

DEVELOPMENT OF HIGH SCHOOL SCIENCE TEACHERS AS TEACHER  
LEADERS AT VARIOUS STAGES OF THEIR CAREER: A MULTIPLE CASE  
STUDY

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by

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LEADERS AT VARIOUS STAGES OF THEIR CAREER: A MULTIPLE CASE  
STUDY

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*This thesis is dedicated to the memory of my father, Aditya Kumar Sinha;  
my inspiring mother, Pranati Saha; and my ever supportive advisor,  
Dr. Deborah Hanuscin.*

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## ABSTRACT

This dissertation study investigated the processes and pathways through which teachers in different career stages develop as teacher leaders. Teacher leadership involves an amalgam of skills and personal features; it takes place when an individual is willing to take charge and respond to the demand of a particular situation, with the intention of both personal and common good that finally results in improvements in student learning. I used a multiple case study approach to study the development of three high school science teacher leaders. Identity was used as the theoretical framework. The results indicated both similarities and differences in teachers' processes and pathways toward leadership development. The overall leadership development process across all three participants involved an alignment and synergy among their leadership views, leadership practices, and identity as leaders; however, the particular pathways of leadership development were unique for each teacher depending upon their personal priorities, school context and prior life experiences. This study adds to a growing body of knowledge about teacher leadership identity and provides new information regarding teachers' capacity for leadership at different stages of their careers. Identification of various leadership pathways and contextual factors related to enhancement of teacher leadership can help professional developers, teacher educators, school administrators and principals in tailoring programs according to teachers' individual needs.

## CHAPTER ONE

### THE INTRODUCTION

#### **Introduction**

Throughout the 20<sup>th</sup> century, principals were viewed as the primary (and often sole) school leaders. In the latter part of the century, however, educational researchers gradually started exploring the role of *teachers* as leaders (Kinicki & Schriesheim, 1978) and advocacy for ‘teacher leaders’ began. Sergiovanni, Professor of education and administration of Trinity university, vehemently said that “the legitimate instructional leaders, if we have to have them, ought to be teachers.” (Brandt, 1992).

At the same time, during the last part of 20<sup>th</sup> century, policy makers were promoting teacher leadership. Two educational reports, *Teachers for the 21<sup>st</sup> Century* by Carnegie Forum in 1986 and *Tomorrow’s Teachers* by the Holmes Group in 1986 (Silva, Gimbert, & Nolan, 2000; Wasley, 1991) formed the basis for teacher leadership opportunities and resulted in many programs – career ladder, master, mentor, and lead teacher programs (M.A. Smylie & Brownlee-Conyers, 1992). For example, the career ladder programs, which started during the 80s, provided teacher leadership options (with regard to curriculum and staff development), hierarchical positions associated with rewards/higher salaries, continuous professional development (PD), and recognized teaching excellence (Bennion, 1987; Malen & Hart, 1987; Mertens & Yarger, 1988; York-Barr & Duke, 2004).

Thus, by the end of the last century, the idea of teachers as leaders was growing in popularity. Effective teacher leadership was viewed as important for improving student learning, as well as a necessary component for implementing and sustaining curriculum

reforms (Larkin, Seforth, & Lasky, 2008). As a result, the number of research studies focusing on teacher leaders increased. At the same time, the formal, hierarchical and traditional views of teacher leadership seemed to be changing ( Beachum & Dentith, 2004; Collay, 2006; Hunzicker, 2012; Margolis & Deuel, 2009; Melville, Wallace, & Bartley, 2007; McCay, Flora, & Hamilton, 2001; Nicolaidou, 2010; Ovington, Diamantes, & Roby, 2002; Rizvi & Elliot, 2005).

In 2004, York-Barr and Duke conducted a comprehensive review of the literature on teacher leadership, with the purpose of synthesizing current knowledge in the field, as well as fruitful venues for further research and investigation. They identified seven dimensions of practice common to teacher leaders (Table 1). They found teachers' leadership roles do not have any clear cut definition or boundary, but rather are more need-based and context-specific. The researchers emphasized that teacher leadership related to instruction and practice would contribute more towards student achievement gains rather than leadership activities related to organizational levels. Yet they also noted the role of principals is crucial for success and failure of teacher leadership.

Teacher leadership ability does not reside within a few formally recognized teacher leaders; instead many teachers have the capacity to emerge as leaders depending on the context and need. York-Barr and Duke (2004) pointed out, however, that few studies have examined the process teachers go through to develop as 'teacher leaders'. Furthermore, though teacher leaders are normally accomplished teachers who are respected by their colleagues, it is not clear at which stage of their career teachers are 'ready' for leadership. Systematic and intentional efforts to provide opportunities and support to teachers with regards to school leadership is lacking.



Table 1 SEVEN DIMENSION OF TEACHER LEADERSHIP (York-Barr & Duke, 2004)

Dimensions of Teacher Leadership Practices	Examples
Coordination and management	Coordinating daily schedules and special events; participating in administrative meetings and tasks
School or district curriculum work	Selecting and developing curriculum; defining outcomes and standards
Professional development of colleagues	Mentoring other teachers; engaging in peer coaching
Participation in school change and improvement initiatives	Participating in research, notably action research; taking part in school wide decisions
Parent and community involvement	Becoming involved with parents; encouraging parent participation; working with the community and community organizations
Contributions to the profession of teachers	Participating in professional organizations; becoming politically involved
Preservice teacher education	Building partnerships with colleges and universities to prepare future teachers

### Problem

Within the current body of literature, researchers have examined teacher leadership as seen through the eyes of practitioners and administrators (Angelle & DeHart, 2011; Collay, 2006; Emira, 2010), characteristics and influences of various teacher leadership degree courses (Leonard, Petta, & Porter, 2012), the impact of different teacher leadership workshops and projects (Adams & Gamage, 2008; Blackman, 2010; Frost, 2012), the influence and relation of school principals and teacher leadership (Carver, 2010; Ghamrawi, 2011), ways of leading within classroom and for school improvement (Jacobson, 2011; Loeb, Elfers, & Plecki, 2010), and, finally, what factors influence leadership growth and construction of leadership identities (Howe & Stubbs, 2003; Lewthwaite, 2006; and Kenreich, 2002). Although we know a great deal regarding

these aspects of teacher leadership, we know very little about the process by which teachers become leaders (Harris & Muijs, 2002; Komives, Owen, Longerbeam, Mainella, & Osteen, 2005; Lewthwaite, 2006; Martinez, 2004; York-Barr & Duke, 2004).

Researchers have not delved deep to find out how teachers become teacher leaders, the route they take, whether that route can be generalized, and what this process might look like for teachers at different career stages. Ultimately, such information would be of importance to supporting the development of teacher leadership, and would inform professional developers and administrators about the design of programs to be tailored to teacher leaders' individual needs.

### **Context**

*Leadership in Freshman Physics*, a National Science Foundation (NSF) funded five year Math and Science Partnership (MSP), aspires to develop teacher leadership capabilities among high school teachers. The program is designed to support 9<sup>th</sup> grade teacher leaders in the successful implementation of 'Physics First' (PF), a nontraditional curriculum sequence that advocates the teaching of physics prior to chemistry and biology. This program specifically focus on "meeting national needs for teacher leaders/master teachers who have deep knowledge of disciplinary content for teaching and are fully prepared to be school- or district-based intellectual leaders in mathematics or the sciences"(NSF, 2010). Aligning with this need, this program is designed to provide needed PD to enhance participating teachers' leadership capacity, content knowledge, and pedagogical skills.

One of the major foci of the summer academy is developing participants' leadership capacity to serve as advocates for the program, innovators in applying

research-based pedagogical strategies, and stewards of their profession by contributing both to their own and as well as colleagues' professional growth (Lieberman & Miller, 2004). During the summer institutes, the teachers attend a series of weekly full-day leadership sessions. These sessions are designed to familiarize teachers with existing teacher leadership models, build their repertoire of leadership knowledge and skills, helping them in forming a shared vision of leadership, and finally support them in developing a leadership action plan. In addition to these sessions, this program also aims increase their confidence and help them explore the leadership capabilities within themselves during the academic year. For example, teachers discuss their own views of leadership, explore roles teacher leaders can play, and consider how to address challenges and barriers, such as reluctant colleagues. Teachers are supported in identifying and narrowing down their leadership action plan goal, means of addressing it, and ways of sharing their outcomes with colleagues.

### **Research Questions**

The purpose of this dissertation study is to investigate and describe the process of growth and development of teacher leaders over their three years of participation in the *Leadership in Freshman Physics* program. Since participants in this program are at different points in their profession, I chose to focus on the leadership development of teachers at different career stages. The fundamental intention is to investigate the 'how' component of teacher leadership, i.e., how teachers become leaders.

By growth and development, I mean the process teachers go through during their journey of becoming a teacher leader and the eventual route they pursue. The term route indicates the pathways they follow (in terms of dimensions of leadership practice) as they

become teacher leaders. Since every participant teacher brings in their own perspective of leadership and work in different school context, I expect that their leadership pathways would not be generic, but to some extent individualized. For this reason, teachers' leadership activities are examined for similarities and differences amongst them. The overarching question that will guide the research is *How do teachers with various years of teaching experience develop as teacher leaders?* Two sub questions in relation to this include:

- Through what processes and pathways do teachers develop their identity as teacher leaders?
- What differences or commonalities with regard to their leadership practices, if any, were evident for teachers with varying years of teaching experience?

### **Theoretical Framework**

Identity serves as a theoretical framework for this study. This framework is not only popular within the educational arena (Gee, 2000; Settlage, Southerland, Smith, & Ceglie, 2009) but also in science education (Roth and Tobin 2007). Identity is defined as the “characteristics of the self that one believes, in isolation or combination, to be unique to the self” (Ashmore, Deaux, & McLaughlin-Volpe, 2004, p. 82) and also as “something deeply entrenched in the individual, as a person’s innermost attitudes and feelings”(Lührmann & Eberl, 2007, p. 117). As defined by Gee (2000), identity also encompasses the perception of others and way s/he is recognized in any given context; that is, “...when any human being acts and interacts in a given context, others recognize that person as acting and interacting as a certain ‘kind of person’ or even as several

different ‘kinds’ at once” (Gee, 2000, p. 99). In sum, an individual’s identity is an amalgam of unique personal features, and the way those are presented and finally comprehended by others, which ultimately results in the association of a particular image with that individual.

Leadership identity development is a complex process, continuous in nature, grows with time, and occurs within a social context (Day & Harrison, 2007; Hogg, 2001). Teacher leadership identity formation, in particular, has been described as a cumulative process facilitated by feedback from others, personal experiences, new roles, and relationships (Gonzales & Lambert, 2001). This development of teacher identity occurs within social, socio- interactional, organizational, socio-historical situations (Varelas, House, & Wenzel, 2005) through collaborative exchanges among colleagues (Cohen, 2010).

Two existing models have been proposed that have relevance to leadership and identity development and that informed the present study. Palus and Drath (1995) provided a leadership developmental program model that highlights a cyclic process of three time dependent categories. These include *readiness for development, developmental process, and outcomes*. Although not an explicit part of their model, leadership identity development could be considered s an important aspect of the leadership *developmental process*. Through a grounded theory study, Komives, Longerbeam, Owen, Mainella, and Osteen (2005; 2006) described a six stage process of development of leadership identity– *awareness, exploration/engagement, leader identified, leadership differentiated, generativity and integration/synthesis*. These stages are not compartmentalized; rather, the authors conceptualize each stage as ending with a transition that prepares an

individual for the next stage. Five factors (developmental influences, developing self, group influence, changing view of self with others, and broadening view of leadership) influence the development of leadership identity (Komives et al. 2005).

### **Significance of the Study**

Researchers have recommended investigating how teachers develop into leaders and how leadership roles are differentiated according to different contexts. Current studies have investigated attitudes of leadership, different forms of leadership, factors affecting leadership, applicability of leadership development models, and the role of principals. However, there has been no study so far exclusively focused on the process of teacher leadership development and how it may vary for teachers at different career stages. Thus, this study will add to a growing body of knowledge about teacher leadership identity and is also hoped to provide new information regarding teachers' capacity for leadership at different stages of their careers.

On a practical level, teacher leadership has lately been recognized as a catalyst for change, an indispensable element to sustain curriculum reform efforts, and an important aspect for promotion of student learning (Larkin, Seforth, & Lasky, 2008; York-Barr & Duke, 2004). This degree of importance can also be gauged from the objective of the National Science Foundation's Math and Science Partnership program to "prepare highly qualified, experienced teachers to become exceptional Teacher Leaders" (NSF, 2010). Thus it stands to reason that in order to prepare teacher leaders we need to know the process of their growth from teachers to teacher leaders. As such, improving our understanding of the leadership pathways of teachers will better equip us to support them in their development as leaders. Through understanding teacher leadership development,

the design and evaluation of professional and leadership development programs can be improved. Information gathered from focusing on growth of teacher leaders at different career stages can inform professional developers regarding differentiating programs according to teachers' individual needs.

In the K12 arena, identification of various leadership pathways and contextual factors related to enhancement of teacher leadership can inform teacher educators, school administrators and principals at large. The findings of this study may assist teacher educators and professional developers in promoting the leadership development of both pre and in service teachers. Principals and school administrators, in turn, can create favorable conditions for leadership development for teachers at different points in their profession.

## CHAPTER TWO

### LITERATURE REVIEW

#### **Introduction**

In order to get a comprehensive view of the nature of research on teacher leadership and the major findings, I mined the available literature of both this and the last century via the internet. The key words used for this search were ‘teacher leadership’ and ‘teacher leaders’. The popular databases including Education Full Text, Educational Resource Information Center (ERIC) and Google Scholar were the main resources for this search. In addition to that, I also looked through the reference list of articles identified. It should be noted here that internet search did not yield much literature related to teacher leadership during the last century. Studies found were mostly during post 90s and some post 80s, which sometimes other than describing current conditions took some retrospective stance to examine changing conceptions and practices of teacher leadership. This is supported by Wasley’s (1991) discussion regarding teacher leadership being new during that time, and Leithwood and Jantzi’s (1999) remarks of empirical studies on teacher leadership effectiveness being scant. I surveyed the titles and abstracts and only those articles which reported results based on empirical research related to teacher leadership were included in the review. Thus, this review draws mainly from the empirical sources; articles without any research were not included in the study – such as suggestions to principals on fostering teacher leadership (Clark & Clark, 2005; Singh, 2011); description of licensing teacher leaders (Martin & Coleman, 2011); suggestions regarding action research and teacher leadership (Diana, 2011); suggestions for preservice teachers to become teacher leaders while they are studying (Dunlap & Hansen-



Thomas, 2011). However, it should be mentioned here that in order to get a historical perspective, articles and book chapters providing information regarding development of teacher leadership were included although they were not always empirical in nature.

The purpose of this literature review is manifold. The primary goal is to synthesize the current teacher leadership research and identify gaps which require further investigation. To that end, an evaluative report describing, summarizing, and clarifying the literature will be presented. This will illustrate the way teacher leadership is being studied, highlight flaws, if any, in previous research and outline gaps in the literature. This will not only provide the context for my research, but also justify my investigation with respect to its suitability and the contribution it would make in this field.

With this aforementioned intention, the paragraphs henceforth have been organized into several sections. To make this literature review articulation more systematic and comprehensible, the literature with regard to teacher leadership is grouped into two main areas – conceptions of teacher leadership over time and seminal research on teacher leadership.

### **Conceptions of Teacher Leadership**

Teacher leadership is a relatively new concept; historically, there has been a shift in how ‘leadership’ is defined in schools. Below, I outline the ways teacher leadership has been viewed in the previous century. Then, I depict how those notions have changed, giving way to various other nontraditional ideas. Finally, I describe contemporary and emerging conceptions of teacher leadership as proposed by various scholars and researchers.

## **Historical Views of Teacher Leadership**

Academicians and researchers have shown interest in both the areas of teaching and leading for decades. Previously leadership activities, in general, were equated with the endeavor of teaching. Smith (1928) and Swartz (1938) addressed industrial leaders and industrial supervisors as teachers. Smith (1928) said every industrial leader inevitably shares a teaching relation with his followers as he knows his men, their attitudes, abilities, individual differences and finally it was his responsibility to train them (Swartz, 1938). A person serving in the position of manager, supervisor, or any other position of authority in a factory setting is termed as an industrial leader in this context. However during the latter part of the 20<sup>th</sup> century, teaching and school work were connected to leadership. In his review of literature regarding leadership in various fields, Jenkins (1947) had a separate section on studies of leadership in school context. In another instance, a community development specialist pointed out that the abilities and training of teachers were not used optimally in community leadership (Barnes, 1956). This again supports the effort to directly link teaching and leadership.

The concept of leadership gradually became popular in the teaching profession during the last century. It brought with it all the innate image of authority, hierarchy, formal and positional aspects very much prevalent in the industrial scenario of leadership (Rost, 1993). Most of the studies of leadership carried during that period took place in industrial and military settings and the ones which were conducted in educational institutes focused upon principals, superintendents, department heads and administrators (Kinicki & Schriesheim, 1978). Thus, persons who held the position of authority were looked upon as the leaders in school contexts during most part of the last century. The

principals and the administrators assumed the role of educational leaders (Miel, 1973) and teachers worked under their leadership (Marks, 1983).

Traditional and formal conceptions of teacher leadership can be said to be the only prevailing notion during most of the last century. The focus on leadership roles of principals, superintendents, head teachers, master teachers, administrators, department chairs, during the last century (Pounder, Ogawa, & Adams, 1995; Stogdill, 1974; Wasley, 1991) rather than on teachers (Brownlee, 1979) shows the importance given to positional and hierarchical conceptions of leadership (Darling-Hammond, Bullmaster, & Cobb, 1995) in educational arenas. Principals were viewed as the only school and instructional leaders, with teachers being confined to their classroom roles (Lieberman, 1988; Sharon & Highsmith, 1986). Administrators were assumed to be the educational leaders in schools and teachers were looked upon solely as curriculum planners for students (Brownlee, 1979; Miel, 1973). According to Katz & Kahn (as cited in Brownlee, 1979) teacher leadership in the school and outside the boundaries of the classroom had not been explored until that time. Moreover, relationships in educational settings were found to be authoritative with teachers' position being at the end, just before the pupils in an authority relationship flow chart (Campbell, Corbally, & Ramseyer, 1977). The focus on these types of formal positions appeared in the international literature as well. Research in UK concentrated on 'head teachers' and thus promoted 'the great man theory' of leadership (Harris & Muijs, 2002).

During later part of the century, a growing discomfort regarding the notion of the principal being the only leader in school was witnessed, and the leadership potential of teachers was acknowledged. In 1974, Michael Andrew pointed out how school leadership

positions in America had characteristically been non-teaching roles and advocated that leadership be placed into the hands of teachers. It was post 1970s when educational researchers gradually started exploring the role of teachers as leaders (Kinicki & Schriesheim, 1978). Teacher leadership became popular as an element of reform strategy during 1980s (Little, 2003; York-Barr & Duke, 2004). For example, professional and scholarly literature started advocating teacher leadership not only to be a linchpin for school improvement but also for the development and professionalization of teachers (Smylie, Conley, & Marks, 2002). Thus, the concept of teachers being the leaders at the grass root level started gaining ground. To that end, York-Barr & Duke (2004) discussed various educational initiatives that promoted active participation of teachers in leadership – career ladder, mentor teacher plans, merit pay programs. Wasley (1991) described the roles of master teachers, grade-level chairs, and staff-development specialists as new teacher roles. However, these roles also had a positional essence in them. Thus, both the so called old and new roles for teacher leaders during the last century were formal ones. In fact, the prevalent notion during that time, as highlighted and assumed by various educational reports, was that teacher leaders would be persons distinguishable from their colleagues in terms of degrees, licenses, or other differentiating factor (Lieberman, 1987) and not somebody ‘within’ them. This implicitly shows that teacher leadership was not seen as something which could be practiced by all teachers.

