 1 shows an example of what this list may contain.

Table 1

Identified Waste in the Current State Adjunct Faculty Orientation Program

Waste Type	Identified Waste
Transportation	Adjunct Instructors travel from home to class. Guest speakers travel from home or office to class.
Inventory	Paper handouts for the entire program are made and stored before the program begins.
Motion	The class moves from the main classroom, to the library for a tour and back to the classroom for training on libraries. The class moves from the main classroom, to a tour of computer and copy facilities then back to the classroom for training on basics. Adjuncts forget provided class materials and must return to the office to print a new copy.
Waiting	Adjuncts need training information before it is offered during the semester. Adjuncts must wait for training they need to appear in the course sequence. Program evaluations wait before being processed and evaluated by staff. Adjuncts may not be in a place in their course development or in their course sequences to immediately implement training.
Over Processing	Some course material is repeated in the summaries of previous classes. Schedules must be reworked if speakers suddenly become unavailable. Schedules must be reworked if facilities are not available during scheduled times.
Over Production	Some adjuncts completing the sequence receive training on topics that they already are familiar with. No participant indicated that they found out about the program through fliers on campus. Extra paper handouts are produced at the beginning of the course to account for last minute attendees.
Defects	Adjuncts that must miss a class in the program don't get information that they need. Time limits for topic coverage restrict the ability of participants to ask questions thus limiting knowledge acquisition. Adjunct instructors do not always use techniques learned in training to improve teaching. Adjuncts have difficulty implementing training techniques after the course is completed and have no resources to support them. Many adjuncts cannot participate in training because of conflicting schedules.
Skills	Adjunct instructors are not included in the development of the course material so their perspective is missed in creating course content. Department chairs are not engaged in promoting the program to their adjunct instructors.

Note. Developed by the author of this thesis.

Consider Flow and Pull. With waste identified, the next step for the Lean improvement team is to evaluate the current state value stream for flow and pull. The team should identify impediments to flow and pull, and then rework the value stream to remove as many as possible when they get to the future state value stream step of the model. The Lean improvement team can identify several areas in the adjunct faculty orientation program's current state value stream that prevent the system from flowing smoothly. For example, an adjunct faculty member may decide to take part in orientation training and then have to wait up to eight months for the professional development department to offer the program. In addition, the time between the start of the program and training on individual topics is anywhere from one to eight weeks. Even if training is available immediately, the current state sequence can require an adjunct faculty member to wait up to eight weeks to receive training in the area they need most.

An example of why the original adjunct faculty orientation program is not a pull system is that it does not allow adjunct faculty to initiate training when they need or want it. In the current state value stream, the professional development department delivers orientation training in the traditional batch-and-queue semester system common to higher education. The department pushes adjunct faculty orientation training according to their schedule rather than having the adjunct instructors pull training on demand when they and their students need the knowledge and skills most. To create a pull system, the team must rework the orientation program process to allow the customers to determine when services are delivered.

       <u>Create the Future State Value Stream Map.</u> The next step in AFPD Lean improvement is to create the future state value stream. Armed with the list of wastes created previously, the Lean improvement team generates ideas for how to eliminate this waste from the current state value stream. For the adjunct faculty orientation program, the list of identified wastes do not indicate any issues with the current course content in the orientation program. Most of the identified waste has involved program delivery. For this example, the Lean improvement team members should concentrate their efforts on removing waste in delivery when creating the future state value stream map.

       One radical change that can remove a great deal of the identified waste from the adjunct faculty orientation program's current state value stream is to move training activities to an online format. Although this would be a large undertaking up front, switching to online training provides the flexibility needed to execute a major rework of the program's value stream. To accomplish this, the Lean improvement team can create online content for the program, based around a modular delivery. In this system, learning material is divided into shorter training modules. Each module has a specific theme such as creating an effective syllabus or dealing with difficult students. Adjunct instructors can access the modules directly from electronic devices both on and off campus. They only have to take the modules they want, and they can take them in any order. The system even allows individual departments to add discipline-specific training to the orientation process for their adjunct instructors without having to deliver it to all adjuncts going through the orientation program.

There are some challenges created by going to an online format for this example. The first challenge is that results of the professional development department's adjunct faculty survey indicate that many adjunct faculty members enjoy instruction in the face-to-face format and benefit from the community of learning with other adjunct instructors. To address this challenge, the Lean improvement team can add an online discussion board that can allow adjunct faculty members to connect with professional development staff, full time faculty, and each other to discuss the material presented in the online training modules. This online connection can provide a place for participants to ask questions, exchange ideas, and arrange in-person meetings if desired.

A second challenge is getting adjunct faculty members to explore all the material provided in the orientation program. In the current state value stream, adjunct faculty must complete the entire program before they receive their certificate and stipend. This is beneficial because sometimes adjuncts are not skilled at assessing their own needs for professional development. Completing the entire program ensures that adjuncts are exposed to helpful material even if they initially do not feel they need it. The concern with going to an online, modular delivery is that this level of exposure to training material may be lost because adjunct faculty may not always self-select all of the training modules they need. To address this concern, the team can add an evaluation step at the beginning of the future state value stream. In this step, experienced personnel can evaluate the knowledge and skills of each participant. Based on this evaluation, professional development staff can create a customized training program for each individual adjunct instructor. To promote participation, the Lean improvement team can

create a new rewards system that provides adjunct faculty members with a stipend and certificate for completing their customized training program.

Creating the online learning modules for a redesigned adjunct faculty orientation program is a large undertaking. Fortunately, the college in this example already uses a highly flexible learning management system (LMS) to support both their in-person and online course delivery. The professional development staff can use the current LMS to create the online training modules. This can save costs because the college already has a contract for the LMS. In addition, college instructors and staff are familiar with the system, and most employees of the college already know how to navigate the LMS to create content and communicate with students.

By switching to an online delivery of the adjunct faculty orientation program, the Lean improvement team can remove the majority of the waste identified in the eight wastes exercise. Table 2 shows an example of the types of waste that the team can remove from the current state value stream. The Lean improvement team can work together to revise the processes of the original adjunct faculty orientation program to reflect the new online modular system and correct the flow and pull issues identified previously. The team leader needs to create a diagram of the revised value stream map on a white board or large flip chart. This way team can make changes until they gain consensus on a final version of the future state value stream map. Figure 3 shows an example of what this map may look like for the adjunct faculty orientation program. The final version of the future state value stream map becomes a guide for making the changes necessary to realize Lean improvement as shown in this example.

Table 2

Waste Removed from the Original Adjunct Faculty Orientation Program

Waste Type	Removed Waste
Transportation	Adjunct faculty transportation eliminated. Adjuncts no longer have to travel to and from the college to receive training. Guest speaker transportation eliminated: Speakers no longer have to travel to and from the college to deliver training.
Inventory	Printed material waste eliminated. Printed materials are not prepared for course delivery. All material is online.
Motion	Moving back and forth to class eliminated. All demonstrations are online. Going back to print forgotten documents eliminated. Adjuncts have everything they need for training provided at the point of delivery.
Waiting	Wait times for adjuncts to receive training eliminated. Adjuncts can access any training module at any time. Time to complete entire program reduced: Eliminating imposed wait times between training topics reduces the required completion time. Wait times to implement training eliminated. Adjuncts can implement specific training knowledge at the completion of each module.
Over Processing	Scheduling of training activities eliminated: There is no scheduling of training activities with online delivery
Over Production	Repeated material waste eliminated. Adjuncts can choose instruction based on their needs. Campus fliers for advertisement eliminated. Campus fliers will no longer be used as a form of advertisement, as they are not effective. Extra paper material waste eliminated. No paper materials are produced for instruction delivery. All material is available online.
Defects	Missed training days eliminated. Material is not delivered on a schedule so adjuncts can complete training modules at their convenience. Limits to question time eliminated. Question and answer function moved to online discussion boards. Lack of implementation support remedied. Adjuncts can always get help on the implementation of training topics from the online board. Participation conflicts eliminated. Adjuncts can take training at any time that is convenient for them.
Skills	Adjunct instructor skills and abilities included. The adjunct perspective was actively sought and used in the development of the future state value stream. Department chair support encouraged. All department chairs will be strongly encouraged by the team champion to promote the orientation program in their departments.