Although teacher leadership has a long history, it became prominent during the 80s and 90s (Little, 2003) and the present discussion will give an example of how researchers have tracked that progression. Katzenmeyer and Moller (2009) illustrated the evolution of teacher leadership in a very simple and succinct way (Table 2). The authors

say that during the 80s teacher leadership was associated with position and authority. Teacher leadership was exhibited by department heads, chairpersons, team leaders and they were also expected to have mastery over their subjects. In early 90s, the focus transitioned from individual to whole school reform. Teacher leaders played a role in efficient governance of schools by taking part in shared decision-making. The late nineties saw the effort shifted towards collective teacher leadership by the creation of professional learning communities. Finally, during this century, the focus towards accountability opened the gate for teacher leadership roles related to instructional leadership. The following table summarizes the views of Katzenmeyer and Moller (2009) regarding teacher leadership evolution.

Table 2: EVOLUTION OF TEACHER LEADERSHIP FROM 1980 TO 2000 (*Katzenmeyer and Moller, 2009*)

1980s	Department Chairperson/ Team Leader	Subject Matter/ Grade-Level Expertise
Early to mid-1990s	Governance Leadership	Whole-School Reform Shared Decision Making
Mid to Late 1990s	Collective Teacher Leadership	Standards-Based Reform Professional Learning Communities
2000s	School-Based Instructional Leadership	Accountability

Definitions of ‘teacher leadership’ have also varied within various educational policies over time. Little (2003) investigated how the conception of teacher leadership changed with shifts in policy goals and strategies within a span of 14 years towards the end of the last century. In the 1980s, when policy promoted career ladder initiatives and rewards for accomplished teachers, teacher leadership was linked to established

structures such as department and individual leadership practices. Bond (2011) indicated that the Holmes Group (1986) and the Carnegie Forum on Education and the Economy (1986) recommended practices such as “career professionals” and “lead teachers” respectively. Bond (2011) further reported that both these reform movements strongly felt that classroom teachers would be crucial in bringing whole school reforms. The recommendations of these two groups reinforced what was practiced at that time and also led towards the idea of whole school reform by preparing experienced teachers to play leadership roles in their school. Next, as illustrated by Little (2003), came the period 1980s to mid-1990s, when the idea of whole school reform came into play (Table 3). During this phase, teacher leadership was related to school wide reforms with the focal point being the school. This campaign for school reform had its root in criticisms regarding the failure of high schools. The Coalition of Essential Schools in mid 80s and ‘reform blueprint’ for state high schools of California contributed to this phase of evolution. Teacher leadership was affiliated with reform agendas, for example, department heads tried to enforce curriculum reforms and take part in school based decision making. Finally, during the late 1990s when the notion of ‘high stakes accountability’ gained momentum, teacher leadership was directed towards the service of external accountability and the reform focus extended beyond the school. This increased the expectations for leadership not only encompassed school wide responsibility but also teacher leadership activities relative to state and district reform agendas. The following table summarizes the views of Little (2003) in relation to the growth of teacher leadership during different shifts in the policy.

Table 3:TEACHER LEADERSHIP TRAJECTORY OVER THREE POLICY MOMENTS(Little, 2003, p. 421)

	Policy moment 1: 'Progressive' mood in state policy	Policy moment 2: Escalating standards movement	Policy moment 3: 'Conservative' mood in state policy
Characteristic leadership relationships and practice	Linked to established structures (department, committees); highly variable practice	Proliferation of reform- related leadership roles; leadership linked to reform agendas at school level	Leadership in the service of external accountability; leadership positioned in relation to state and district reform agendas
Leadership contested	Issues of individual leadership practice	Issues of reform focus within school; definition of role; warrant for leadership and extent of authority.	Reform focus beyond the school; warrant for leadership; expectations of teacher leaders
Administrators' role	Intervene when problems affecting school; little or no proactive strategy for cultivating leadership	Rally whole-school support for school improvement goals, encourage widespread participation and individual innovation	Press for responsiveness to district and state demands

Teacher leadership did not develop evenly during last century and went through phases of waxing and waning affected by prevalent culture and reform initiatives. In 2002, Smylie, Conley and Marks gave a vivid picture of how teacher leadership progressed -- the history of teacher leadership in the past century and its transition to the 21<sup>st</sup> century. They said that the idea of teachers as leaders did not exist during the 19<sup>th</sup> century; nevertheless they were organizational leaders during that period of one-room school houses. During the 20<sup>th</sup> century, the authors argued that the idea of teacher leadership gained ground due to the efforts to democratize schools, to augment schools' influence in developing a democratic society, and to promote centralized control and scientific management of schools, and to popularize professional school administration. Teachers eventually got the opportunity to participate in school and district level policy making as a result of the teacher council democratic administration movements that took place between the 1910s and 1940s. However during the next two decades and up to the

1980s teacher leadership did not flourish much under the community control initiatives. Fortunately, due to the “regulatory, bureaucratic reforms of the late 1970s and early 1980s”, as the authors termed it, teacher leadership opportunities in the form of career ladder, master teacher, lead teacher, and mentor teacher were established. These provisions were intended to empower individual teachers, professionalize them and improve their performance and finally resulted in some teachers being in influential positions with authoritative power. These efforts promoted teacher leadership but unfortunately they more focused on individual empowerment and role based initiatives, and not all teachers were recognized as leaders. However, Smylie et al. (2002) finally say that towards the end of the last century, the aforementioned formal conceptions of teacher leadership slowly started to shift towards a more “collective, task-oriented, and organizational approaches to teacher leadership” (p. 165).

Thus towards the end of last century and beginning of this century the idea that all teachers can be leaders in the school slowly started gaining momentum. This shift in view finally resulted in various endeavors which did become visible in this century. For example, degree programs to prepare pre-service teachers as leaders such as Teacher Leadership for School Improvement degree program (Ross et al., 2011) and various PD workshops for sustaining leadership skills of in-service teachers such as Project Achieve (Yost, Vogel & Liang, 2009) became prevalent. However, this transition was not abrupt or sudden. The following section clearly depicts how those changes in conceptualizations regarding teacher leadership occurred as seen by various researchers.



## **Changes in Conceptualizations of Teacher Leadership**

The way in which researchers have conceptualized teacher leadership has shifted over time. Silva et al. (2000) identified three waves of progression. In the first wave teacher leadership was associated with traditional formal leadership roles, for example master teachers and union representatives. The first wave merely used teachers as ‘managers’ for efficient school administration which contributed to their ‘neutering’ (Silva, Gimbert, & Nolan, 2000, p. 780). The second wave also focused on positional roles. Various roles such as team leader, curriculum developer and staff developers were created. Although formal, these roles focused more on instructional skills of teachers rather than their managerial skills. Finally, during the third wave, we saw teachers were provided leadership opportunities that were a part of their daily work versus opportunities that were apart their classroom work. The third wave integrated the notion of teaching and leadership in contrast to the positional concept and the procedural aspect. Teachers were provided opportunities for leadership in the process of carrying out their daily activities (Pounder, 2006). Thus the third wave of teacher leadership focused on collaborative and cooperative approaches among teachers to face both school issues outside the class and student learning issues inside the class. This resulted in new possibilities for teachers to be leaders (Darling-Hammond et al., 1995), which were spread throughout their teaching and were accessible to all teachers.

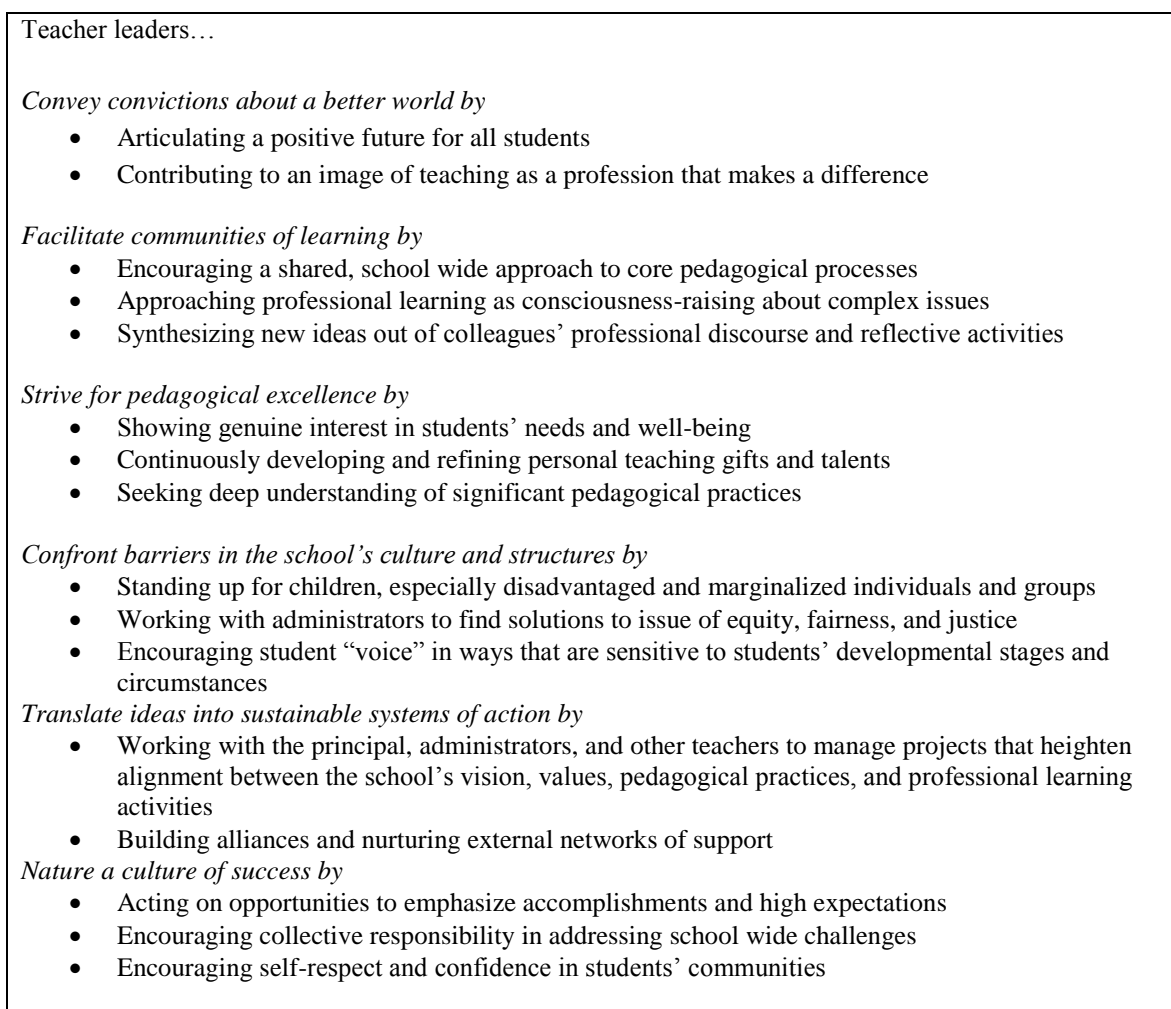
Adding to Silva et al.’s (2000) three waves of progression, Pounder (2006) argued the possibility of an upcoming fourth wave of teacher leadership that could embrace school and university contexts – transformational leadership. Basing on Bass’s (1985) characterization of transformational leadership, Pounder (2006) explained how the tenets

of third wave of teacher leadership can ultimately lead to transformational leadership. For example, Pounder viewed Silva et al.'s (2000) illustration of teacher leaders in the third wave as 'nurturers of relationships and models of professional growth' (p. 537) and 'encouragers of change and challengers of the status quo' (p. 537) reflects the individual consideration and intellectual stimulation dimensions of transformational leadership. Pounder also drew upon York-Barr and Duke's (2004) description that highlights the 'ability of [the] teacher leader to build trust and rapport with colleagues, promote their growth, and be a good communicator and listener' (p. 537) as in alignment with transformational leadership aspects. Thus based on these examples and arguments, Pounder (2006) put forward the possibility of the fourth wave that would embrace teacher leaders' transformational classroom leadership qualities both in the school and university context.

Finally, along with changing conceptions of teacher leadership, the responsibilities and aspects of teacher leadership has been changing in contemporary times. Crowther, Ferguson, and Hann (2008) tried to put forward the need for a new paradigm for teacher profession with regard to teacher leadership (Figure 1). The authors say that demands, accountability and expectations on teaching profession are increasing. This is due to the increased expectations associated with individualized programs for children; effect of new psychological, neurological and genetic investigations on learning and teaching; pay schemes based on performances; various international and national evaluation programs; distinctive characteristics of present generation students. Thus they state "a new paradigm of the teaching profession is needed, one that recognizes both the capacity of the profession to provide desperately needed school revitalization and the

striking potential of teachers to provide new forms of leadership in schools and communities.” (p. 2). These authors finally brought forth a teacher leadership framework and argue it to be well suited in this present scenario of declining centrality of organizational and hierarchical relationships and the increasing importance of establishing new knowledge for development of community as a whole (Figure 1).

Figure 1. THE TEACHER AS LEADERS FRAMEWORK (Crowther, Ferguson and Hann, 2008)



## **Contemporary Conceptions of Teacher Leadership**

In the previous section, I described how teacher leadership has been conceptualized historically. In the following paragraphs I will describe how teacher leadership is currently conceptualized by scholars and situate my own perspective within this literature. Although various ideas of teacher leadership being distributed, shared, group, or cooperative (as opposed to the traditional hierarchical leadership view) were discussed in literature prior to 2000 (e.g. Fiedler, 1967; Brownlee, 1979), they did not reach prominence until today. The phenomenological approach to investigating the nature or meaning of educational leadership was also put forward during last part of eighties and very early nineties (Mitchell, 1990). The prevailing investigations during that time dealt with personal traits and behaviors of educational leaders (Mitchell, 1990). However, contemporary conceptions of teacher leadership revolved around the distributed leadership framework, leadership action framework, parallel leadership, leadership as a developmental process, and leadership as identity. For the purposes of this review I will not discuss all conceptualizations, but rather those which are directly related to my study.

**Theory of leadership action.** Some researchers have conceptualized leadership as being individual or collective, rather than strictly distributed among group members. After doing a comprehensive review of literature regarding the concept and practice of teacher leadership, York-Barr and Duke (2004) put forward the following definition of teacher leadership:

Teacher leadership is the process by which teachers, individually or collectively; influence their colleagues, principals, and other members of school communities to improve teaching and learning practices with the aim of increased student

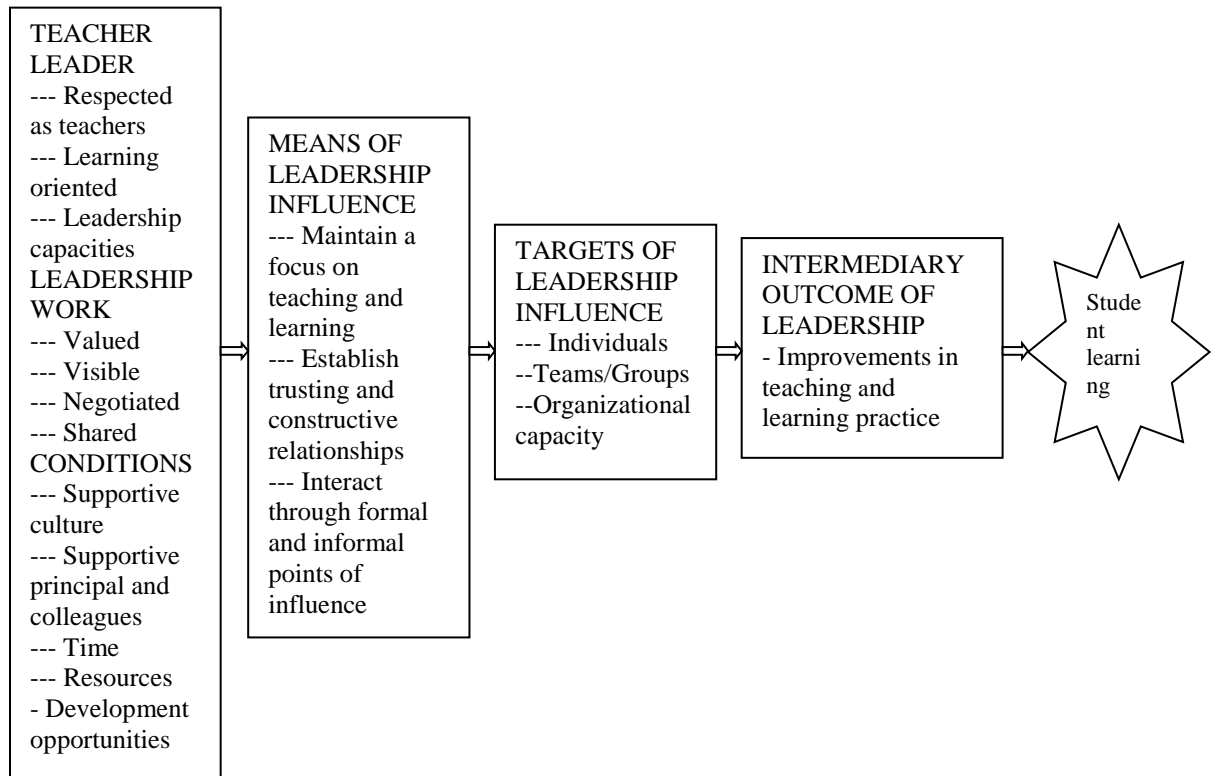
learning and achievement. Such leadership work involves three intentional development foci: individual development, collaboration or team development, and organizational development. (p. 287)

This definition conceptualizes teacher leadership as a developmental process integrated in the action of teachers and directed towards the improvement of student learning. This definition highlights the integration of PD of self and colleagues with the ultimate aim of school improvement.

The authors also proposed a conceptual framework that “suggests a theory of action for teacher leadership” (p. 289). They visualize teacher leadership as a process and actions taken along the path to influence student learning (Figure 2). There are seven elements in the framework. The first three elements “serve as the foundation upon which teacher leadership is possible” (p. 289) and include features of teacher leaders, various work teacher leaders do, and favorable conditions supporting teacher leadership work. The next three elements highlight the route teacher leaders take to impact student learning – ways of leading, their targets of leadership influence, and intermediate outcomes. The last element is student learning, which completes this theory of action. Moreover, all these seven elements are interrelated with each other. Teacher leaders are respected by peers and other school members. Their leadership work, which become visible within the school, is valued by others and shared among them. Teacher leaders constantly assess the effectiveness of their work and negotiate accordingly. These teacher leadership activities also need support from peers, principals and other administrators. Teacher leaders maintain a focus on their teaching and learning and establishment of collegial relationships. Gradually, through self-development they impact growth of their

peers, teams, and school as a whole. Finally, PD and improvement in teaching and learning practices result better student learning

Figure2. TEACHER LEADERSHIP FOR STUDENT LEARNING (Adapted from York-Barr and Duke, 2004, p. 289)



**Leadership as identity.** In recent times, scholars have justified and practiced the application of identity theory to the phenomena of leadership growth. In the paragraphs to follow we will see a detailed description of the concept of identity, some relevant facets such as teacher professional identity, identity and leadership, dynamic nature of identity and construction of identity through narratives. Finally through scholarly essays and studies, I will illustrate how the theory of identity has been applied in the educational arena -- partly with regard to teachers' professional (identity) development and leadership development as a whole.

The concept of identity can be applied to the process of leadership growth and how an individual's leadership identity is formed (Komives et al., 2006). Leadership is seen as a dynamic process of growth of an individual identity. An individual progresses towards complex ways of 'being' a leader through various personal experiences, new roles, feedback from others (Renn & Bilodeau, 2005). It involves shaping of leadership identity through these stages– identifying leadership in the surrounding, trying to gain experience in some identified aspects, viewing leadership as formal positional identity, slowly moving away from formal view and developing a more generalized view including informal roles and finally continuing development of leadership identity (Komives et al., 2005; Renn & Bilodeau, 2005). Through a perspective of social identity, leadership is conforming one's personal identity with the group prototypes in order to be effective leaders (Luhmann & Ebrel, 2007). It is more a social phenomenon as it is relational in nature as "leader identity is a direct result of the leader-follower relationship" (Luhmann & Ebrel, 2007, p.116). Finally, leadership is developing a sense of self as leader (Renn & Bilodeau, 2005) and this sense of self is also defined as the identity of a person.