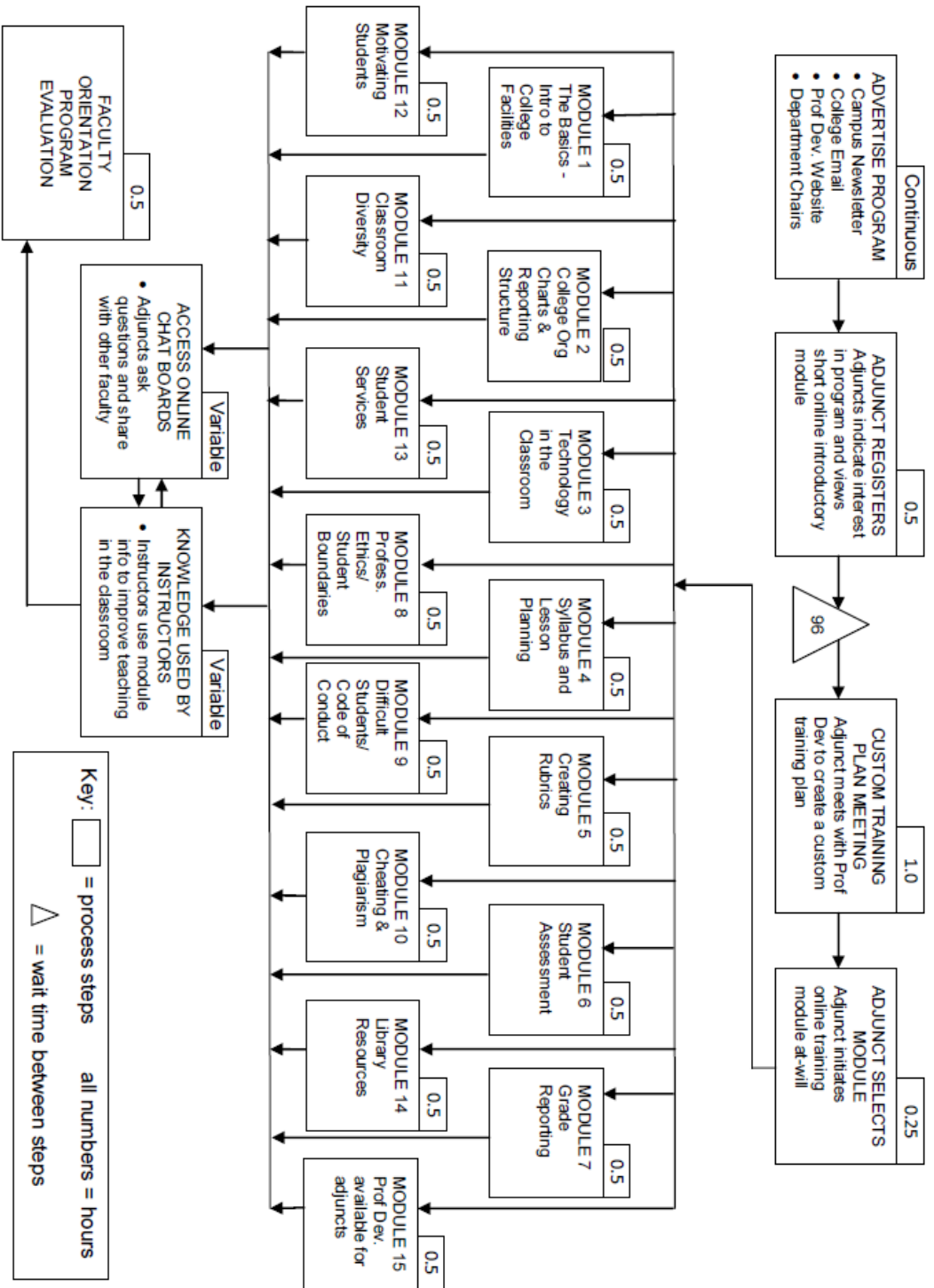*Note*. Developed by the author of this thesis.

Figure 3. Future state value stream map for the adjunct faculty orientation program. Developed by the author of this thesis.

<u>Do</u>

The next step in the AFPD Lean improvement model is to make changes to the current state value stream processes so that they reflect the future state value stream. For the adjunct faculty orientation program, this is going to require some major effort. Moving from a face-to-face delivery format to online delivery requires a complete rework of the course programming. The instructors for each module must put their material in an online format, and the support of the information technology department at the college is required to facilitate this process. The Lean improvement team must recruit faculty and staff to evaluate adjunct faculty and monitor the discussion boards. Not everyone may be supportive for what they may regard as extra work. There are also equipment costs associated with switching to an online format. For example, video equipment to film demonstrations is not readily available at the college; therefore, college personnel must purchase or rent it to create the online learning modules.