There is no single definition of identity; it has been defined differently by various authors, each highlighting an important aspect. Identity is defined as the "characteristics of the self that one believes, in isolation or combination, to be unique to the self" (Ashmore et al., 2004, p. 82) and also as "something deeply entrenched in the individual, as a person's innermost attitudes and feelings" (Luhmann & Eberl, 2007, p. 117). As defined by Gee (2000), the meaning of identity also encompasses the perception of others and way one is recognized in any given context. Gee stated "When any human being acts and

interacts in a given context, others recognize that person as acting and interacting as a certain ‘kind of person’ or even as several different ‘kinds’ at once” (2000, p. 99). In sum, an individual’s identity is the amalgam of unique personal features, and the way those are presented and finally comprehended by others, which ultimately results in association of a particular image with that individual. Identity as a theoretical framework is not only popular within the educational arena (Gee, 2000; Settlage et al., 2009) but also in science education (Roth and Tobin 2007) .

In addition to being defined generally, identity has also been defined contextually according to the profession. Professional identity is defined as “the process of acquiring the values, attitudes, and skills of the single chosen profession that are used according to the relevance” (Bragg, 1976, p. 1). Similarly, teacher identity has been defined as the beliefs, values, and commitment held by an individual towards being a teacher (Hsieh, 2011). Volkmann and Zgagacz (2004) considered teacher identity to be “an ongoing internal construction that prepares one for taking action” rather than a “static caricature” (p. 600). In addition to viewing teacher identity as a continuous phenomenon, Beijaard et al. (2000) identified subject matter expertise, pedagogical expertise, and didactical expertise to be the components of an identity of a teacher. Likewise, Beijaard et al. (2004) posited that the professional identity of teachers is made up of sub-identities depending upon situational factors versus one single identity, which was again reinforced by stating identity to be ‘multifaceted’ by (Settlage et al., 2009). In general terms, identities of educational leaders are said to be socially mediated (Lugg & Tooms, 2010). Particularly, the development of teacher identity is said to be formed within social, socio- interactional, organizational, socio-historical situations (Varelas, House, & Wenzel, 2005)



and collaborative exchanges among colleagues (Cohen, 2010).

Identity, in its totality, is dynamic in nature. The evolving aspect of a person's identity has been highlighted by different scholars. As early as in 1968, Erikson defined identity as "the perception of the selfsameness and continuity of one's existence in time and space and the perception of the fact that others recognize one's sameness and continuity" (p.50). Continuing with the same essence, Kroger (2004) brought forth the term 'process' and related identity to individual experiences -- "At times, identity refers to a structure or a configuration, at other points it refers to a process. Still on other occasions, identity is viewed as both "a conscious subjective experience as well as an unconscious entity" (p.34). Similarly, various other scholars have not only viewed identity (e.g. Lichtwarck- Aschoff, Van Geert, Bosma, & Kunnen, 2008; Schachter & Rich, 2011; Zembylas & Avaraamidou, 2008) but also teacher identity (e.g. Flores & Day, 2006; Settlage et al., 2009) and teacher leader identity (e.g. Collay, 2006; Gonzales & Lambert, 2001) as a dynamic process.

More recently, identity has also been explained on the basis of stories that describe teachers' personal and professional lives (Sfard & Prusak, 2005). Connelly and Clandinin (1990) posited human beings are story telling organisms leading storied lives and "educational research is construction and reconstruction of personal and social stories" (p. 2). Moreover, it has also been suggested that identities are constituted through narratives and narrativity (Somers, 1994). Sfard and Prusak (2005) equated identities with stories of individuals and stated that "We did not say that identities were finding their expression in stories-we said they were stories" (p. 14). Furthermore, they also explained that if identity can be defined as a collection of stories or narratives, then those

stories should be reifying (by using words such as be, can, always, usually, which highlight repetitiveness of any action), endorsable (by authentically depicting the present circumstances) and significant (by connecting it with the storyteller as much as possible). Finally they split personal narratives into two categories – actual identity and designated identity. Actual identity refers to stories which depict actual present state of affairs (e.g. I am a teacher) and designated identity refers to those stories which are expected to happen in near future (e.g. I will be a teacher leader with a formal position) (Sfard & Prusak, 2005). In this context, designated identity guides future courses of action and thus in overall identity can be seen as a process of development from actual to designated identity. Again, the theory of identity can be said to be based on two core constructs – social roles and role identities (Krause, 2004). According to the Krause (2004), social roles played by an individual indicate her/his position in a group, and identities refer an individual's self-image and way it is presented to others. These again are finally related to the roles they portray and how they are perceived by the group.

The development of teacher professional and leadership identity is a complex process affected both by childhood experiences and professional encounters. Collay (2006) highlighted this aspect in his essay regarding the impact of professional identity on school leaders' perception of their work. He said that in contrast to other professions, an individual starts harboring an image of a teacher as they go to school. Thus teachers enter their profession with strong pre held notions and assumptions. However, their professional identity is fully developed when they enter the profession as a teacher within the school's organizational hierarchy. In fact they continue to shape and mold their identity through interactions with their colleagues and environment. The author also

stated that similar to the profession of teaching, teachers also hold notions regarding leaders and leading. These assumptions and values depend on individual life experiences and various social and cultural factors. As teachers move on, their prior held beliefs are shaped and reshaped and thus their professional identity is continuously molded.

Similar to the approach taken by Colley (2006), Luehmann (2007) conducted a conceptual analysis regarding professional identity development. She tried to explore the exclusive challenges associated with preparation of reform minded science teachers through the theoretical lens of identity development. Here it should be noted that educational reform and teacher leadership are seemingly different aspects that are well aligned to each other. In fact teacher leadership has been recognized as an essential element in education reform (York-Barr & Duke, 2004) and ensuring reforms in order to improve their teaching practice has been mentioned as one of the activities teacher leaders do (Katzenmeyer & Moller, 2009). Thus, developing a reform minded professional identity can be equated to one aspect of leadership development. Through a rigorous review and analysis of research done in the field of identity development, Luehmann provided two recommendations to address the challenge. In order to help development of a reform minded teacher professional identity there is a need to help novice teachers find safe spaces where they can try and develop their new identities and also it is essential to provide favorable circumstances where they can be recognized by themselves and others through continuous and supported reflection.

The importance of interaction in the development of teacher professional identity is also highlighted by an empirical study conducted by Luehmann and Tinelli (2008). The authors investigated professional identity development of 15 secondary science teachers

who were pursuing reform based practices in science teaching. Blog interactions and teacher surveys were the primary data sources. They authors found that recognition of (by others and self) and participation in reform work were necessary for identity development to take place. Moreover, opportunities to take part in discourse related to both affective and cognitive domains were found important for identity development. The meaningful discussions via blog interactions resulted both in learning and professional identity development.

As an extension to the previous study, Luehmann (2008) investigated further to relate the practice of blogging and identity development for a particular teacher. Specifically, the author delved deep to find out the critical elements affecting the professional identity development of a particular teacher. Although she revisited the data to investigate how blogs helped in shaping a teacher's professional identity, this study nevertheless points out the critical elements affecting the professional identity development of that specific reform minded science teacher. She identified four essential factors – constructing personal narratives related to various aspects of science teaching often in disagreement with one another; both supporting and getting supported by the members of professional community; effort to successfully try and demonstrate different interrelated professional sub-identities, for example in this particular case, sub identities such as mentor, classroom teacher, self-as-learner and social justice activist were assumed by the participant; making oneself at the center of a larger professional discourse, in this case, the public and interactional nature of her blog discourse helped her achieve that.

## **Models for Teacher Leadership Identity Development**

In the literature, several models have been proposed that have relevance to the present study. These focus on leadership development (Palus & Drath, 1995), leadership identity development (Komives et al., 2005), and teacher leader identity development (Gonzales & Lambert, 2001). The sections below describe each of these models and compare them.

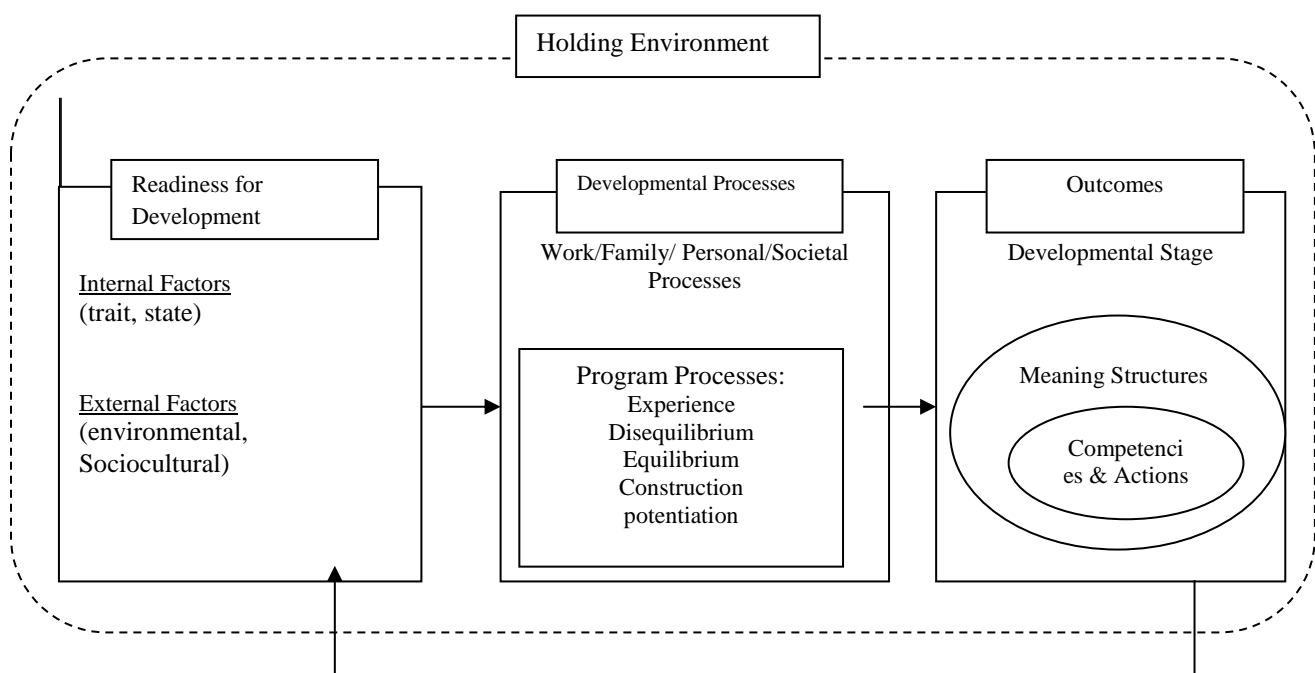
### **A Model of Leadership Development**

Leadership development has been characterized as a cyclic time linked process consisting of various categories. The understanding of leadership has long been implicit and to this end an explicit model for leadership development (Figure 3) has been put forward by Palus and Drath (1995) intended for professional developers and leadership development program planners/ evaluators who are interested in leadership development of individuals and organize leadership development programs. This model put forwards a cyclic process of three categories which are time dependent and interlinked – readiness for development, developmental process, and outcomes. The authors recommend considering each of the categories while planning, implementing, or following up or evaluation of leadership development programs.

This model had been used by Howe and Stubbs (2003) in investigating the process of how three science teachers became effective and active teacher leaders in their schools. These authors have described the various categories in this model in the context of teacher leadership development. The component *Readiness for Development* is the first consideration that focuses on how far a particular individual is prepared to invest oneself in the process of leadership development. Various internal and external factors seem to

affect this process. The next category is *Developmental Change*, where reorganization of one's thinking and attitude takes place. The authors relate this to constructivist theory where any learning or change of attitude takes place when a person is challenged on their previously held beliefs. Based on this principle, the category of developmental change is accomplished in this model by five intermingled processes -- experience, disequilibrium, equilibrium, construction and potentiation. Any new experience which does not assimilate within any existing framework of thinking creates disequilibrium. Being in the disequilibrium phase, an individual through various new experiences tries to reach to stage of equilibrium via construction of new knowledge or new ways of thinking. Finally, after going through the above mentioned phases, an individual is ready for future development and in this case ready for development in the context of leadership. Potentiation refers to the potential an individual cultivates for future leadership growth and development. The third category is known as *Outcomes* and refers to the final leadership stage or leadership skills they accomplish.

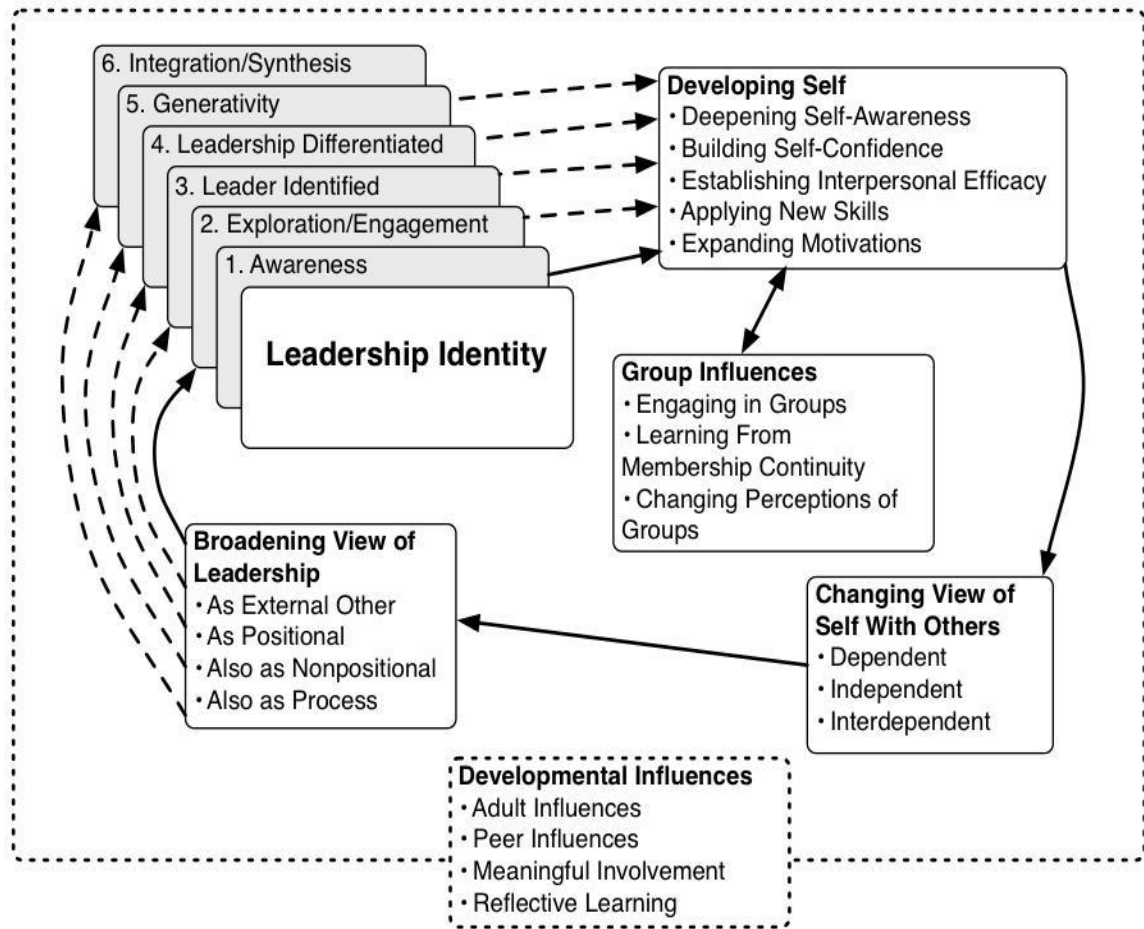
Figure 3: LEADERSHIP DEVELOPMENT PROGRAM MODEL(Palus & Drath, 1995)



## **A Model of Leadership Identity Development**

Komives et al. (2005) investigated to understand the development of leadership identity through a grounded theory approach. This study explored the leadership identity development process of college student participants who showed skills of collaborative and relational leadership. Resonating with the idea of identity development being a dynamic and ongoing process, researchers found participant's identity transitioned from a traditional leader-centric one at the beginning to a more collegial, shared and group-based one. To this end, the authors proposed a conceptual model illustrating a cycle of how different categories influenced each other to construct the central phenomenon of leadership identity (Figure 4). The categories identified to contribute in the development of leadership identity were developmental influences, developing self, group influences, changing view of self with others, and broadening views of leadership. In addition to all these over all categories, the authors delineated six identity development stages exclusive to leadership identity which are described in the following paragraphs -- awareness, exploration/ engagement, leader identified, leadership differentiated, generativity and integration/synthesis.

Figure 4. LEADERSHIP IDENTITY MODEL (Komives et al., 2005, p 599).



The category *developmental influences* lists four favorable factors in the environmental context that supported leadership identity development. The first one is *adult influences* that describe how adults at different places and phases shaped the students' identity. For example adults in the family boosted their confidence whereas adults in the organization created safe spaces for communication and relations. Similarly in the beginning stages of identity development adults influenced as role models and later on adults influenced by being both as mentors and role models. *Peer influences*, the second factor, described how peers served as friends, role models, followers, teammates



and collaborators. The next pointed out factor was *meaningful involvement*. These experiences resulting out from various involvements, including group based ones, helped them to learn about self, develop new skills, clarify personal interests, and taught them to strive for their own best in conjunction with supporting other team mates. *Reflective learning* was the last factor under the developmental influence category. Self-reflections through journals and conversations with others helped them to evaluate themselves as they were shaping their leadership identity.

The next category was *developing self*, which contained “properties with dimensions of personal growth that changed throughout the development of leadership identity” (Komives et al., 2005, p. 599). The five properties in this category are – *Deepening self-awareness* by recognizing personal strength and weakness; *Building self-confidence* through meaningful experience helped them to take risks and pursue on more active group roles; *Establishing interpersonal efficacy* by making new friends, communicating with persons different from own selves, by taking part in group activities; *Applying new skills* that they learned through various experiences as they developed their leadership identity; and by *expanding their motivations* by developing a deeper sense of commitment and passion to accomplish actions.

*Group influences*, the next category, interplayed with developing self to inform an individual about their standing in relation to the groups. Properties in this category included *engaging in groups* by developing a sense of belongingness in cohorts, *learning from membership continuity* by becoming aware of responsibilities of promoting young group members and taking positional roles, and *changing perceptions of groups* from a random assemblage of friends or people to a structured organization.

The other two categories, *changing view of self with other* and *broadening view of leadership*, were related in the sense that the former had a direct effect on the latter. Self-perceptions were changed from being *dependent* to *interdependent* via the stage of being *independent*. During initial stages of group engagements, participants perceived to be dependent on others and viewed leadership residing within those *external others*. Gradually when some of them assumed leadership positions in the group viewed themselves to be independent of others and thought that only persons in position practice leadership i.e. leadership is *positional*. Finally circumstances led them to discover that a relation of interdependency exists between all the group members. This helped participants understand that leadership is facilitation of progress of the group irrespective of any positional authority i.e. it is also *non positional* in nature and that leadership endeavor is a *process*.

Within the category *leadership identity*, the model includes six stages; progression through them occurs both in a linear and cyclical fashion. This particular helical developmental model entails revisiting of stages and each stage being affected by other contextual factors. Furthermore these stages are not compartmentalized, participants transitioned through each stage gradually by shedding their prior notions and embracing new ways. Each stage of the model had connection with all the prior described five categories which shaped the leadership identity. In the following paragraphs each of the six stages (i.e. *awareness*, *exploration/engagement*, *leader identified*, *leadership differentiated*, *generativity*, and *integration/synthesis*) will be discussed briefly and their connection with the other categories.

*Awareness* begins during childhood. It comes with understanding that leadership was taking place in the world and there were leaders out there such as national and other authoritative figures. At this stage participants thought that they were dependent and were not leaders and they were making friends. Adults and parents played an important role in building confidence and giving support at this stage.