Because of the major rework required, the Lean improvement team must allow enough time for implementation. The team leader and the team champion, as well as all professional development personnel, should remain on the implementation team. The less experienced adjunct faculty member from the AFPD Lean improvement team can leave the team during the implementation stage, for he or she is not directly involved in training delivery. The team leader may want to recruit some new AFPD Lean improvement team members to assist with implementation. Reasonable choices are the assistant dean of online learning and a member of the college's information technology

staff. These two team members can help to facilitate the move to online modules for the adjunct faculty orientation program.

It is critical for the team champion and college administrators to make sure that the appropriate resources are free to assist with implementation and to communicate the importance of the project to all employees of the college. This can ensure that the project is a priority at the college and that department heads allow their faculty and staff to support it. The team leader must assign project goals to individual implementation team members. Each individual should be responsible for keeping his or her assigned tasks on schedule and for driving completion of the implementation stage to the agreed upon date.

Check

Once the future state value stream has been implemented, the next stage in the PDCA cycle for the AFPD Lean improvement model is the check stage. In this stage, the Lean improvement team evaluates the new adjunct faculty orientation program to determine if it is meeting the needs of the college's adjunct faculty and students. To save on cost, labor, and time, the team can adapt the college's current evaluation systems for use in program assessment at all four levels

Evaluate Adjunct Faculty Perceptions. To assess the new adjunct faculty orientation program at the perception level, the Lean improvement team can adapt the professional development department's original training class evaluation form for online use. The professional development staff can administer this adapted online evaluation to participants at the end of each training module. This can provide feedback on what participants think of the individual training modules. In addition, the team can administer

an expanded online survey to program participants after they complete their customized training plans. This can provide more detailed feedback on how adjunct faculty participants view the new process overall.

Evaluate Adjunct Faculty Learning. To assess the new adjunct faculty orientation program at the learning level, module developers can create short quizzes that test the key learning objectives for each training module. The module developers can administer these short quizzes online, both before and after module completion. Quiz scores can help the Lean improvement team evaluate whether or not participants are meeting the training module objectives. Comparing scores before and after module completion can help them to assess learning growth.

Evaluate Knowledge Deployment. To assess the new adjunct faculty orientation program at the knowledge deployment level, administrators or experienced faculty members should evaluate program participant teaching at the end of each semester. The results of these classroom evaluations can allow the Lean improvement team to determine if the new orientation program is actually improving adjunct faculty instructional practices. The college already has a program in place for conducting these evaluations on an annual basis, and the Lean improvement team can arrange to have this program expanded to make the evaluations more frequent for adjunct faculty orientation program participants.

Another feedback system that the Lean improvement team can adapt for evaluation at the knowledge deployment level is the college's course evaluation system. Instructors administer course evaluation surveys to students at the completion of each

class conducted at the college. The results of these surveys provide information on what students think of the faculty's performance and course content. The Lean improvement team can use the data from these surveys to determine if adjunct faculty orientation training results in improved student ratings of adjunct faculty instructional practices.

Evaluate Student Success. To assess the new adjunct faculty orientation program at the student success level, changes to the college's record system are necessary so that the Lean improvement team can obtain data that relates student persistence, transfer and graduation rates to instructor type, and training level. Once this change to the record system is complete, the team can analyze the data to determine if the new program is having any impact on student outcomes. The Lean improvement team may need to collect data over two to three years before meaningful information is available on how the orientation program effects graduation and transfer rates.

Act

In the final stage of the PDCA cycle for the AFPD Lean improvement model, the Lean improvement team reviews the information obtained during the check stage. The team identifies the project's successes and highlights areas that need further improvement. Finally, the team addresses the areas that they have highlighted for further improvement by starting the next cycle of PDCA in the AFPD Lean improvement model. This ensures continuous improvement of the adjunct faculty orientation program.

It is important at this stage to recognize the members of the Lean improvement team for their contributions and hard work. The Lean team leader can do this by planning a team party to celebrate the end of the first PDCA cycle of the AFPD Lean

improvement plan. The team leader and team champion can also provide public recognition for the team by acknowledging the program's successes at the college-wide semester kick-off meeting. To foster continued support and engagement for Lean improvement activities, the team leader should make sure that individual Lean team members are recognized, particularly the adjunct faculty team members. College administrators can grant adjunct faculty title or grade level promotions for their contributions to the Lean improvement team. Cash stipends are also a good way to reward adjunct faculty members for their contributions.