The *exploration/ engagement* stage highlights taking part in various activities, developing personal skills, explore personal interests and gradually harbored the feeling that they can also be leaders. Recognition and reinforcement of such feelings by peers, adults and role models were crucial for transitioning to the next stage. This period occurred mostly during their schooling.

Stage three, *leader identified*, is very much associated with the formal view of leadership. Participants at this stage thought leadership resided in position and authority and one was either a leader or a follower. They also started taking more responsibilities, showed position driven behavior and also depended upon mentors for guidance.

*Leadership differentiated* was a crucial stage as participants comprehended a broader view of leadership. In addition to the already formed formal notion of leadership, they considered leadership to be informal as well. They started valuing the growth of group as a whole and visioning leadership as a process versus something outcome oriented.

*Generativity*, the fifth stage, marks participants' narrowing down of interests and relating it to personal passions, effort to develop leadership skills in other persons, and working for sustainability of leadership within groups or organizations. Participants started sharing responsibilities and reflecting upon their actions.

In the last stage of *integration/synthesis*, participants nurtured the confidence within themselves that they effectively practice leadership in any context irrespective of any position. They also became committed to lifelong learning and growth as leader. They also tried to become role model for others.

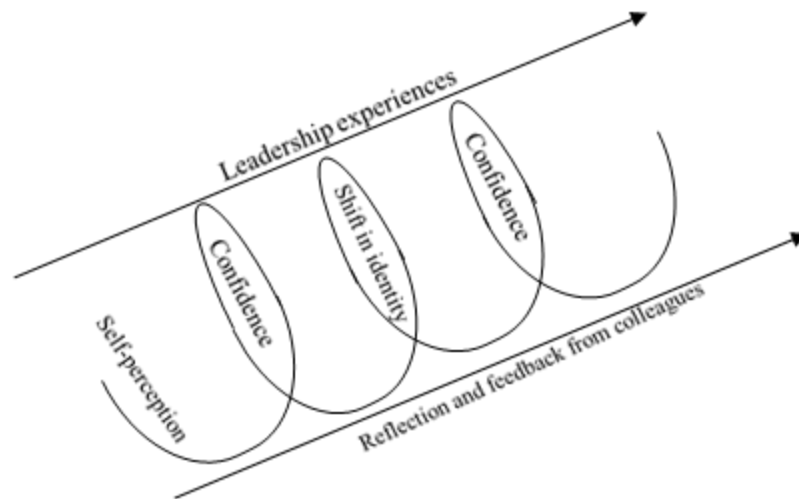
### **A Model of Teacher Leadership Identity Development**

While Komives and colleagues' model was more generally related to leadership identity, Gonzales and Lambert (2001) proposed a model related to teacher leadership identity development more specifically (Figure 5). They investigated the emergence of leadership identity of teachers who already had some leadership experiences. The participants posited how taking on new roles and developing new relations brought forth a new sense of identity in them. These new roles were formal/ authoritative in nature and brought more responsibility and also positive feedback from others. Regarding new relationships, there was a difference between female and male teachers' perceptions. Female teachers viewed their leadership evolutions being influenced by relations such as mentoring whereas male teachers valued role expectations and feedback in relationships for their change self-perceptions of leaders. This emergence of teacher leadership through new roles and relationships also restructured the identities of teachers. Teachers started perceiving themselves having the ability to influence others and to confront with various related issues. They started noticing leadership being evolved within themselves. This self-consciousness of personal growth brought further awareness and initiated new actions in the context of teacher leadership. Newer activities also accompanied ascent newer questions challenging existing assumptions and norms. This resulted in reflection and all these aspects resulted in gaining confidence that further fuelled the leadership

identity development. Finally with regard to the result of this study and the transformation of teacher leadership identity, the authors best said:

Our understanding of identity formation can be both affirmed and modified by our understanding of identity formation among these teacher leaders. New experiences and feedback from a community of learners served to facilitate the emergence and feedback from a community of learners served to facilitate the emergence of leadership identity. Within this context, identity unfolded as the ‘self’ became redefined and confidence grew, thereby enabling the transformation of teachers into teacher leaders (Gonzales & Lambert, 2001, p. 17)

Figure 5. IDENTITY DEVELOPMENT IN TEACHER LEADERS (Gonzales & Lambert, 2001,p17).



### Comparison and Synthesis of Models

These three models each have relevance to the present study; however, the model proposed by Gonzales and Lambert (2001) is not as robust as the others, and has little overlap. For this reason, I will draw more heavily on two models to provide a synthesis model of teacher leadership identity development.

The Palus and Drath (1995) model of leadership development has certain similarities and differences with the leadership identity development model put forward by Komives et al. (2005). Before stating the similarities, it should be noted here that the context in both the cases are little different although they have a significant common ground. Komives et al.'s (2005) model only focuses on leadership identity development whereas Palus and Drath's (1995) model of leadership development looks on the entire leadership development process. It is similar in the sense that both the models refer to personal, social and group factors affecting the leadership development process and leadership identity building process respectively. Palus and Drath (1995) identified work, family, personal and societal factors to be the main aspects in the developmental process. Similarly enough, Komives et al. (2005) enlisted the influence of group, adults in family and outside, and peers in shaping an individual's view of leadership and finally in creating a leadership identity. Also some of the different terms used to explain aspects/stages in both the models are analogous to each other to a considerable extent. For example, what the Komives et al.'s model terms *awareness and exploration/engagement* could be interpreted in terms of Palus and Drath's *readiness for development*. In the *awareness* stage individual recognize the existence of leaders or leadership in others; and in the *exploration/engagement* stage individuals tend to intentionally involve in variety of activities and harbor the desire to do more and make a difference. Parallel to this, the *readiness for development* stage gauges the extent to which an individual is prepared to invest and engage oneself in the leadership development process. Again Komives et al.'s *leader identified* and *leadership differentiated* is analogous to Palus and Drath's core aspects of *developmental processes*

in the sense that at the end of these stages, in both the cases, individuals establish a new and comprehensive picture of leadership which is different from their previous thoughts. However, the approach taken by both the models in explaining the underlying technicalities resulting the transition is critical and which will be discussed later. Finally the Komives et al.'s conception of *integration/synthesis* aspect in identity development has some similarities with the *meaning making structures* conception of Palus and Drath's model. Via these terms, both the models try to point out how an individual finally try to amalgamate experiences and change their viewpoints to internalize leadership identity or form a stable and robust conception of leadership respectively.

Although there are similarities between each of the models or there are aspects in both the models that can be extrapolated into each other, there are some differences which make the Palus and Drath (1995) model more suitable for this study. With regard to the six developmental stages of identity, Komives et al.'s (2005) model focuses more on what happens within (inside a person) and how leadership identity is shaped up internally. Although the authors take into account the external factors but those factors are used as backdrop upon which the internal building of leadership identity takes place. Palus and Drath (1995)'s model, on the other hand takes into account and gives equal weightage to both of them. It tries to reason out how personal and external factors affect internal thought processes that finally results in development of leadership. Again, these two models differ on the final result part. Komives et al's (2005) model does not focus on outcomes but Palus and Drath's (1995) model does. Komives et al's discussion culminates with the stage of *integration/synthesis* where an individual commit for lifelong learning, growth as a leader, and confidence to affect changes irrespective of any

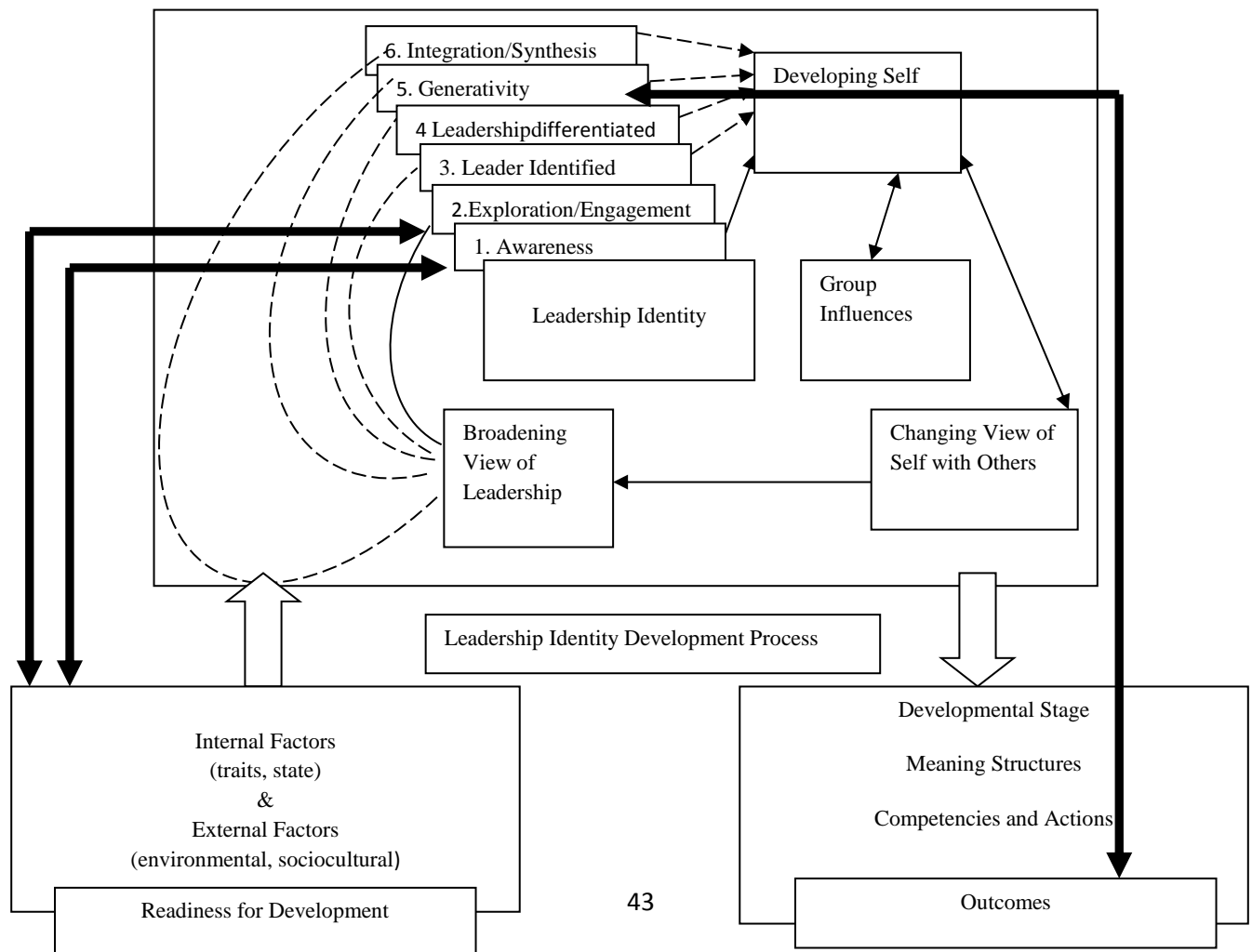
held position. On the other hand, Palus and Drath (1995) explicitly talk about the leadership outcomes and one of such outcomes is gaining leadership competencies and doing leadership actions which are externally visible. Finally, Palus and Drath's (1995) model is more holistic in approach with regard to leadership practice in totality compared to Komives et al.'s (2005) which looks only at leadership identity. The former is more comprehensive because it considers an individual's journey of leadership from being ready for development to their final accomplishment in terms of leadership outcomes. The leadership process starts with individual readiness and finally ends with some outcomes in the leadership realm. I find this model to be more suitable when my research question is trying to find out the process of leadership development rather than just looking at the leadership identity development of an individual. The leadership identity development according to me is a part of the leadership development process. The entire process of leadership growth precedes before (i.e. readiness for development) and extends after (leadership outcome) the establishment of leadership identity.

Thus, taking into account all the similarities and differences between the models proposed by Palus and Drath (1995) and Komives et al. (2005), these can be combined as an integrated model of leadership development with an emphasis on evolution of leadership identity to fit with the purpose of my dissertation study (Figure 6). In alignment with the Palus and Drath (1995) model, this combined model is also built around three stages – readiness for development, leadership identity development and outcomes. The first and the third stages lent from Palus and Drath (1995). They focus on what led to an individual's readiness to be involved in her/ his leadership development and what leadership outcome they exhibited at the end of going through a developmental



process. The second stage, which was named developmental process by Palus and Drath (1995), is renamed as leadership identity development process. The framework in this stage draws on Komives et al (2005) which specifically focuses on leadership identity development. The similar aspects of both the models as described above are highlighted in this diagram by bold arrow marks. The other connecting lines (continuous and dotted) within the leadership identity development process stage indicate the connection between the stages of leadership identity development process and other related categories. The various other categories, stages, and parts have been described earlier when each of the models were discussed earlier.

Figure 6: COMBINED LEADERSHIP DEVELOPMENT MODEL



## **Research on Teacher Leadership**

Within the research on teacher leadership, studies have focused on five major areas; these include teachers' views of leadership, PD and workshops designed to support teacher leadership, factors influencing teacher leadership. Though these studies do not specifically use identity as a framework, they shed light on contributing factors that may play a role in teacher leaders' identity development through social interactions and professional context.

### **Teachers' Views of Teacher Leadership**

Several studies have investigated teachers' understanding of leadership and how they define and envision their roles as teacher leaders (Angelle & DeHart, 2011; Bradley-Levine, 2011; Collay, 2006; Dana & Yendol-Hoppey, 2005; Emira, 2010; Grant, 2006; Margolis & Deuel, 2009; Melville, Wallace, & Bartley, 2007; Nicolaidou, 2010; Nolan & Palazzolo, 2011; Rizvi & Elliot, 2005; Sato, 2005). These studies which depict teachers' conceptions are important, as teachers' understanding is central to their leadership development. For example, identity, with regard to teachers, has been defined as the way one perceives oneself or being perceived by others (Luehmann, 2007, 2008; Luehmann & Tinelli, 2008). Thus teachers' views regarding teacher leadership and the roles of teacher leaders greatly affect how they see themselves and their colleagues through a leadership lens.

Teachers normally associate teacher leadership with formal and positional roles. Hanuscin, Rebello, and Sinha (2012) investigated teacher leadership views of 36 high school teachers, their past leadership experiences, and their perception regarding their leadership. The findings indicated that teachers' definitions of leadership fell primarily

under the formal and positional conceptions of leadership. Teachers also harbored a number of myths that leadership is always associated with position of authority or power, leadership is not embedded in daily teaching activities, and that everybody does not have the capability of being leaders. Certainly, due to these conceptions of teacher leadership, they were skeptical of their roles as leaders. The authors also found that although their past activities fell under the dimensions of teacher leadership (as highlighted by York-Barr & Duke, 2004), they failed to recognize themselves as leaders. Another notion is that leadership is a responsible position which involves “a series of activities to accomplish tasks” (p. 215) and words such as “manager, enforcer, department representative, mediator, etc.” (p. 215) were used to define department leadership position (Feeney, 2009). These studies showed how teachers associated leadership with formal positions versus informal.

Similarly, research reveals that teachers seldom view ‘leadership’ as part of their daily practice. In order to explore views of different teachers at various levels, Nolan and Palazzolo (2011) explored how untenured teachers understood teacher leadership and its daily practice in their earliest years. These teachers considered committee membership, coaching, involvement in parent-teacher associations, and other such activities to be leadership activities which aligned closest to traditional belief of leadership. On the other hand, activities like making connections with the community, supporting at-risk students by working with their parents, and addressing students’ problems were viewed as potential opportunities available for leadership. The authors also found that these teachers considered teacher leadership activities as a compulsory prerequisite to get entry into

higher administrative roles. Moreover, teachers did not consider teacher leadership roles to be embedded in their day to day enterprise.

Moreover, teachers also seem to have divergent views of leadership – it being personal qualities one possesses or knowledge, skills and credibility one develops. The analysis of teachers' leadership definitions by Hanuscin et al., (2012) brought up two categories – definitions those highlighted personal qualities and definitions those highlighted knowledge of skills of leadership. Some teachers exclusively emphasized personal qualities of leaders, such a view aligns with the notion that such qualities are inherent—that individuals are 'born leaders' (Hanuscin et al., 2012). Regarding the categorization of teacher leadership as a set of knowledge or skills, Scribner and Bradley-Levine (2010) also found that teachers who had better knowledge or had expertise in particular subject and had some organizational positions were considered as leaders by their colleagues. In addition, this study also revealed the prevalent gendered notion of leadership – males being the leader most of the times.

Bradley-Levine (2011) also conducted a qualitative investigation of teachers who were pursuing a master's degree in leadership. They found that teachers associated authority, position, influence, and credibility with teacher leadership acts. Credibility among peers was more linked to traditional aspects such as time spent in a particular building, knowledge of staff and students, and being termed as a successful teacher. One of the teacher participants in this study even said that she undertook formal leadership roles (e.g. becoming chairperson of a committee and managing book study groups) to establish her credibility as a teacher leader among her colleagues.

Teachers' views of leadership appear to differ among elementary, middle, and high school levels. The abovementioned studies mainly dealt with teachers in high schools. However, the study conducted by Angelle and DeHart (2011) tried to compare the views of teachers according to grade level, degree level and leadership position. This study did not directly investigate teachers' views about leadership but focused on their perception of extent of teacher leadership in schools. All the teachers took a survey which had identified four different factors leading to the extent of leadership. Elementary teachers were found to rank "Supra-practitioner" factor (which identifies teachers leaders to be those who engage in extra duties outside classroom) higher than middle and high school teachers and "Sharing Expertise" factor (which identifies teacher leaders to be those who share instructional and classroom management skills) higher than high school teachers. Formal teacher leaders ranked "Sharing Leadership" (a school situation where principal share leadership responsibilities and teachers come forward to lead) higher than teachers who were not in any position of leadership. However, based on their analysis, the authors posited that the notion of a teacher leader was conceptualized differently by teachers based on their experience, degree, and any formal leadership position held. The findings of this study aligned with what was found in a previous study conducted by Angele and Schmid (2007).

There also had been other studies both in the United States and other countries that echo similar results. Studies conducted outside this continent (e.g. Emira, 2010; Grant, 2006; Rizvi & Elliot, 2005) also highlighted similar results as discussed so far. Emira (2010) found teachers to vision teacher leadership in terms of particular traditional leadership characteristics such as personality, experience, convincing ability, ability to

deal with problems, etc (Emira, 2010), which again resonates with the findings of Hanuscin et al., (2012). Grant (2006) dealt with university tutors of South Africa, who were mostly teachers. These tutors initially viewed teacher leadership associated with formal position which aligns with other aforementioned studies. Eight out of 11 tutors had traditional views of teacher leadership – six of them equated teacher leadership with headship and thought principal as the leader; two of them thought leadership to be a shared group activity, however they described those activities within the hierarchy of the school system like a teacher at the down most part of hierarchical level. Similar enough, teachers in Pakistan thought taking leadership roles and position were crucial to enhance their professionalism (Rizvi & Elliot, 2005).

### **PD Workshops and Teacher Leadership**

PD programs help teachers hone their leadership skills. Watt, Huerta, and Mills (2010) explored the relationship between a PD program known as AVID (Advancement Via Individual Determination) and teacher leadership. AVID is a support program focused on preparing secondary school students for college. AVID's PD component prepares teachers to oversee this program's growth and implementation via eight summer institutes. In this context teacher leadership is seen parallel to instructional leadership, dependent upon school context, and both formal and informal in nature. Teacher leaders are seen as those teachers who can lead in and out of the classroom, create and coordinate a successful team, and support other teams with resources to augment student learning. Data was collected through survey. Research showed that AVID PD positively impacted teacher leadership; even veteran teachers honed their leadership skills through this PD. Continued PD keeps teachers developing in their leadership skills and is a crucial factor

for continuing school wide reform.

Continuing on the issue of reform, and particularly in the context of attaining and sustaining reform in science education, PD focused towards teacher leadership has been found useful. Klentschy (2008) described the design of such a PD program. A consortium of school districts started the Valle Imperial Science Foundation (VIPS) to start and sustain systematic science education reforms. VIPS wanted to design a PD program that would help “to create a dual level of teacher leaders possessing the knowledge and skills to bring about and sustain the changes needed to attain the initiative’s goal.” (p. 58). This program was designed to focus on student improvement, collaboration among teachers, linked to curricula, school-based and long term in nature. To start the process from scratch, teachers on special assignment (TOSA) were recruited to develop teacher leadership at three pilot schools. This first cadre of teachers who received the PD was known as lead teachers. The program focused to support the teachers in developing content knowledge, pedagogical knowledge, and student learning knowledge. Later on these lead teachers became the advocate of science reform activities and supported other classroom teachers. Also school and system wide PD was implemented for all teachers with lead teachers taking the leadership roles. This process lasted for three years. During this period recognized 42 schools for the next level of scale up. The previous process was followed along with the new cohort of lead teachers going through a customized graduate program. The next level of scale up also provided career pathway for teacher leaders. They had the option of being promoted to the level of TOSA. The lead teachers contributed in redesigning and teaching of curriculum and provided feedback as some support guided inquiry curriculum units were developed and field tested. Finally, the authors also stated

that the impacts of these lead teachers were recognized to be crucial in bringing the science education reform practices in the school level.

Scholars have found leadership to be associated with contextual based PD programs. This is highlighted by a study which exclusively looked at the teacher leadership development via mathematics PD. Koellner, Jacobs, and Borko (2011) identified three important features of PD crucial for developing leadership skills and mathematics teaching capacity of teachers – promoting a professional learning community (PLC); increasing mathematical knowledge for teaching of teachers; designing PD programs to cater local needs and interest. The authors described the Problem-Solving Cycle (PSC) model of PD to demonstrate how they worked with beginning teacher leaders regarding incorporation of those above mentioned features. The PSC is a long term mathematics PD program designed to develop teachers' mathematical knowledge of teaching, improve teaching and promote student achievements. Finally the authors identified five specific processes which helped to develop and sustain teacher leadership in this context – *modeling* (provides teacher leaders a set of experiences that they try on their own); *fostering discussion*; *metacognitive thinking* (reflecting on personal thought process); *self-reflection* (on self-learning and facilitation of workshops); *coaching* (one to one learning opportunities in the areas of struggle).

PD workshop that focused on instructional leadership contributed positively towards student achievement gain via creation of collegial environment in school. Yost, Vogel, and Rosenberg (2009) described Project Achieve, a teacher leader training model, focused on improving teaching performance of middle school teachers and thus student achievement. The premise of the project was that improvement in student learning would



occur naturally when teacher leaders gave personalized on site PD to teachers. The Project Achieve teacher leader model focused on instructional leadership via PD of teachers through formal and informal sessions. The focus was also to teach teachers how to be leaders so that they were able to work effectively with other teachers and improve student learning. This study showed that the typical struggle of teacher leaders regarding balance between administrative and teaching roles is eased through instructional leadership coaching. The authors also found that teacher leaders with an instructional focus were successful in creating an environment of learning community in their school which was collaborative in nature. The finding also supported the establishment of site based teacher leader professional learning projects. In similar lines, there had been a program developed by Leadership Research Institute, University of Southern Queensland, which supported and enabled contextualization of a research based framework across two local school sites in two countries – Australia and Singapore (Chew & Andrews, 2010). It was a school revitalization program known as Innovative Designs for Enhancing Achievements in Schools (IDEAS) that incorporated the parallel leadership concept enabling the principal and teachers to work side by side for school improvement.

The traditional professional norms of egalitarianism, seniority, and autonomy had been found to affect the practice of teacher leadership. Weiner (2011) conducted a study focusing on the experiences of teacher leaders and their principals with regard to a teacher leadership enhancement program. This program was called the teacher connector (TC) and this position was introduced to provide leadership opportunities to teachers. It connected novice and experienced teachers for collaboration and promote school based

teacher induction. The results of this study reinforced the negative effect of traditional professional norms of egalitarianism upon implementation of teacher leadership. In order to address these factors, TCs often undermined their authorities and took steps to de-emphasize the status, skills, and knowledge they had regarding leadership. Although these strategies helped them to gain the confidence and cooperation of teachers to some extent, however it did cost them their credibility as a leader and to bring about reform to some extent. In contrast of lauding veteran teachers, the TC and principals favored new young teachers. Furthermore, it was found that collaboration aided teacher leadership.

Contrary to issues related to traditional and formal views of leadership, there have been PD programs that promoted the concept of informal leadership instilled such leadership attitude among its participants. Such a program has been the Master Teacher Program. It is described as a three year program where teachers came for one day each month for PD (Crawford, Roberts, & Hickmann, 2010). This program was based on a reflective practice model for long term PD and a “recursive” path for teacher leadership growth. Three basic prongs were identified for the program – *self-study*, *inquiry*, and *action research*. Teachers engaged in self-study activities such as regular journaling and final video analysis project. The aspect of inquiry was covered through small group activities, discussions and professional reading study groups. Approaches to action research were achieved by each participant working and executing an action research question. Crawford and colleagues conducted a study to investigate the nature of teacher leadership promoted through such continuing PD and the potential the program has to promote teacher leadership among early childhood educators. The authors found that early childhood teachers, through active participation in the PD program, developed as

teacher leaders by gaining “a greater sense of confidence, courage, collaboration, and empowerment” (p. 36) that also helped for professional growth. This program helped primary teachers to gradually transition into leadership positions within their schools benefitting themselves, their colleagues, administrators, and the school as a whole.

Blackman (2010) observed that although educational leadership has been of interest to scholars for a long time, the potential of educational coaching for promotion of leadership has not been explored. To explore whether coaching promotes teacher leadership in the background, Blackman conducted a case study in Australia where teachers were nominated to take part in a coaching workshop as a requirement of their PD. The results of the case study indicated that coaching workshops followed by one-on-one sessions proved an effective way to enhance teacher leadership skill through continuous PD. The workshop helped teachers learn leadership skills and provided opportunity for networking. The one-on-one follow up sessions helped in dealing with the challenges encountered in achieving particular goals.

In addition, there also had been study regarding building of leadership capacity via school- University partnerships. One such study was conducted by Vernon-Dotson and Floyd (2012) to evaluate the efficacy of leadership teams and school-university partnerships on teacher leadership, PD, and overall participant dispositions of three grant funded projects. Participant teachers started practicing leadership and taking formal leadership roles, took up to informal roles such as mentoring colleagues, and increased collective efficacy. This study pointed out that leadership teams are best promoted in a collaborative environment; that it is wrong to assume that all teachers would know how to lead from the very beginning; and school-university partnerships flourish in an

environment of mutual trust.

### **Research on Factors Influencing Teacher Leadership**

Several factors have been identified in the literature as important influences on teacher leadership. These have relevance to the present study in terms of group influences on the teacher leadership identity development process and outcomes of teacher leadership.

**School culture/professional norms and opportunities to lead.** Teacher leadership is greatly affected by suitable available opportunities to lead in any form. Howe and Stubbs (2003) investigated how three science teachers became effective teacher leaders in their school, profession, and community. They specifically focused on the applicability of a leadership development model popular outside the field of education in teacher leadership development, identifying factors that promoted leadership development, and weighing these findings with regard to the PD of science teachers. Palus and Drath's leadership development model (1995), which concentrates on one's ability to grow as leaders, was used in this study. The authors identified certain elements of the program such as mutual respect between scientists and teachers, challenging tasks, the creation of a community of practice, and the availability of leadership opportunities that facilitated teacher leadership growth. For example, in the context of this study, opportunities like planning programs with or for colleagues, conduct workshops, construct and test new curriculum materials, and presenting at conferences were found to reinforce teacher leadership and boost confidence. Finally the authors stated that opportunities to show leadership must be provided to all teachers according to need and context unless teacher leadership would go unnoticed largely.

Specific opportunities such as providing PD to other teachers have also been found to enhance the leadership capability of teachers. Baecher's (2012) investigation This study, an extension of a previous study, investigated the phenomena of novice teachers conducting PD of colleagues (Baecher, 2012). The participants were 24 recent graduates who were currently teaching in a school. These novice teachers completed a survey regarding their leadership opportunities and activities. Opportunity for conducting PD for colleagues emerged to be an important activity. This activity mainly consisted of preparing teachers for subject area expertise through group sessions and providing workshops. Some teachers felt surprised as they were providing PD to veterans and also stressed and challenged as they were not appreciated by the some veteran colleagues. Despite these challenges, most of the teacher leaders felt that it helped them to grow and expand their skills and become popular in the administrative circle. Moreover teachers felt a responsibility to be a model teacher so that others can follow them. Finally this study also recommended that in order to develop teacher leadership teachers should be informed about various teacher leadership options, supported in being mentor teachers, and also assist teachers in conducting PD for colleagues.

Increase in self-efficacy of teachers, taking steps to serve outside classroom, and exposure to research based practices can also help teachers to become leaders (Hunzicker, 2012). The author conducted a study to find out how teachers learn to practice informal leadership in school and districts. Teachers were exposed to research based practices through participation in action research projects that was a requirement of the master's program they were going through. They also had to take part in research based school/ district initiatives and requirements such as taking part in intervention

teams, serving in different committees, and integrating technology in instruction. Regarding increasing their self-efficacy, they did so by employing successful learner centered teaching approaches (inquiry based instruction and making instructional decisions based on data) and gaining awareness of support from colleagues/administrators. Teachers in this study learned to practice leadership by serving outside the classroom. They supported and shared with colleagues, led PD, engaged in professional inquiry and participated in collaboration. Moreover, it was also found that PD focused towards improvement of instructional practices and paired with job-embedded collaboration promoted teacher leadership.

Various personal and environmental factors also affect the growth of teacher leadership. Lewthwaite (2006) used Bronfenbrenner's biological model (1979) and Rutter's views on resiliency (1977, 1987) to see how personal and environmental factors foster or hinder science teacher leader development. Aligning with Bronfenbrenner's ecological theory, teacher leadership development was seen as a 'joint function of the person and all levels of the environment' (p. 332) – Individual, Microsystem, Mesosystem, Exosystem, and Macrosystem. The individual level consisted of personal attribute factors such as motivation, interest, commitment, science teaching efficacy and pedagogical content knowledge. Microsystem is the immediate surroundings of a person with whom s/he interacts and affecting factors are collegial support and family members' encouragement. Mesosystem is related to the beliefs and practices occurring in the context of microsystem such as importance placed on science curriculum by school, teacher leader expectations of the school, internal evaluation practices in the school. The third factor exosystem refers to the environmental factors that indirectly influence the

individual teacher such as the attitude of the community towards science as a subject that affects school policy. Finally the macrosystem factors encompass all the other societal and cultural aspects such as national curriculum strategies, PD agendas, national external evaluation processes and pay scales. Not only these factors, but teacher leadership development is also related to the ease with which one adapts to changing circumstances, and thus resiliency was defined as ‘the capacity for successful adaptation despite challenging circumstances’(p. 333). In addendum to these factors, Fairman and Mackenzie (2012) identified the contexts which aided in emergence of teacher leadership – willingness to take risks, questioning existent practices, collaborating with colleagues, start with improving own classroom teaching and then widen the horizon by moving outside the class.

Another unique personal attribute, the political advocacy skill is identified as an integral part for development of identity of a teacher leader. Kenreich (2002) investigated how geography teachers constructed their identities as teacher leaders when provided with an opportunity to advocate secondary geography education. The author expanded the definition of a teacher leader by including an advocacy component – “teacher leader as a person who not only leads colleagues in PD but also employs advocacy skills outside of the classroom to lobby stakeholders for educational reform initiatives.”(p. 383). In this context there were five key goals of geographic advocacy which helped the teachers grow as teacher leaders – betterment of geography education in school; increase participation in various cooperative activities; seek and make opportunities to highlight importance of geography in school district’s curriculum; strive to make geography education a priority by increasing policymakers’ and district administrators’ commitment; and persuade

policymakers to adopt standards and make geography a required course. The author found that teachers' definitional language and ways of geographic advocacy reflected their leadership identity. Development of a political advocacy skill, effort to extend the sphere of influence beyond classroom, positive reputation earned due to professionally developing colleagues, and encouragement and opportunities to be a teacher leader helped in leadership identity formation.

Other than the factors affecting teacher leadership, there are also some studies which have investigated teacher leadership in relation to classroom and school improvement (for example Brooks, Scribner, & Eferakorho, 2004; Jacobson, 2011; Loeb, Elfers, & Plecki, 2010). Silva et al. (2000) described what teachers do and their leadership experiences who lead from the classroom. While embedding leadership in their day to day activities of classroom teaching, teachers navigated the structures of schools through innovations by recognizing and pursuing it through the existing school structure, nurture relationships, encouraging/ modeling professional growth, help colleagues with change/ reform, and challenged the status quo by raising children's voice. Similarly, Can (2009) tried to find out whether teachers could exhibit leadership in primary classroom and found that teachers tried to train themselves for PD, helped students to develop self-learning skills, socialization and cooperation, developed trust and vision, and supported the system by carrying out various activities to realize the goals of project envisioned by the education ministry. Regarding school improvement, Vernon-Dotson (2008) investigated the impact of teacher leadership teams on school wide reform efforts in relation to inclusive education. It had a positive impact and the author found teacher empowerment and collaborative environment were crucial for overall



effectiveness of the schools. In parallel lines, Muijs and Harris (2006) and Ngang, Abdulla, and Mey (2010) while exploring the relation between teacher leadership and school improvement/ effectiveness, found teacher leadership to be a positive and contributing factor. Conversely it was also important for the teachers as it harnessed their creativity, gave them responsibilities and empowered them (Muijs & Harris, 2006). However, school improvement would also be hard without the opportunities for cooperative learning, collaboration among department leaders, broad involvement, and distributed leadership school improvement (Feeney, 2009). Finally, regarding student improvement, teacher leadership style was a main factor affecting it (Yildirim, Acar, Bull, & Sevnic, 2008).

**Effect of principals/ administration.** There were a lot of factors identified by literature during last century that affected the growth of teacher leadership or better to say inhibited it. Leblanc and Shelton (1997) identified lack of time, lack of leadership training and experiences, role confusion created due to the change of so called traditional leadership role, and unwillingness to step forward as some of the barriers to leadership. Regarding leadership opportunities, teachers did not have much of them during that time. Administrators and other authorities did not want to share power with teachers (Silva et al., 2000). Wasley (1991) stated that during most part of the last century, there was no national initiative of any sort to sculpt out teacher leadership positions in the schools. Even if they had it, it was not very effective for leadership development as those were designed only to ensure the smooth running of existing system in terms of logistics and administration. For example, teachers associated with leadership viewed themselves as ‘quasi-administrators’ where they had to work within the school hierarchy (Conley &

Muncey, 1999). Darling- Hammond et al. (1995) said that the even new leadership venues such as lead teachers and career ladder programs "...have maintained traditional views of most teachers' role as implementers of curriculum decisions and procedures decided elsewhere in bureaucracy" (p. 88). For example, positions such as department heads were not viewed as helpful in promoting learning, growth or shared vision (Wasley, 1991).

The notion of formal leadership and the idea of principal as the only leader in a school were very strong during the last century. Even in pilot schools for district implementation of decentralized governance, the principal was the overall controlling authority when various committees and teacher leaders were in play (Marks & Louis, 1997). Even if a teacher wanted to attend board meetings regarding curricular decisions, they were prevented to do so by higher authorities. Unfortunately, the superintendents rather allowed principals to attend those meetings who were not associated with day to day classroom teaching (Wasley, 1991). It is worth mentioning here that teachers should have had authority at least over the learning experiences of the students (Liebermann, 1988). Even when talked about, teacher leadership was seen to be something which would contribute towards leadership enhancement of principals (Marks, 1983) . Even principals did not want teachers in the decision making process as they were thought to be the 'linchpin' of school reform rather than teachers (Conley, 1991). However, results of some studies, for example Pounder et al., (1995) showed that despite the importance given to principals, they "continue to have little influence on the emphasis given to instructional work and thus on student achievement (Pounder et al., 1995, p.586)

Regarding research on teacher leadership, Kinicki and Schriesheim (1978) identified some prevalent barriers during that time. Firstly, there was inadequacy of measures to be used in teacher leadership study. Modified instruments of industrial leadership research were used in teacher leadership that was always susceptible on the grounds of measuring all the constructs. Secondly, the distinctiveness of each classroom setting prevented valid application of those instruments sometimes. Finally, the dearth of research and theory in the area of teacher leadership prevented development of a priori hypotheses. Moreover, transfer of hypotheses from industrial scenarios again was doubtful due to fundamental differences in school and industrial environments.

During this century, there was a change in both the number of studies and conceptions held by principals regarding teacher leadership. There were various studies which focused on aspects related to teacher leadership and principals (Carver, 2010; Donaldson, Cobb, & Mayer, 2010; Ghamrawi, 2010; Ghamrawi, 2011; Mullen & Jones, 2008; Stoelinga, 2010). Before venturing out to explore the relation between principal and teacher leadership, we need to find out principals' conception about teacher leadership or teacher leaders. A study conducted by Watt, Mills, and Huerta (2010) found that attributes which principals seek in teachers leaders can be housed under the headings -- personal, professional growth and development, classroom environment, school and district environments. Basically, they envisioned a teacher leader to be a person with good communication skills, problem solving skills (personal); who would try to develop professionally, mentor and collaborate with peers (professional growth and development); who would promote high standards for students and use various instructional methods (classroom environment); and who would encourage colleagues, be

in touch with principal and be committed to shared decision making (school and district environments). However, there are principals who emphasize teacher leadership to be a function of personality rather than a skill which could be developed through training (Weiner, 2011). In one way this inhibits teachers' leadership growth as principals ignore environmental conditions for promoting leadership, making it difficult for teacher leaders to seek help or admit faults, and isolate them from the school community as a whole (Weiner, 2011)

Mangin (2007) investigated the presence of any existent link between principals' level of knowledge of teacher leadership and interaction with teacher leaders and their level of support for teacher leadership. The study found that teacher leaders enjoyed better support when principals understood teacher leadership and interacted more with them compared to situation when principals had less knowledge and interaction. In a similar study, Chew and Andrews (2010) recommended that principals should give teachers the freedom and responsibility to make curricular choices, time and also space to them for development of teacher leadership.

There had also been studies which had looked into issues regarding principal and other authorities in development of teacher leadership. This article investigated about the principals' perception of the role of superintendents in promoting and supporting teacher leadership (Wells, Maxfield, Klocko, & Feun, 2010). The authors found that principals demanded superintendents should promote an overall system to support teacher leaderships and they should actively get engaged in activities and behaviors supporting teacher leadership program. In similar lines it was also found that communication from the district-level supervisor also influenced principals' level of support of teacher

leadership (Mangin, 2007). Finally, a study exploring various formal and informal on-the-job opportunities to learn for various school leaders' (including teachers), found that much attention on principals hamper the overall school's investment in teacher leadership learning (James P. Spillane, Healey, & Parise, 2009).

### **Summary of Literature Review**

In light of the literature reviewed so far, I will synthesize and present a rationale for the present study. The preceding sections focused on the nature of teacher leadership and how it has been portrayed during this century and prior to it, as well as specific studies that have contributed to our understanding of teacher leaders. From this, several points become clear.

First, the notions of teacher leadership have changed greatly over time, both in terms of how teacher leadership is viewed within the profession and how it is conceptualized by researchers. Currently, leadership is overwhelmingly viewed as a developmental process (York-Barr & Duke, 2004), though there are two distinct conceptualizations of leadership; one in which leadership is shared or distributed, and one in which leadership is an individual developmental process. I situate myself within the latter. Given this, the theoretical framework of identity provides a good fit for pursuing this line of research.