<u>Potential Benefits</u>

Because the previous example of AFPD Lean improvement model application was theoretical, actual results are not available for analysis. However, comparing the current and future state value stream maps in the example can provide some idea of the potential benefits that college administrators may realize by using the AFPD Lean improvement model.   The first benefit that may be realized is time-savings. The time required to complete all the training in the original orientation program has totaled eight weeks. If taken in sequence in the improved orientation program, adjunct faculty members can potentially obtain the same information in eight hours. Adjunct faculty can save even more time by not having to take training on material they already know. These time-saving changes, along with the on-demand nature of training module delivery, make it more likely that adjuncts will take part in the orientation program.

A second benefit of the future state value stream is cost savings. It is expected that initially costs are going to increase because resources are required to move the

training materials to an online format and to monitor the discussion boards. However, once the initial changes are implemented, the elimination of personnel and facility use for classroom training can lead to cost savings over time.   In addition, printed material is no longer going to be required because the department delivers all training material in an electronic format.

A final benefit of the future state value stream is an increased ability to demonstrate program results. The greatly enhanced evaluation system for the new orientation program can provide hard data to demonstrate the program's success for upper management and gain support for further Lean improvement projects. Analyzing this data also helps to highlight areas that need improvement as the team returns to the plan stage for another PDCA cycle.

CHAPTER 4

RESULTS AND DISCUSSION

This thesis identified five main challenges with using AFPD to improve community college adjunct faculty teaching practices and student success levels. The research and analysis completed in this study indicated that the AFPD Lean improvement model would be well suited for helping community colleges overcome these challenges and realize their goals.

The discussion in this section focuses on how the model addresses the five challenges presented in the problem statement of this thesis. It provides a detailed explanation of how the AFPD Lean improvement model helps community colleges overcome these challenges. Also included is an explanation of how the AFPD Lean improvement model discourages the most common causes of Lean failure. In addition, it examines how the model addresses Womack's (2008) three recommended areas of purpose, process, and people.

Adjunct Faculty and Student Needs

The first challenge identified in the problem statement is that traditional community college professional development programs are not set up to meet the needs of adjunct faculty or students. This is because professional development personnel typically design their programs around the needs and wants of full-time faculty. The AFPD Lean improvement model corrects this problem by focusing on the proper customer groups in AFPD Lean improvement activities. The model defines adjunct

faculty as the primary internal customer of AFPD, and students as the primary external customer. This ensures that a college can focus Lean improvement activities specifically around these two customer groups, which makes it more likely that their needs are going to be met by the improved AFPD processes.

The model actively seeks the input of both adjunct faculty and students in the value definition step by using feedback mechanisms such as adjunct faculty surveys and student evaluations. This model also seeks the input of experts in the fields of professional development and teaching and learning to ensure that adjunct faculty and student needs are met. This is required because these two customer groups often do not have the background to determine which activities are going to provide them with the greatest benefits. Lastly, the model requires the inclusion of adjunct faculty on the Lean improvement team. This guarantees that the Lean improvement team is going to consider adjunct faculty perspectives and input in every stage of the Lean improvement model.

<div align="center">Adjunct Faculty Participation</div>

The second challenge identified in the problem statement involves adjunct faculty participation in AFPD. Community colleges often struggle with getting adjunct faculty to participate in professional development activities. Generally, this relates to poor program timing, poor communication of available resources, and a lack of incentives for adjuncts to participate. Unfortunately, providing training and support for adjunct faculty is never going to produce positive change if adjunct instructors do not take part in it. The AFPD Lean improvement model addresses this challenge in two main ways.

The first way that the model fosters increased participation by adjunct faculty in AFPD is by requiring adjunct faculty representation on the Lean improvement team and recommending public recognition for their contributions and accomplishments. This lends credibility for AFPD among adjunct faculty at the college. Adjunct faculty are going to be more confident that AFPD programming is relevant to them if their perspective is represented in the development of that programming.

The second way that the model fosters increased participation by adjunct faculty in AFPD is that it requires input from this targeted group for the value definition step of the Lean improvement model. Giving adjunct faculty a voice in determining which AFPD activities are provided and how those activities are delivered ensures that their particular needs are recognized and addressed when improving AFPD processes. This leads to improved communication between adjuncts and college administrators and fosters greater interest in AFPD training among adjunct faculty. It also leads to training delivery that is more convenient for adjuncts, thus increasing their ability to attend training programs.