From the current body of research, it is evident that teacher leadership is a growing area of interest among researchers. The work conducted thus far indicates that:

- Teacher leadership takes time to develop (Howe & Stubbs, 2003; York-Barr & Duke, 2004)
- Teacher leadership can be both formal or informal (York-Barr & Duke, 2004)

- Formal conceptions of teacher leadership were prevalent in last century and to some extent is so even in this century (Pounder, Ogawa, & Adams, 1995; Stogdill, 1974; )
- Government policies affect the focus of teacher leadership (Little, 2003)
- Researchers' conceptualizations of teacher leadership have shifted from time to time ( Pounder, 2006; Silva et al., 2000)
- Teacher leadership has also been viewed through various frameworks such as distributed leadership, parallel leadership, leadership action, and identity (Camburn, Rowan, & Taylor, 2003; Crowther et al., 2008; Komives et al., 2006; York-Barr & Duke, 2004)
- Teachers' inaccurate views of leadership include leadership as being formal or positional, limited to one's personal qualities, or not embedded in daily practice (Hanuscin et al., 2012; Nolan & Palazzolo, 2011)
- Degree courses and PD workshops help in developing teacher leadership (Henning 2006; McCay et al., 2001; Roby, 2009; Watt et al., 2010)
- Teacher leadership is affected both positively and negatively by the overall school environment including principals, administrators, and colleagues (Baecher, 2012; Howe & Stubbs, 2003; Mangin, 2007; Wells et al., 2010)

Although teacher leadership has been conceptualized differently and explored through various perspectives during this century, there still exist some uncharted terrain with respect to research. Investigations carried out during last century delved into 'what' and 'who' aspects of teacher leadership. Studies tried to find out the characteristics, activities, different forms of leadership, attitudes of teacher leaders, relation between

teacher leaders and administrators and focused on other related issues. However, there were hardly any studies which looked into the development of teacher leaders and how individual teachers developed as leaders. According to Mitchell, "...much of the research on leadership during this century has focused on acquiring facts about what leaders do or what leaders should know in order to control the behavior of the followers" (1990, p. 14).

In the process of going through the teacher leadership literature and grouping them according to major topics/ lines of research I found that much had not been explored about 'how' of teacher leadership development. The process of gradual growth of a teacher to a teacher leader is referred to as 'how' of teacher leadership. This gap in present studies has also been highlighted by various other authors in some way or the other -- Harris and Muijs (2002); York-Barr and Duke (2004) ; Martinez (2004); Komives et al. (2005); Lewthwaite (2006). Researchers have not delved deep to find out how teachers become teacher leaders, the route they take, whether that route is generalized, or whether these leadership pathways depend on the career stages of teachers, etc.

Although there have been a few studies related to teacher leadership development, there is still much unknown. Few researchers have tried to understand the process of leadership growth, factors affecting it, and construction of teachers' leadership identities. In an overarching sense, these studies investigate the development of teacher leaders, but do not fully address the aforementioned literature gap. For example, some authors studied teacher leadership development process but they did not minutely look into 'how' of leadership (Howe & Stubbs, 2003; Lewthwaite, 2006; and Kenreich, 2002). The mostly investigated 'what factors helped' and applicability of leadership development models.

Moreover, these studies used some particular lens to look at the data and interpret accordingly along those lines versus considering all valuable unfiltered information to throw light on how the growth of teacher leaders takes place.

For my dissertation, I addressed these identified gaps in the literature. Based on these gaps, I propose to examine how teachers develop as teacher leaders. I would like to investigate the processes through which teachers at different career stages become leaders. The goal of my study is to document the different pathways teachers follow as they engage in leadership practices and examine any differences in those pathways. The following research questions will guide my study:

*How do teachers with various years of teaching experience develop as ‘teacher leaders’?* The two sub questions in relation to this include:

- Through what processes and pathways do teachers develop their identity as teacher leaders?
- What differences or commonalities with regard to their leadership practices, if any, were evident for teachers with varying years of teaching experience?

### **Situating Myself in Literature**

This review of the literature helped me in coming up with my own idea of teacher leadership, shaping my views as a researcher, and in identifying teacher leadership ideas towards which I am aligned. Not only that, it helped me in being decisive and reason out why some seemingly appropriate leadership ideas would not fit my study. In this section first I am going to talk about my ideas of teacher leadership and how I define it. Next, I will put forward the leadership ideas with which I most align and how they made me



more cognizant of leadership as a phenomenon. All these aspects have eventually helped me to design my research study.

As a researcher, my views most closely align with the overarching ideas that teacher leadership can be practiced by all teachers, irrespective of any position and that leadership is a developmental process. I view leadership as an amalgam of skills and personal features, which takes place when an individual is willing to take charge and respond to the demand of a particular situation with the intention of both personal and common good and that finally results in some outcome related to student learning. By personal features I am not pointing towards any inborn and charismatic personality, instead I mean to say various unique individual features. Such as, I believe leaders do not have to be in high visibility positions; most of the times leadership means working within a group to accomplish a common goal. Finally by referring to outcome I do not always mean meeting targets or successfully accomplishing a goal or task, which is very typical to the industrial and managerial mindset. In fact, and unlike the industrial scenario, I use the term outcome in a broader sense. Within this term I want to encompass, in addition to what is said before, any improvement in attitude and way of looking at things that supports that particular individual in continuing to do what s/he thinks to be leadership. For example, a teacher might visualize leadership to be manifested through writing and getting a grant for her/his school. Thus s/he might take the lead and submit a grant proposal. The final outcome may come in the form of rejection of the grant. The teacher may again try to submit another proposal based on the feedback received from the failed attempt. Typically speaking it may look like that leadership did not take place or that this teacher cannot be termed as a teacher leader as her/his leadership project (i.e. getting a

grant in this case) did not finally materialize. However, from my point of view, the outcome was not limited to the result of either getting or losing the grant but the outcome would be the thought which provoked that teacher to take charge and write the grant and see it through; and also the mind set of being perseverant and trying again to submit another improved grant proposal.

In addition to viewing teacher leadership as both formal and informal in nature, I also believe that leadership is a development process linked to identity theory framework. I find myself in alignment with the idea that leadership is a time dependent growth process and an individual develops her or his identity as teacher leaders as they practice leadership in their own unique way and traverse along the leadership pathways. I find support and also my views are shaped by the identity framework, York-Barr and Duke's (2004) seven dimensions of leadership, Komives et al.'s (2005) model of leadership identity development and Palus and Drath's (1995) leadership development model. Among the various aspects of identity framework discussed earlier, I find some of them to be most befitting with my chain of thoughts as a researcher. These are -- development of identity as a process (Kroger, 2004), relation between one's identity and her/ his narrative (Somers, 1994), and growth of leadership identity being a complex and continuous process relative to group and social aspects (Gonzales & Lambert, 2001; Hogg, 2001).

As stated earlier, I believe teacher leadership is not dependent solely on having a formal position of authority. This idea was supported by the synthesis of leadership literature done by York-Barr and Duke (2004). The authors highlighted seven dimensions of leadership which can be practiced by any teacher irrespective of any position or years

of service. As explained earlier, these dimensions also highlighted the varied range of areas and circumstances in which teacher leadership can be practiced. These dimensions clearly resonated with my idea that every teacher has the potential to be teacher leaders and the ways of practicing leadership can be varied depending upon the context.

Komives et al., (2005) put forward a leadership identity development model. In addition to the way how different categories interplay to shape one's leadership identity, this model exclusively focuses on the development of leadership identity within. I concur with the authors' portrayal of the complex interplay of personal and group factors which leads into the development of one's leadership identity. I also believe that leadership identity does not just happen all of a sudden at once; instead it proceeds through various logical stages as highlighted by this model. Furthermore, this model made me cognizant of those six logical stages of leadership identity development from awareness to integration/synthesis through exploration, identification, differentiation and generativity (all of these have been discussed earlier in details).

Palus and Drath's (1995) model shows the leadership development process in its entirety. My attention was caught by this model's illustration of how an individual starts by being ready for the process of leadership development, goes through the developmental process and finally achieves outcome in terms of accomplishments with regard to leadership. Moreover, I resonate with this model's constructive (cognitive constructivism in particular) stance towards meaning making of the core leadership developmental process. I also believe that each individual comes with unique individual leadership experiences or leadership beliefs which play a crucial role in their development process and since each starts at different points their leadership outcomes

will also be varied in nature and not always result in some successful acquisition of skills or completion of task. These ideas are very well reflected by this model. The model posits that each individual goes through different set of ‘experience and disequilibrium’, ‘equilibrium and construction’, and ‘potentiation’ and finally develop new leadership competencies or acquire new leadership perspectives or move into higher leadership developmental stage depending upon their point of start or even change in way of viewing oneself and world. This model shapes my views by informing me how internal (trait, state) and external (environmental, sociocultural) factors prepare individual for leadership; and how personal, family, work, and social factors contribute to leadership developmental process.

## CHAPTER THREE METHODOLOGY

### **Introduction**

This chapter will describe the methods and procedures I used in my research investigation. I start by explaining the purpose of the study, research questions, research paradigm, and theoretical framework. Then, I outline the research design, context of the study, participants, the data sources, and analysis techniques. Finally, I discuss the role of the researcher, trustworthiness issues, and the assumptions and limitations of the study.

### **Purpose of the Study**

Current studies have investigated attitudes towards teacher leadership, different forms of teacher leadership, factors affecting teacher leadership, applicability of teacher leadership models, and role of principals with regard to teacher leadership. However, there has been no study so far that exclusively focused on the process of teacher leadership development and how it may vary for teachers with different years of teaching experiences. Within this backdrop, the purpose of this dissertation study was to investigate and describe the process of growth and development of teacher as they participated in a PD program with a focus on teacher leadership -- *Leadership in Freshman Physics*. Because participants in this program were at different points in their profession, I was interested in the leadership development of teachers with different years of teaching experience. The fundamental intention was to investigate the ‘how’ component of teacher leadership, i.e., how teachers developed their identities as teacher leaders. I focused on the process of their identity development as they went through their journey of teacher leadership. I also considered the pathways they followed (specifically,

the dimensions of leadership practice they pursue) as they became teacher leaders. Since every teacher brought their perspective of leadership and enacted their leadership in different school contexts, I expected their leadership pathways not to be generic, but rather individualized. For this reason, I examined their leadership activities in terms of similarities and differences amongst them.

### **Research Questions**

Research questions were guided by both by the gap found in literature and the theoretical framework of identity. The primary research question was *how do teachers with various years of teaching experience develop as 'teacher leaders'?* The two sub-questions in relation to this include:

- Through what processes and pathways do teachers develop their identity as teacher leaders?
- What differences or commonalities with regard to their leadership practices, if any, were evident for teachers with varying years of teaching experience?

These two questions were sequenced in that manner to help and guide data analysis procedure. The analysis of sub-questions informed the analysis of the primary question. The sub questions in turn were designed and sequenced to inform and provide ground for the preceding ones.

### **Research Paradigm**

As a researcher, my beliefs align with the constructivist paradigm of qualitative research. The beliefs of a qualitative researcher, the way they see the world and act in is critical to the whole process of qualitative research. Guba and Lincoln (1994) defined

paradigm as a set of *basic beliefs*, which describe the world for a person and represents her/his *world views*. Furthermore, it can also be defined as a “set of interrelated assumptions about the social world which provides a philosophical and conceptual framework for the organized study of that world” (Filstead, 1979, p. 34). Research paradigm has been appropriately defined by Denzin and Lincoln (2000) as “ the net that contains the researcher’s epistemological, ontological, and methodological premises may be termed a *paradigm*, or an interpretive framework”(p. 19) and a set of views that drives the actions of researcher.

Resonating with Creswell (2007), I believe that reality is subjective and depends on context and experiences. The conceived meanings for a particular aspect can be multiple and complex in nature, and importance should be given to participants’ interpretation of a particular phenomenon. Unlike other approaches such as of positivism, constructivists believe that reality is constructed by different individuals instead of being something external and singular in nature (Ponterotto, 2005). An individual creates his or her own reality. Constructivism is an important theoretical paradigm and has been used by various scholars in the field of science education research. Constructivism is pertinent to the view that “all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world” (Crotty, 1998, p. 42). For example and in the context of this study, the meaning of teacher leadership is dependent upon the leadership practices of teachers and is constructed through some interaction between researcher and participants, participants and their context, researcher and her/ his context. Furthermore, constructivism also advocates understanding the particular experiences of persons who live through it on a

daily basis (Ponterotto, 2005). Patton (2001) stated “constructivists study the multiple realities constructed by people and the implications of those constructions for their lives and interactions with others” (p. 96). In this study, I attended to what leadership meant to each of the participant teachers (i.e. multiple realities) and how those different perspectives informed the construct of their identity. Furthermore, I also investigated how those multiple constructed views of leadership affected participant teachers’ process of leadership development.

The concept of identity, which informed this study, aligns with the philosophical notions of constructivism. The two main tenets of constructivism are subjectivity and many different realities. Purkey (1970) said that personal identity or the ‘self’, which appears to be subjective to other persons, is in fact the ultimate reality of the holder of that identity. To this end, it could be said that the life long process of development/ construction of identity takes place in an inter-subjective field (Gee 2001) of an individual and others perceiving the individual. On the process of this construction, Patton (2002) said that since “human beings have evolved the capacity to interpret and construct reality, the world of human perception is not real in an absolute sense, as the sun is real, but is ‘made up’ and shaped by cultural and linguistic constructs” (p. 96). These cultural and linguistic constructs are a part of one’s environment and an individual constructs her/ his self-identity via transactions with that environment. Similarly, Volkmann and Zgagacz (2004) considered teacher identity to be an ongoing internal construction based on a person’s moral choices and beliefs. These moral choices and beliefs are subjective and idiosyncratic depending on context and experiences.



The constructivist paradigm includes particular epistemological assumptions. Epistemology is that branch of philosophy that deals with the study of knowledge, its acquisition and relationship between “knower” (participant) and “would-be knower” (researcher) (Ponterotto, 2005, p. 131) or how the “researcher knows what she or he knows” (Creswell, 2007, p. 16). Within the context of constructivism, knowledge is assumed to be created via the interaction of investigator and respondents (Guba and Lincoln, 1994), and is agreed upon (Hatch, 2002). From this viewpoint, it is undesirable for the researcher to be distant and objective from the participants (Hatch, 2002) and attempts are made to lessen any such distance (Creswell, 2007). This can include engagement over the long term as well as co-construction of findings with participants. I have utilized both of them in this study.

Ontology is that branch of philosophy that deals with status of reality/ knowledge and its characteristics (Creswell, 2007). As a constructivist, I assumed that reality is subjective and is multiple in natures. Furthermore, from ontological perspectives constructivists also “...assume a world in which universal, absolute realities are unknowable, and the objects of inquiry are individual perspectives or construction of reality” (Hatch, 2002, p. 15). Constructivists believe that reality is multiple and constructed and are “subjective and influenced by the context of the situation, namely the individual’s experience and perceptions, the social environment, and the interaction between the individual and the researcher” (Ponterotto, 2005, p.130). The purpose of this study reflected the ontological viewpoint of constructivism. The goal was to understand various multiple ways through which teachers develop their pathways in relation to a singular and particular aspect of leadership. It well illustrated the viewpoint that meaning

of leadership (i.e. reality) is different for different teachers and they pursue it in their own subjective ways. Since the study included different teachers with varied years of teaching experience, an element of subjectivity was inherent.

### **Theoretical Framework**

Scholars have posited that a theoretical approach is critical for any research study. Honan, Knobel, Baker, & Davis (2000) stated that such an "...approach radically influence what can be found in the data and how it can be found" ( p.9). During my literature review, I examined various frameworks and ultimately chose identity for this study. This framework helped me to examine how teachers shifted through their identities, different roles and routes they pursued, and the way they changed their ideas as they developed from teachers to teacher leaders.

Several scholars have justified and practiced the application of identity theory in the phenomena of leadership growth (Gonzales & Lambert, 2001; Komives, et al.2006; Luhrmann & Ebrel, 2007). In the paragraphs to follow I provided a detailed description of the concept of identity and some relevant facets such as: teacher professional identity, identity and leadership, dynamic nature of identity and the construction of identity through narratives. Finally, I illustrated how the theory of identity has been applied in the educational arena -- partly with regard to teachers' professional (identity) development and leadership development as a whole.

According to Komives et al., (2006), the concept of identity can be applied to the process of leadership growth and how an individual's leadership identity is formed. Leadership can be termed as a dynamic process of growth of an individual identity. An individual progresses towards complex ways of 'being' a leader through various personal

experiences, new roles, feedback from others (Renn & Bilodeau, 2005). It involves the shaping of leadership identity through these stages– identifying leadership in the surrounding, trying to gain experience in some identified aspects, viewing leadership as formal positional identity, slowly moving away from formal view and developing a more generalized view including informal roles and finally continuing development of leadership identity (Komives et al., 2005; Renn & Bilodeau, 2005). Through the perspective of social identity, leadership is conforming one's personal identity with the group prototypes in order to be effective leaders (Luhmann & Ebrel, 2007). It is more a social phenomenon in that "leader identity is a direct result of the leader-follower relationship" (Luhmann & Ebrel, 2007, p.116). Leadership is developing a sense of self as leader (Renn & Bilodeau, 2005), and this sense of self can also be defined as identity.

Identity, in a general sense, has been defined in different ways. It encompasses the "characteristics of the self that one believes, in isolation or combination, to be unique to the self" (Ashmore et al., 2004, p. 82) and is "deeply entrenched in the individual, as a person's innermost attitudes and feelings" (Lührmann & Eberl, 2007, p. 117). Identity also encompasses the perception of others and way one is recognized in any given context. "When any human being acts and interacts in a given context, others recognize that person as acting and interacting as a certain "kind of person" or even as several different "kinds" at once" (Gee, 2000, p. 99).

Identity, in its totality, is dynamic in nature. Initially, an individual's identity was viewed as something static in nature and once established, remained so. However, the evolving aspect of a person's identity has been highlighted from time to time by different scholars. As early as in 1968, Erikson defined identity as "the perception of the

selfsameness and continuity of one's one existence in time and space and the perception of the fact that others recognize one's sameness and continuity" (p.50). Continuing with the same essence, Kroger (2004) brought forth the term 'process' and related identity to individual experiences -- "At times, identity refers to a structure or a configuration, at other points it refers to a process. Still on other occasions, identity is viewed both as a conscious subjective experience as well as an unconscious entity" (p.34). Similarly, various other scholars have not only viewed identity (e.g. Lichtwarck- Aschoff, Van Geert, Bosma, & Kunnen, 2008; Schachter & Rich, 2011; Zembylas & Avaraamidou, 2008) but also teacher identity (e.g. Flores & Day, 2006; Settlage et al., 2009) and teacher leader identity (e.g. Collay, 2006; S. Gonzales & Lambert, 2001) as a dynamic process.

In this study, the concept of identity has been applied to the process of leadership growth and how an individual's leadership identity was formed (Komives et al., 2006). With an attempt to synthesize from different views of leadership, I have shaped my understanding of identity as a frame for this study. In sum, an individual's identity, besides her/his self-perception is the amalgam of unique personal features, way those are presented, comprehended by others, which ultimately results in association of a particular image with that individual. This self-perception is also informed by the view others hold about that particular person. Moreover, identity is not something static; rather it is dynamic in nature and changes with passage of time and also depending upon situational factors.

## **Design of the Study**

In order to answer the research questions, this study utilized a qualitative approach. This particular approach to research was defined by Denzin and Lincoln (2000) as follows:

Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of meanings people bring to them. (p. 3)

Based on this generic definition (Denzin and Lincoln, 2000) and other such literatures, scholars have characterized various positive aspects of this approach to research. The following paragraphs will discuss them in relation to my study.

In their book on designing qualitative research, Marshall and Rossman (2006) highlighted the various strengths of qualitative research as follows:

- Research that elicits tacit knowledge and subjective understandings and interpretations.
- Research on little-known phenomena or innovative systems.
- Research that cannot be done experimentally for practical or ethical reasons, and
- Research that delves into complexities and processes.