The third way that the model fosters increased participation by adjunct faculty in AFPD is to focus on removing waste from AFPD processes with the eight wastes tool and on improving flow and pull of the value stream. These activities increase the effectiveness and efficiency of AFPD training and also increase the timeliness of training delivery. If the amount of time required for adjunct faculty to acquire valuable knowledge and skills is reduced and if they are confident that AFPD is going to lead to

better outcomes in their classrooms, they are going to be more incentivized to participate in training.

<div align="center">Training Efficacy</div>

The third challenge identified in the problem statement involves the efficacy of professional development training. Unfortunately, it is common that faculty members often do not use in practice what they learn from professional development programs. The AFPD Lean improvement model addresses this challenge in a few ways. As discussed previously, the value definition phase of the model seeks input from adjunct faculty, students, and experts to determine what the two customer groups need to be successful. This information allows professional development departments to determine which activities can produce the best results.

Once professional development departments know what types of training and support are most beneficial for adjunct faculty and students, the AFPD Lean improvement model provides a systematic method for determining the most effective and efficient way to provide that training and support. Using the five Lean principles and Lean tools such as the eight wastes and the PDCA cycle, the model describes in detail how a professional development department can evaluate their current systems, develop a plan for improving those systems, implement that plan, and evaluate the outcome. By ensuring that adjunct faculty can obtain skills and knowledge in an effective and efficient manor, the model helps colleges ameliorate the negative impact that adjunct faculty may have on their students.

Program Evaluation

The fourth challenge identified in the problem statement involves the weaknesses of conventional professional development evaluation systems. Traditionally, evaluation methods have been limited to participant feedback. This lets a professional development department know if faculty members like the training and support they provide, but it does nothing to help them determine if the training produces the intended results. The AFPD Lean improvement model resolves this issue by including a comprehensive evaluation system based on Kirkpatrick's Four Levels of Evaluation. The first three levels of the evaluation system determine if adjuncts approve of the training they receive, meet the learning objectives of the training, and deploy what they have learned into the classroom. This fourth level helps to determine the impact of AFPD training on student success metrics. It provides a way to tie AFPD training to a community college's goal of increased student success.

Funding

Increasing competition and the after effects of tough economic times have resulted in new financial pressures for community colleges. They are expected to do more with less in terms of supporting their students and improving student success metrics. Being able to maintain and improve the quality of the services they provide while keeping costs down is a priority for community colleges. The AFPD Lean improvement model helps them to do this in several ways. First, it allows community colleges to provide a high level of support for adjunct faculty while using fewer resources. The model's value stream mapping process provides a systematic method for

professional development departments in community colleges to eliminate waste from their current systems. This removes ineffective programming and promotes the efficient delivery of training activities.   The result is savings in both time and costs.

Another way that the AFPD Lean improvement model helps community colleges with finances is that the model's overall goal is improved student success metrics. The model is specifically designed to use Lean tools and techniques to accomplish this goal. Using the model as presented should result in increased student success and satisfaction at the college. Considering the increasing use of performance-based funding for community colleges, improved student success metrics can result in more funding from state and local governments. In addition, increased student satisfaction levels should help increase enrollment at community colleges. This can result in more financial support from state and local sources that use enrollment to determine funding levels.

A final way that the AFPD Lean improvement model helps community colleges save on expenses is that it helps to reduce adjunct faculty turnover. There are direct costs associated with adjunct faculty turnover, such as the expense of hiring and training replacements. The indirect costs of adjunct faculty turnover, such as loss of productivity and reduced institutional morale, only add to the problem. Betts and Sikorski (2008) estimate that the costs associated with adjunct faculty retention and recruitment can be ten times the amount that these individuals are paid to teach.   The AFPD Lean improvement model helps retain adjunct instructors by providing them with a voice in improvement activities at the college. This model also encourages a collaborative environment between adjuncts and permanent staff. The more adjuncts are integrated

into the college environment and the more they feel included in decision making, the more likely they are to be retained (Pearch & Marutz, 2005).

Avoiding Lean Failure

Despite the demonstrated success of Lean quality improvement in both higher education and in other industries, Lean methodologies are often misunderstood and misused. This can lead to rapid Lean initiative failure. Womack (2008) suggests that a Lean practitioner examine the purpose, processes, and people of an organization to ensure the success of a Lean initiative. Exploring how the AFPD Lean improvement model addresses these three areas can support the robustness of the model.

Purpose

Womack's first recommendation to ensure the success of Lean improvement is to examine the purpose of an organization. Having a clear purpose ensures that an organization has clearly defined the customer problems it solves. This keeps an organization from focusing on the wrong things in Lean improvement. The AFPD Lean improvement model has a very clearly defined purpose, which is to improve the adjunct faculty's instructional practices and improve student outcomes. This helps the AFPD Lean improvement team keep its focus on meeting the needs of these two customer groups. Without a clear purpose, the AFPD improvement team may shift focus to other groups at the college. For example, they may choose training activities based on the preferences of professional development department employees, or they may only choose activities that result in cost reductions to serve the needs of the budget office. Focusing efforts in these areas are less likely to advance true objectives of AFPD.

In addition to avoiding improper focus, a clear purpose helps an organization prevent scope creep. An example of scope creep for AFPD would be to add the goal of improving adjunct faculty health and wellness midway through the improvement initiative. Although health and wellness are important, training classes on this topic for adjunct faculty members do little to improve their instructional practices or to increase the success of their students. Adding this goal does not advance the original objectives of AFPD as defined in this thesis, and it pulls focus from what is important.

<u>Process</u>

Womack's second recommendation to ensure the success of Lean improvement is to examine the processes in an organization. In a Lean organization, every process should ultimately provide some value for its customers. In addition, a Lean organization should conduct processes in the proper order and at the right time to create the maximum value for its customers. The AFPD Lean improvement model addresses process in the plan stage. This model contains a clear method for removing waste from the current state value stream and improving flow and pull to create the future state value stream. After executing the plan stage of the AFPD Lean improvement model, AFPD programs should contain only those processes that create value for adjunct faculty as the internal customers, and students as the external customers. It also ensures that those processes are executed in the most effective and efficient manner. This allows a college to realize the desired outcomes of AFPD in the least amount of time and with the fewest resources.

People

  Womack's final recommendation to ensure the success of Lean improvement is to examine the people involved in Lean initiatives. This is the most important area to explore because the human side of Lean improvement is the most common source of Lean failure. People-related issues such as poor leadership, a lack of management support, insufficient Lean training, and disengaged front-line employees are all acknowledged as common causes of Lean failure (Barry, 2013; Dahlgaard & Dahlgaard-Park, 2006; Liker & Rother, 2011).

  The AFPD Lean improvement model addresses these potential human-related pitfalls in three main ways. The first way is through the makeup of the Lean improvement team. The model calls for a team champion that ensures the support of higher administration at the college. It also requires a team leader, who accepts responsibility for making sure Lean team members are properly educated on Lean improvement. This model recommends including both adjunct faculty and professional development trainers on the Lean improvement team for their input as employees on the front line of AFPD. This prescribed AFPD Lean improvement team makeup addresses several of the listed causes of Lean failure.

  The second way the AFPD Lean improvement model addresses the human side of failure is to have the Lean team leader personally walk through every process step in the creation of the current state value stream. This allows every front line employee to provide input on how processes run in AFPD so that nothing is missed in this critical stage. Finally, the third way the AFPD Lean improvement model prevents human-

related failure is that it specifically calls for recognizing Lean improvement team

members for their hard work and accomplishments. This step fosters continued

engagement among team members for Lean improvement activities at the college.

CHAPTER 5

SUMMARY, RECOMMENDATIONS,
AND CONCLUSIONS

Summary

Community colleges are a critical part of the higher education system in the U.S. These colleges open higher education to a greater number of Americans because of their relative affordability and convenience. It is critical for community colleges to keep operating costs down while providing high quality educational services to their students. The use of less expensive adjunct faculty for instruction has been an effective way for community colleges to control costs. Unfortunately, it has also created some unintended consequences for their students in the form of reduced graduation, transfer, and persistence rates.

Studies have shown that adjunct faculty members have lower performance levels than full time faculty in some key areas that promote student success. Professional development training has been identified as a logical and convenient way for community colleges to provide adjunct faculty members with the additional skills and knowledge they need to close this performance gap. Unfortunately, the traditional structure of professional development at the community college creates some challenges when trying to use it as vehicle for improving adjunct faculty instructional practices and increasing student success levels. These challenges include a lack of focus on adjunct faculty and student needs, low adjunct faculty participation levels, poor training knowledge deployment, shallow evaluation systems, and limited funding. Community colleges must

address and overcome these challenges if professional development is going to be useful

in helping these colleges achieve their goals.