The main concern guiding this study was how teachers developed as teacher leaders. Teacher leadership has gained popularity and teachers were viewed as academic leaders but knowledge regarding teacher-leader development has been tacit. It is tacit in the sense that although it is implied that teachers grow as leaders in their profession, the knowledge regarding their process of growth has not been explicit. Thus, using this methodology would help elicit and bring to light the process of teacher leadership development. Furthermore, there has not been much research investigating how teachers develop as leaders (York-Barr & Duke, 2004). Therefore, qualitative research was best fit to investigate this little known phenomenon. Also, it was hard to find any individual teacher who had not been involved in any leadership activity either formally or informally. At the most basic level, every teacher is a leader of her or his classroom as they lead and guide the students through their learning experience. Even if they do not participate in any formal leadership workshop, teachers tend to grow as teacher leaders to some extent, though it may be minimal, according to contextual needs. Furthermore, it is not ethical to deprive any teacher/s or suppress their growth as leaders just for the sake of creating a control group. Thus, experimental research related to teacher leadership development cannot be done for practical and ethical reasons and hence a qualitative stance was appropriate for this purpose. Finally, since the teacher leadership development process is a complex one (York-Barr & Duke, 2004), qualitative research methodologies tended to be the best fit.

Along with these aspects of qualitative methodology that were used to understand the process of teacher leadership development, there were also certain characteristics of this methodology that aligned with this study (Creswell (2007)).

- Natural setting: The data were collected in the field/ site where teachers experience and practice leadership. I had been observing and having face to face interaction with these teachers while they had been attending a summer leadership workshop. These interactions and observations were critical in informing the research study. In contrast to bringing the individual teachers to a lab/contrived situation or sending out survey instruments, this study investigated the leadership development process of teachers in their real life situations. For example, one of the main data sources was the blogs of teachers that they had been writing for three years to describe their leadership activities in their schools and their success and challenges as teacher-leaders.
- Researcher as a key instrument: In this study all the data were collected by me, the researcher. Rather than relying on any questionnaires and instrument developed by others, I examined documents, collect data, interact with participants, interview them and observe them.
- Multiple sources of data: Unlike relying on any single source of data, this study depended heavily on multiple data forms such as documents, artifacts, blog postings, observations and interviews/ reflections.
- Inductive data analysis: I used inductive data analysis procedures to find out emerging themes and patterns. The data was coded, categorized and searched for emerging themes from a bottom-up process.
- Participants' meanings: In this entire research process, I focused on meanings of leadership held by the participants. The way they viewed

leadership and how they tended to develop themselves towards that end was what this study strived to understand. In order to totally reflect the views of participants, I planned to discuss the research findings with them at the end of the study. That helped in making sure the aspect that the participants' views regarding their leadership development process is authentically presented.

- Theoretical lens: For this particular study, I used identity as the theoretical lens to understand how teachers develop their identity as teacher leaders in their process of leadership development.
- Holistic account: I provided a comprehensive picture of the leadership development process of teachers, which was complex as there were various factors involved with it. The research tried to identify the interactions among various such factors, how they affect each other in the outcome of leadership identity development.

Thus, it is quite evident from this above discussion that this study to understand teacher leadership development process well aligned with the qualitative approach of research.

### **Case Study**

There are various approaches to the qualitative method of investigation. This study used a case study approach. Stake (1995) conceptualized case study as aiming to grasp the particularity and complexity of a single case as understood within its important contextual circumstances. Bloomberg and Volpe (2008) clarified the meaning of case in a case study approach. As a form of research methodology, the authors stated a case to be a “phenomenon, social unit, or system bound by time or place” (p.11), its setting,



participants, and followed by “an analysis of the data for themes, patterns, and issues” (p.11). Reflecting the same essence, Baxter and Jack (2008) defined it simply as a research approach that helps in understanding the phenomenon in association with its context by using various data sources. Patton (2001) defined case studies as detailed investigations of individuals, groups or institutions bounded by their exclusive context. The aspect of boundaries of cases was further highlighted by Yin (2003). He described case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context were not clearly evident” (Yin, 2003). Furthermore, the definition provided by Merriam (2009) pointed out the comprehensive descriptive nature of this approach. She defined case study as an “in-depth description and analysis of a bounded system” (Merriam, 2009, p. 40). Finally, with an attempt to synthesize all such definitions, Creswell (2007) defined case study design as follows:

Case study research is a qualitative approach in which the investigator explores a bounded system (a *case*) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving *multiple sources of information* (e.g. observations, interviews, audiovisual material, and documents and reports), and reports a case *description* and case-based themes. For example, several programs (a *multi-site* study) or a single program (a *within-site* study) may be selected for the study (p. 73).

I selected the case study approach for this particular study due to various reasons. Referring to Yin (2003), Baxter and Jack (2008) stated that a case study design is appropriate to consider when “(a) the focus of the study is to answer “how” and “why”

questions; (b) you cannot manipulate the behavior of those involved in the study; (c) you want to cover contextual conditions because you believe they were relevant to the phenomenon under study; or (d) the boundaries were not clear between the phenomenon and context.” (p. 545). With regard to the study, all these above said aspects seemed befitting. The overarching research question for this investigation was “How” teachers with different years of teaching experience develop themselves as teacher leaders. The context of this study pertained to the leadership behavior of teachers in their individual classroom and school settings, which was not possible to manipulate. A case study was also chosen because the leadership development process of the teachers cannot be separated from their individual context of school, classroom, and community. Each teacher had different sets of resources and challenges in their way of practicing their leadership that were inherent in their contextual conditions and thus they were very much relevant to the study. In fact, an authentic illustration of their leadership development process would not be possible without the contextual background.

There were additional rationales for choosing a case study approach. I planned to study three teachers with different years of teaching experience to gain insight into their process of development as teacher leaders. These three teachers served as my bounded units of analysis or the cases. Merriam (2009) posited that “it is the unit of analysis that determines whether a study is a case study” (p. 42) versus other types such as ethnography or phenomenology that “are defined by the focus of the study” (p. 42). Based on this reasoning, case study seemed to be very appropriate for my scenario. Moreover, this study used multiple data sources (in the form of documents, action plans, mid and final year reports, personal blogs, interviews/ reflections), which favors a case

study design (Yin, 2003). In reality, this reliance on multiple sources of evidence is the strength of the case study approach (Patton, 2001). Case study also aims to expand on theories rather than statistical generalization (Yin, 2003). In alignment, this study does not aim for any statistical generalization instead strives to shed light on the leadership development process. Stake (1995) further said that a particular phenomenon or case is of interest when it has both the aspects of uniqueness and commonality. With reference to this study, leadership development was common phenomena but was also uniquely depending upon a particular individual and their context.

Case study design is further differentiated into types based upon its size, boundary and purpose (Creswell, 2007). The different types were single instrumental case study, single intrinsic case study and multiple case studies (Creswell, 2007; Stake, 1995). Single case studies occur when researchers focus on only one case that might be critical, representative, or unique. Multiple case studies occur when researcher select several multiple cases to illustrate a particular phenomenon (Creswell, 2007). This study used a multiple case study approach as three individual cases were considered to illustrate the phenomenon of teacher leadership development. In alignment with the description of Yin (2003), this multiple case study was conducted to predict either similar or contrasting results based upon predictable reasons by using cases different from each other in some respect. In the context of this study, the cases were different from each other on the basis of their years of teaching experience. Furthermore, on the basis of purpose, Yin (2003) distinguished case studies as exploratory, descriptive and explanatory. As the names reveal, exploratory and explanatory case studies focus on exploring or explaining a particular phenomenon that might result in a new theory. Descriptive case studies, on the

other hand, try to give a vivid description and use pre-established theories. This study was a descriptive one as it described the process of teacher leadership development of teachers.

Finally, the concept of identity provided the basis for organization of this case study design. It guided in deciding the cases and related boundaries. A case can be an individual, event, entity or a phenomenon with some boundary (Bloomberg and Volpe, 2008; Creswell, 2007; Yin, 2003). For example, in that sense, the leadership development workshop, or teacher leadership associated with different years in the profession as a whole could also have served as cases. However, these processes or phenomena fail in the aspect of having any defined unique identity of their own as they are just nonliving processes. Since the framework of identity guided this study that is associated with personal entities, single individuals (teachers) were chosen as cases versus any phenomena (leadership). Yin (2003) suggested that the design of a case study can further be a single case design, an embedded case design (where a single case contains sub-units of analysis), multiple case design (several independent units of analysis), and multiple embedded case design (multiple cases each containing sub- units of analysis). Since the aim was to see the development of leadership of teachers (with different years of teaching experience) through an identity framework, I chose the multiple case study design. Had it not been identity, ‘leadership development’ could have been investigated as the case with single teachers as the sub-units in an embedded case study design.

### **Context of the Study**

The context for this study was *A TIME for Physics First: Leadership in Freshman Physics, an NSF-supported Math and Science Partnership (MSP)*. This PD program

prepared 9<sup>th</sup> grade teachers for implementation of the PF curriculum or inverting the traditional science course sequence by placing physics before biology and chemistry. This program also specifically focused on “meeting national needs for teacher leaders/ master teachers who have deep knowledge of disciplinary content for teaching and are fully prepared to be school- or district-based intellectual leaders in mathematics or the sciences” (NSF, 2010). The overarching goal of the project was to develop a cadre of teacher leaders to become advocates for excellence in physics content and research-based pedagogy, strengthen high school freshman science teachers’ and students’ understanding of physics, enhance teachers’ pedagogy and confidence in teaching freshman physics, promote institutional change among core partners institutions, and improve students attitudes towards science (<http://www.physicsfirstmo.org/>). As a part of the program, all the teachers took part in three summer academies. In years one and two, teachers spend four weeks learning about physics content and pedagogy; in year three the institute was only two weeks.

The leadership component of the program which was embedded throughout and was based on the following assumptions synthesized in York-Barr and Duke’s (2004) review of research on teacher leadership:

- Teacher leadership is an essential ingredient in the successful implementation and sustainability of school reforms.
- Teacher leaders need a wide range of knowledge, skills, and dispositions which are derived from research, reflection on practice, and shared expertise.

- Not all teacher leaders look the same or function in the same ways; teacher leadership is enacted both through formal and informal means, and cuts across a variety of domains of teachers' practice.
- Teacher leaders need the support of others in similar positions to be fully successful. Experience in a supportive learning community enables teacher leaders to recreate such community in their own school contexts.
- Teacher leaders' learning must be embedded in their practice.
- Teacher leaders assume responsibility for their PD by pursuing their own learning goals in a variety of ways, including workshops, study groups, readings, and mentoring relationships.
- The ultimate goal of teacher leadership is to improve student learning.
- The ultimate goal of teacher leadership is to improve student learning.

This leadership development program was conducted through both face to face (summer academies) and online means (academic year) to enhance teachers' leadership skills. As leaders, teachers served as advocates (speaking up for best interests regarding student learning), innovators (implementing new practices and acting as change agents) and stewards (contributing to the profession by helping their own growth and their colleagues) (Lieberman & Miller, 2004).

During the first year, four entire days of the summer academy were set aside for teachers to discuss literature related to leadership, try to understand the vast scope and various possible avenues of teacher leadership – both formal and informal, seek to understand and identify their roles as teacher leaders, and try to find potential solution to address barriers to successful leadership. In addition to that, they also developed a

leadership action plan. During the second year, two days of the summer academy were provided for teachers to discuss the implementation of their previous year's action plan, discuss challenges they faced and how they overcame those, and share how their ideas about leadership changed. The third-year workshop focused on discussions related to teachers' growth as leaders and ways to sustain their leadership growth and practices.

### **Sample/ Participants**

I selected the participants for this specific study from the pool of teachers who participated in the above mentioned PD program. Two cohorts of teachers participated in this program. Each cohort typically enrolled 30-36 teachers. All these teachers were teaching freshman physics in their respective schools; however, they varied with regard to their years of teaching experience, educational qualifications, and prior grade level teaching experiences.

In order to select the particular cases for this study, I used purposeful sampling method. Purposeful sampling is a qualitative sampling strategy. It is described as "studying a relatively small number of special cases that are successful at something and therefore a good source of lessons learned" (Patton, 2002, p. 7). For this particular context, only teachers actively participating in the leadership component of the PD program were selected. This procedure of purposeful sampling was "based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which most can be learned" (Merriam, 1998, p. 61). Since this particular study strived to gain insight into the leadership development procedure of teachers with different years of teaching experience, a sample of three teachers with experience ranging from few years to 30 years were selected. As implied by

both Merriam (1998) and Patton (2002), the critical point in choosing the cases was the availability of rich and thick data to learn utmost regarding their growth of leadership.

The selection criteria for this study included the number of years of teaching experience, regular and sustained participation in PD and leadership activities in particular. These potential cases were further divided according to three groups based on their years of teaching experience. The first group consisted of teachers with fewer than 5 years of teaching experience, i.e., teacher 1 through 4. The second group consisted of teachers with fewer than 15 years of teaching experience i.e. teacher 5 through 10. The third group consisted of teachers with 15 or more years of teaching experience. For my study, three teachers were selected (one from each of the three groups) as summarized in Table 5. The given names of the participants are pseudonyms.

Table 5: SELECTED PARTICIPANTS

Participant	Gender	Years teaching (upon application to program)
Brandon	M	1
Elisa	F	13
Martin	M	17

### **Data Collection and Management Techniques**

A variety of data sources are used for most qualitative studies (Bogdan & Biklen, 1998) and this use of multiple data sources has been highlighted as an important aspect of any qualitative research (Creswell, 2007; Denzin & Lincoln, 2005). Multiple data sources, versus any single data source, are needed because “multiple sources of lead to a fuller understanding of the phenomena” (Bogdan & Biklen, 1998, p. 104). Moreover,



studies with only one data source “are more vulnerable to errors linked to that particular method” (Patton, 2001, p. 248) whereas using multiple data where “different type of data provide cross-data validity checks” (Patton, 2001, p. 248). Therefore, the data sources I utilized in this study accounted for the aforementioned discussions. The teachers participating in this PD program had already consented to take part in research related activities. My study received IRB approval for the collection of additional data, where appropriate.

I have divided this section into two subparts – data sources that already existed (existing data sources) and data sources I collected (collected data). Existing data sources include the data that was already collected or was in the process of collection as part of the NSF grant activities related to the PD project. In addition to those data, I also collected some other data to further inform me about the phenomenon of teacher leadership development and fill the gaps left by the existing data sources. The following table shows the time line of all the collected data sources.

Table 6: TIME LINE OF DATA SOURCES

Year when collected	Data sources						
	Application information	Action plan	Blogs	Midyear and Final year progress reports	Discussion forums	Life Story Exercise	Interview
2009	X						
2010 (Year 1)		X	X	X	X		
2011 (Year 2)		X	X	X	X		
2012 (Year 3)		X	X	X	X		
2013 (Year 4)						X	X

The following table illustrates the alignment of each research sub questions with the data sources, each of which is described below in details.

Table 7: ALIGNMENT OF RESEARCH QUESTION AND DATA SOURCES

Research questions	Data sources						
	Application information	Action plan	Blogs	Midyear and Final year progress reports	Discussion forums	Life Story Exercise	Interview
Research sub question 1	X	X	X	X	X	X	X
Research sub question 2	X	X	X	X	X	X	X

### Existing Data Sources

**Applications.** All the participant teachers provided their demographic information and other related professional information such as the grades they had been teaching, details of their teaching certification, number of years they have been teaching science. Moreover in this application they had stated their prior leadership activities and what influenced them to join this leadership development program. This was an important data source in terms of getting a view and description of their idea of leadership. These aspects in turn had possibly shaped their identity they were holding before this PD program. Thus, this data source was helpful in establishing a baseline of their incoming identity.

**Action plans.** The leadership action plan was another source of data for this study. All the participant teachers developed a year-long individualized action plan that was executed during the upcoming academic year. Based on the recommendation of Katzenmyer and Moller (2001), the main purpose of this action plan was for each teacher

to narrow down a goal or point out a concern with regard to the successful implementation of PF curriculum. It is worth mentioning here that professional developers guided the teachers in developing a ‘doable’ action plan. Depending upon various ways of implementation of PF curriculum, the contextual scenario of their school, and their leadership interest, each teacher came up with their own action plan ideas and discussed about its feasibility with the PD staffs. In addition to that, this exercise of action planning helped the teachers to identify potential barriers and how they would overcome them, recognize resources, decide their roles (formal or informal), determine actions to be taken and leadership skills to be honed, plan out a timeline, and finally describe evaluation plan and communication strategies for their action plan outcomes. This leadership action plan both supported and complemented each participant’s daily efforts for successful implementation of this curriculum and improvement of student learning. These plans focused on a diverse range of activities. For example, plans were made for peer observations to improve teaching of the freshman physics curriculum, building parent and community support by organizing special events to popularize PF program, and also plans to work with colleagues in development and utilization of common assessment to inform instruction. The participant teachers implemented their plan during the academic year and also evaluated themselves throughout the process.

Leadership action plans were a crucial data source because they depicted the focus of their leadership activity, and roles teachers had been playing each year since they took part in this PD program. These leadership roles via action plan depicted their leadership identity and also shift in their leadership focus if any, during that time. For example, the focus of the leadership activity in an action plan during each year helped me

to see if teachers took only formal roles or only informal roles or shifted from formal to informal or vice versa. These roles in turn affected their self-perception, how others see them, and hence their identity. Thus, it can be said that the yearly leadership action plan were a valuable source for understanding teacher leadership identity through the leadership roles they take.

**Blogs.** The blog postings of teachers and accompanying comments were a major source of data. In order to build on their learning during the summer workshop, teachers reflected in their blogs about their leadership practices and discussed barriers and facilitators in their leadership development and implementation of their action plans. The teachers were introduced to blogging and were guided to come up with their set of DOs and DON'Ts during their summer workshop session. Professional developers provided them with four examples of blog links that were public and written by other teachers. One of these blogs specifically focused on leadership. They were asked to consider the blogs' content, aims and purposes of those blogs, and how did it look like a tool for reflection. Once they have read through those blogs, they were then exposed to some other sample blog entries created by the professional developers and asked to discuss and critique those entries. These sample blog entries differed in length, degree of details and general tone/appropriateness of content. The purpose of these was to guide and engage them in creating their group norms for blogging. Teachers gave their thoughts on the adequacy of each of these sample blogs with respect to what they wanted to accomplish through it. They also discussed amongst themselves on what kind of responses they expected to be helpful for any particular blog entry. Thus in this way all the teachers together came to create the norms for blogging.

Throughout each whole academic year, all the teachers who took part in this program, blogged their experiences regarding implementation of leadership action plan. The teachers used the SAKAI (<http://www.sakaiproject.org/>) learning management system in writing the blogs and the access. Unlike traditional blogs that are public and open to a broad audience, these blog postings were closed within SAKAI and available only to participants' colleagues and professional developers of the program. During the school year, each teacher was expected to blog once every month and respond to at least one other blog posting. Moreover, they were also encouraged to revisit and reply to any comments made on their blogs. Other than these logistic factors, the nature of the blogs was quite open in general, and each teacher had a choice about what to write in their postings. Almost all the blogs consisted of a title and the body or text of the blog. The length of the blog posts normally ranged from one to four paragraphs. This blogging platform gave teachers a way to remain in touch with each other despite geographical barriers. The teachers were dispersed across the state in different districts and different schools. It helped to virtually connect teachers so that they could discuss day to day school problems, share success stories, gain support from one another as they explored their personal ways of leadership.

Blogs were an important data source for capturing process of leadership identity growth. The literature advocated that identity is dynamic in nature and it is a 'process' related to various individual experiences (Erikson, 1968; Kroger, 2004; Lichtwarck-Aschoff et al., 2008; Schachter & Rich, 2011; Zembylas & Avaraamidou, 2008). In order to capture this process of identity development, blogs postings across three years were chosen to be one of the primary data sources. These individual teacher blogs over this

period reflected how they had projected themselves in this virtual platform since they first came into this program and thus gave a picture of their identity development process.

**Midyear and final year progress reports.** The leadership action plan accompanied itself with two other data sources i.e. the mid-year progress report and end-of-year report. The main purpose for this documentation was to gauge and assess each teacher's progress in the context of the implementation of their customized action plan. The mid-year progress report detailed the current standing of each teacher about the implementation of their leadership action plan. They contemplated whether they wanted to modify their action plan visions; listed activities undertaken to reach their action plan goal; talked about the alignment between anticipated and real challenges faced and also explicitly identified further support needed.

In contrast, the final year report was intended to gauge the development of the teachers as leaders on the backdrop of their completion of leadership action plan. This report served more as a reflective tool focused upon their identity development. As teacher leaders, they discussed their views regarding their development as leaders, evaluate their strengths and weaknesses with regard to leadership skills, and consider how they impacted as leaders in their classroom, school and outside community.