This thesis has presented a Lean improvement model for community colleges to

use in AFPD to improve the instructional practices of their adjunct faculty and

subsequently to increase student success rates. The purpose of the model is to help

community college administrators overcome the challenges of using professional

development to meet these objectives. This study has used research on Lean in higher

education and in other industries to develop the AFPD Lean improvement model. The

model combines the best tools, techniques, and theories from this research into one

system for AFPD, including the five principles of Lean, the PDCA cycle, value stream

mapping, and the eight wastes. In addition, this study has used research on corporate

training to develop a comprehensive evaluation system for the model, based on

Kirkpatrick's four levels of training evaluation.   The design of the evaluation system is

broad enough so that a Lean improvement team can use it to assess AFPD's impact on

adjunct faculty instructional practices and student success metrics.

In addition to the AFPD Lean improvement model, this thesis also has provided

an example of how community colleges can apply the model in practice. Although the

application is theoretical, the example subject is a professional development program at a

real community college in the U.S. This thesis has demonstrated the application of the

model in an environment common to many community college professional development

departments.   The intent of the example is to make it easier for community college

administrators and professional development personnel to apply the Lean tools and

techniques in the model to their own AFPD programs.

This study demonstrates that Lean theories, tools, and techniques can be adapted

for use in a community college AFPD to help colleges improve the instructional practices

of their adjunct faculty and increase the success of their students. The model specifically

addresses the five main challenges of using professional development for this purpose.

The model also contains processes that address the most common causes of Lean failure.

This supports the robustness of the model for use by organizations that are new to Lean

improvement.

Weaknesses and Recommendations
for Further Research

The main weakness of the AFPD Lean improvement model is that it has not been

validated through a practical application at a community college. Until a community

college actually uses the model to improve their AFPD processes from conception

through the evaluation stage, the true benefits remain uncertain. Another potential

weakness of the model is the time required to determine if the graduation rate and

transfer rate success metrics have improved.   The standard time for graduation and

transfer rate evaluation is three to six years from the time an individual begins his or her

education at a community college.   It can take several years to determine if applying the

AFPD Lean improvement model affects these metrics. Although a Lean improvement

team can evaluate some shorter-term metrics, determining whether the model helps a

college meet all of its student success goals requires a long-term investment in the project.

It is intended and desirable that a community college maintains its focus on continually improving the processes in AFPD over the long term. The model in this thesis provides a mechanism to encourage this improvement process in the cyclic nature of its PDCA framework. However, the reality is that many organizations abandon Lean improvement methods after they realize some initial benefits. Unless higher administration at the college can foster continued enthusiasm for Lean improvement of AFPD, maintaining interest long enough to evaluate all of the objectives of the program is going to be difficult.

The next step is to apply the Lean improvement model to the AFPD programs at an actual community college in the U.S., for this is the only way to fully validate the model. Based on the results of a real application, the model can be revised to correct any difficulties or shortcomings discovered. It would be most beneficial if several community colleges would apply the model to their AFPD services. This would provide a more complete set of data for improvement of the AFPD Lean improvement model.

Conclusion

It is expected that the AFPD Lean improvement model developed in this thesis can help community colleges professional development departments improve the services they provide to adjunct faculty. This can help ameliorate the negative effect that adjunct faculty may have on the success rates of community college students. It is reasonable to expect that community colleges can realize the same type of benefits that other industries

experience with Lean. In fact, higher education has already realized benefits in a small number of applications to business operations. It indicates that higher education can be successful in incorporating Lean practices and principles into the unique culture of colleges and universities.

It is true that applying Lean in the community college environment is going to be challenging; however, this is true of any organization. Lean requires a high level of commitment from upper management, and it requires employees to have the right type of mindset for a Lean initiative to be successful. If a community college professional development department can gain the support from at least one top-level administrator, and if they can foster a workplace climate of trust and acceptance with adjunct faculty, the benefits that they can realize through the application of Lean are immense. There is even hope that the successful application of the AFPD Lean improvement model in professional development can lead to Lean improvement initiatives in other areas of the community college operation.

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