Mid-year and final reports were used to get a detailed picture of the implementation of their leadership action plans and hence the leadership identity growth as explained earlier. Since these data sources detailed the progress of their leadership roles, it helped to see the way they traversed in their leadership pathways and also the consistency of leadership growth.

**Discussion forums.** Teachers also took part in the online discussions throughout each year of the PD. The discussions in this forum were varied and were grouped under different topical headings. The different groups include teachers' lounge, PF content, advanced physics content, PLC and coaches' discussion forums, workshop lunch questions. Within these groups the topics of discussion ranged from implementation of the curriculum, content questions, and classroom pedagogy. There were also forums specific to leadership (what is leadership, challenges for leaders, taking action through leadership, your growth as a leader, importance of reflection, and how to sustain reform). Thus, teachers' comments in this discussion forum were another rich source of data that allowed me to capture their views on above mentioned aspects of leadership. The discussions reflected consistent or changing personal views. It is obvious that these personal views shaped an individual's identity and in this case their leadership identity.

### **New Data Sources**

In addition to the aforementioned existing data sources, I also collected data through both a Life Story Exercise (Atkinson, 1998) and interviews.

**Life story exercise.** Life story is defined as "the story a person chooses to tell about the life s/he has lived, told as completely and honestly as possible, what the person remembers of it and what s/he wants others to know of it" (Atkinson, 1998, p. 125). Furthermore, the author also said that this "resulting life story is the narrative essence of what has happened to the person... it includes important events, experiences, and feelings" (p. 125). These life stories are a way of communicating emotions and thoughts and are used by social scientists for different purposes (Boyatzis, 1998). I provided the participants of this study with life story prompts and asked them to reflect and write their

response. These prompts were adapted from McAdams's (1985) work done in the field of identity and self-concept, and they are provided in appendix A.

I feel that this reflective life story exercise, a self-administered questionnaire related to an individual's life (Boyatzis, 1998), as a data collecting instrument was appropriate because it connects both to constructivism and identity. With regard to constructivism and as highlighted earlier it helped getting the subjective reality view of each of my case's life. Furthermore, since it was reflective in nature, this life story exercise helped bringing out the hidden realities (Ponterroto, 2005).

Connelly and Clandinin (1990) posited human beings as story telling organisms leading storied lives and "educational research is construction and reconstruction of personal and social stories" (p. 2). With a particular focus on teachers, identity has also been explained on the basis of stories that describe teachers' personal and professional lives (Sfard & Prusak, 2005). Moreover, it has also been suggested that narratives and narrativity helps constituting identities (Somers, 1994). Sfard and Prusak (2005) equated identities with stories of individuals and stated that "We did not say that identities were finding their expression in stories, we said they were stories" (p. 14). Besides these, there are some specific instances where this life story exercise tool was used in studies related to identity. For example, McAdams (1985) investigated the use of life stories in the construction of individual's identities. Dreyfus (1990) used this in her dissertation and later on in another publication in 2008. Dreyfus (2008) used the life story exercise in her study "to represent a self-report measure of the managers' self-image" (p. 79), which means the personal identity of the managers. Moreover, speaking about identity as a whole, Mc Adams (1985) said that "identity is a life story which individuals begin



constructing consciously and unconsciously, in late adolescence. As such, identities are understood in terms directly relevant to stories.” (p. 57). He further said “the life story model of identity suggests how the personologist, or anyone else seeking to understand the whole person, may apprehend identity in narrative terms” (p. 58).

Besides above discussion, this reflective life story narrative exercise was useful for other reasons also. This data collection method helped in getting a detailed, reflective and thoughtful glimpse of teachers’ variety of viewpoints. As opposed to interviews, the teacher did not have to give instantaneous answers limited by a time frame. Since they were free to document their thoughts in reaction to the life story prompts, they mulled over and presented various different aspects of their perspectives. Jalongo, Isenberg, and Gerbracht (1995), in their book *Teachers’ Stories: From Personal Narrative to Professional Insight*, advocated that narrative mode is the best to bring out teachers’ dilemmas, motives, thought processes, moments of successes, feelings of desperation, etc. The authors also provided various reasons of its appropriateness. First, the writer can return and alter the documentation of their experiences. This means that they can also add new views as they come and provide a rich data which is not possible in the case of interviews. Second, the writers glean new and useful perspective while writing down their experiences. Thus, these gained outlooks while in the process of writing contribute in providing multiple perspectives of a single participant that again aligns with the constructivist approach of multiple and subjective realities. Third, writing one’s experiences brings a sense of authority, responsibility, and written documents are enduring and official. Finally, writing narratives helps authenticating the writer’s voice, which was again a major aspect of this study was to bring out the participant’s voice to a

fullest extent.

**Interviews.** I conducted interviews with participants to understand their overall growth as a leader in general and leadership identity development in particular.

Interaction among the researcher and the phenomena or object of research is an important aspect of my constructivism research paradigm (Ponterotto, 2005). This kind of interaction is capable of surfacing deeper meaning of any phenomena where researcher and participants together construct findings via their interaction and interpretation (Ponterotto, 2005). Thus, interviews help a researcher to get informed about participants' views and beliefs regarding any phenomena under investigation (Hatch, 2002).

I conducted semi structured interviews for this study. It gave me the flexibility of probing into different aspects that emerged during the ongoing interview session and which could not be anticipated earlier (Hatch, 2002). I constructed interview probes based on the analytical framework of Palus and Drath (1995) leadership development model. I conducted two phases of interviews since the number of questions in my protocol was rather large for only one session. The interview protocol which was based on the questions used by Komives et al. (2005) is present in appendix B.

### **Data Analysis**

Data analysis is defined as the process to read, understand, make sense of data and finally make conclusions in the form of findings (Bogdan & Biklen, 2007; Merriam 2009). In the qualitative realm, as opposed to the quantitative field, there is no fixed and particular statistical formula for converting the data into findings in the data analysis process (Yin, 2003). Patton (2002) said "Qualitative analysis transforms data into findings. No formula exists for that transformation. Guidance, yes. But no recipe... [T]he

final destination remains unique for each inquirer, known only when-and if- arrived as” (p. 432). More specifically, in the context of analyzing case study evidence, Yin (2003) said that “The analysis of case study evidence is one of the least developed and most difficult aspects of doing case studies” (p. 109) as “the strategies and techniques have not been well defined” (p. 109) and most of the times researchers have “the foggiest notion about how the evidence is to be analyzed” (109). He further states that this whole analytical process “depends on an investigator’s style of rigorous thinking, along with the sufficient presentation of evidence and careful consideration of alternative interpretations” (p.110).

The process of data analysis depends upon the purpose of the study and the research questions in hand. As mentioned earlier, the purpose of this study was to investigate the process of development of teacher leaders during their participation in the *Leadership in Freshman Physics* program. With regard to that, the research question focused on processes and pathways of leadership identity development.

### **Leadership Dimension Analysis**

Since I was investigating leadership development, it stands to reason that deciding the activities that fall under the realm of leadership was crucial during the data analysis part. I used York-Barr and Duke’s (2004) dimensions of teacher leadership practices as an analytical lens to do the first round of analysis of my data (Table 7)

Table 8 SEVEN DIMENSIONS OF TEACHER LEADERSHIP (York-Barr & Duke, 2004)

Dimensions of Teacher Leadership Practices	Examples
Coordination and management	Coordinating daily schedules and special events; participating in administrative meetings and tasks.
School or district curriculum work	Selecting and developing curriculum; defining outcomes and standards.
PD of colleagues	Mentoring other teachers; engaging in peer coaching
Participation in school change and improvement initiatives	Participating in research, notably action research; taking part in school wide decisions.
Parent and community involvement	Becoming involved with parents; encouraging parent participation; working with the community and community organizations.
Contributions to the profession of teachers	Participating in professional organizations; becoming politically involved.
Pre-service teacher education	Building partnerships with colleges and universities to prepare future teachers.

Based on the dimensions above, I coded dimensions of leadership practice of participants across all data sources, while remaining open to additional dimensions not captured in their list. Table 8 shows an example of this analysis with respect to Brandon's data.

Table 9: PARTICIPANTS' LEADERSHIP ACTIVITY AND CORRESPONDING DIMENSIONS OF TEACHER LEADERSHIP

Data sources	Leadership activity quotes	Leadership dimensions
Blog Year 3	"All joking aside, today the administration asked the middle school science teacher and I to develop a list of concepts/activities to get parent involved in their child's education."	Parent and community involvement
	"I actually collaborate with the grade level teacher so the lab the students work on align with the material they are currently covering or what they are going to be covering. It is amazing the concepts/ideas some of these elementary students have."	PD of colleagues
	"My goal is to make sure the students of Bunceton are prepared to exceed the expectations of NGSS and the new state standard of top 10 by 20."	School or district curriculum work (outcome and standards)

I then summarized codes for each participant across all data sources in table format, in order to analyze changes in their leadership practices over time (see Table 9). The ‘X’ shows that a participant has referred to any activity related to that particular dimension of leadership practice. The leadership activities were matched across different time frames related to various data sources related to different time frames – prior joining the PD, during first/second/ and third year in the PD, and interview transcriptions and life story narratives conducted during their fifth year of involvement in the PD. In these data sources, among other things, they spoke about their present, past and future plans related to leadership activities. The information provided in the application was the main data source for gauging leadership activities of the participants prior participating in the PD. The blog postings, action plans, mid and final year progress reports, and discussion forums were the data sources which provided the picture of leadership activities during all the three years in the PD. The interview transcriptions and life story narratives were the data sources for post year 3 of their participation in their PD.

Table 10: CHANGE IN BRANDON’S LEADERSHIP PRACTICE OVER TIME

<u>Dimension</u>	Coordination, management	School/ District Curriculum Work	PD of colleagues	Participation in school change/improvement	Parent and community involvement	Contributions to the profession	Pre-service teacher education
<u>Data</u>							
Prior				X		X	
Year 1	X		X	X		X	
Year 2	X		X	X			
Year 3		X	X		X		
Post	X	X	X	X	X		

## **Thematic data analysis**

Whereas the previous phase used deductive analysis, this thematic analysis employed inductive (open) coding. Only those segments of the data identified as ‘leadership practices’ in the previous phase were considered at this point in the research. Here I coded the data thematically across all data sources. The unit of analysis was a sentence/ group of sentences that informed a single meaning or message. I developed codes or ‘themes’ to convey the interpretation of the speaker’s meaning. Through this process, a total of 514 codes were generated. Following is an excerpt of Elisa’s interview that I coded as ‘Leaders bring groups together for a common good’

Well you might be... you might be a person who gets their ideas in a committee, or you might be a person who is able to summarize- like other people throwing out all their ideas- but you need people to say it in a short way. Or you might be a leader in that thing when people were not-- one person is on one side and one person is on the other side-- and you help them both come into a common ground

Next, I created an excel sheet for each participants listing all the generated codes and along with their examples. In the list, I also identified the time frame for each of the excerpts. Data sources like blog postings, action plans, mid, and final year reports, discussion forums as inherently had time frames associated with them. All these documents had been collected each year for three years. The interview transcriptions and life story narratives did not have this inherent associated time frame; however, based on the voice and overall context, I tried to classify the codes and associated example excerpts of interview transcriptions and life story narratives as ‘past’ and ‘present’. The table below exemplifies some codes with excerpts and time frames related to analysis of Martin’s data sources (Table 10).

Table 11: EXAMPLE OF CODES, EXCERPTS, AND DATA SOURCES WITH TIME FRAMES

Codes	Excerpts	Data sources and time frame
Leaders should be optimistic	Optimism, a positive attitude is important I think and in leadership because there gonna be , there gonna be bumps in the road and you are gonna have to push through those and more importantly help other people push through those	Interview 1, present
I am developing as a leader – being vocal and taking initiative.	As I continue to develop as a leader, I am finding out more about my leadership style. Often times I am vocal and pushing for change.	Final year report, year 1
I am a better teacher now	One of the things I love about this class is the blogging. Call me a nerd - I don't care - but I really feel like blogging has made me a better teacher.	Blog post, year 2

Arranging the initial codes chronologically was important to help me categorize codes by considering whether a particular code was a recurring as opposed to a new code for the participant during his/her involvement in the program.

Following this, I reviewed the codes to identify similar codes that could be grouped together in relation to particular themes. This process resulted in 82 categories of codes that could be grouped in five different domains; these included: themes about views of leadership (41); themes related to teachers' own identities as leaders (28); Themes related to teachers' leadership practices (7); Themes related to the benefits of PD program in influencing their leadership identities (3); Themes related to shifts in views,

identities and actions (3). Table 11 illustrates how individual codes were assigned categories then grouped in a domain

Table 12: EXAMPLE OF GROUPING OF SIMILAR CODES

Domain	Example Themes (Categories)	Example Codes
Leadership views	Leadership practices vary in scale	Small scale leaders work with very few people. Small scale leadership does not have a set hierarchy. Small scale leadership is easier and more informal because members know each other. Big scale leaders lead at the school level. Large scale leaders have to prove themselves at the beginning.
	Leaders are visionary	Leaders are visionary and know where their group is going. Leaders need to have vision. Leaders need to be visionary and cognizant about 'where' their group is going and 'how' to reach there.
	Leaders are group oriented and democratic in nature	Leaders work towards consensus. Leaders bring groups together for a common good. Leaders should also try to consider others' views while determining a vision. Leaders should make decisions transparently in general except some special situations.

The next step in the data analysis process was investigating participants' practices/actions within the virtual community (Table 12). This was done by examining their blog posts/responses and also the comments they made to each of the blog posts of other teachers in the program. Participants' blogging practices in relation to leadership identity were coded using a schema developed by (Hanuscin, Cheng, Rebello, Sinha, & Muslu, 2014). This provided more detailed information about teachers' leadership practices and identity work over time, and enabled the triangulation of themes emerging from the interview data.



Table 13: SUMMARY TABLE OF ELISA'S COMMENTS TO BLOG POSTS

Actions through blog comments	Elisa (Year 1)	Elisa (Year 2)	Elisa (Year 3)
Asking for clarification/further details	x x x x x x x x	x x x x x x x x x x x x x x x	x x x x
Acknowledging other's idea/ perspective	x x	x x x x x x x x x x	x x
Identifying problems/challenges	x x x x x x x x	x x x x x x x x x x x x x	
Offering assistance/advice/suggestions	x x x x x x	x x x x x x x x	x x x
Relating	x x x x x x x x	x x x x x x x	x x
Expressing appreciation	x x x x x x x x	x x x x x	x
Encouraging	x x	x x x x x x	x x x
Asking for advice/input	x x x x x x	x	x
Describing strategies/plans	x	x x	x x x
Reflecting	x x x		x x
Asking rhetorical question	x x x		x
Sharing activity/ resources	x x	x	
Accepting advice	x x		
Adopting/Adapting any strategy/idea/ activity	x x		
Advocating a common vision of effective teaching	x x		
Asking for resources	x		
Drawing on PD		x	

Next, I assembled all the data analyses results to create case profiles for each participant. First, I gathered all the coded data, corresponding categories, and domains separately for each participant. Second, I tried to make sense all of them to develop a case profile for each of the participants. I used both the data analyses results (which also included reflective life story analysis) and reflective life story independently to create these case profiles. This encompassment was done to get a holistic picture of each of my

participants through their case profiles. I organized each participant's case profile under those five domains mentioned above – leadership views, leadership practices, identity, shifts, and contribution of PD program.

Finally, a cross case analysis was done to compare all the three case profiles. The intention was to see the similarities and differences within each of the domains of all the participants.

### **Trustworthiness**

The aspect of trustworthiness is critical for any research. Qualitative research in comparison with its quantitative counterpart is criticized on the ground that they do not tend to establish internal and external validity and so there is not much value associated with such type of research. However, due to the difference in approach and focus, the way of dealing with reliability and validity issues in qualitative research is different from that of quantitative research. Lincoln and Guba (1986) identified four approaches for qualitative research that are analogous to that of establishing reliability and validity in quantitative research. The authors stated that “credibility as an analog to internal validity, transferability as an analog to external validity, dependability as analog to reliability, and conformability as an analog to objectivity” (Lincoln & Guba, 1986, pp. 76-77). In the following paragraphs, I discuss how I addressed each of these.

According to Merriam (1998), credibility means the extent to which the research results are in alignment with the reality related to the investigated phenomenon. Lincoln and Guba (1985) described credibility as “the match between the constructed realities of respondents (or stakeholders) and those realities as represented by the evaluator and attributed to various stakeholders” (p. 237). In simple terms, Marshall and Rosmann

(2006) stated that “credibility requires establishing results in a way that is credible from the perspective of participants and the goal is to demonstrate that the study was conducted in such a manner as to ensure that the subjects was appropriately identified and described” (p. 201). In order to achieve credibility, six strategies have been identified – triangulation, member checks, peer-examination or peer debriefing, long term observation, participatory modes of research, and clarifying researcher’s biases. In this study I used triangulation and peer debriefings to ensure credibility.

The process of triangulation refers to using of findings from different data sources that would lead to similar findings and using that information in favor of building a justification for the findings (Creswell, 2007; Patton, 2002). The credibility of a researcher’s findings increases if analysis of different sources points towards the same direction (Hatch, 2002; Patton, 2002). In this regard I used different data sources such as action plans, mid-year and final year reports, web logs, reflections, discussion forums. All these data sources directed towards similar results regarding the phenomenon of leadership development of teachers.

Peer debriefing refers to the process through which another knowledgeable person of the field reviews, ask questions, and comment on the findings (Marshall & Rossman, 2006; Merriam, 1998). In this regard and throughout the whole process of dissertation, I had consulted my advisor at every step.

Another way of establishing credibility is prolonged engagement. I was engaged in this project from its inception five years ago. I spent time with the participants, interacted with them, and read their blogs. All these enhanced credibility of this study.

The aspect of dependability in qualitative research is analogous to the conception of reliability in the quantitative realm. In this regard, I took the following steps. I was consistent with the research process as outlined above i.e. followed all the steps as said so that the investigation results were dependable. I also gave a detailed description of my processes of participant selection, data selection, data analysis, and interpretation. Also, as explained earlier, I used multiple data sources for my study. Finally, I also established inter rater reliability with my advisor. To start with I coded some part of my data. She went through the parts I had coded and gave her feedback. Based on those feedbacks I re coded until we reached an agreement.

Transferability refers to the extent to which the findings of a particular study can be generalized to other situations and degree of their utility for an investigator with similar settings or research questions (Lincoln & Guba, 1985; Merriam, 1998). According to Patton (2002), providing a thick description i.e. rich enough description aids an investigator to decide how well a particular study can be transferred to other similar situations. Thus, I provided a thick description of my entire research process and context for addressing the issue of transferability. I gave a detailed description of my research methodology, participants, context of research, research questions, theoretical and analytical frameworks used, etc.

Finally, in order to attain conformability I provided references from literature in the field of teacher leadership. I also cited findings of other studies that might be related to my study. Furthermore, I provided excerpts from my raw data to support the claims I made. Finally, the processes of peer debriefing also helped in establishing conformability

## **Background and Role of Researcher**

### **Background of the Researcher**

The researcher is a key element in qualitative research (Marshall & Rossman, 2006) and thus the description of the role of the researcher is important. In this regard, the following paragraphs will shed light on my brief history and present role. In the paragraphs to follow, I first described my background and then explained my role as a researcher.

I chose the teaching profession at my undergraduate level when I enrolled in a four year integrated bachelor of science/bachelor of education program. This was a dual degree course in one of the premier teacher training institutes of India. My fondness towards science led me to pursue master's degree in it while my passion and interest in education dragged me in the classes of M.Ed. After completing my studies, I decided to join the teaching profession and worked as an assistant teacher in a primary school (Grade 1 to 5). I was satisfied with my work as a teacher and I tried to give my best to the profession. However discontentment arose in me sometimes when after all possible efforts my students achieved less in science. With time, this feeling of dissatisfaction increased which also led me to think about ways through I could make science teaching a more fruitful one. Eventually, I thought of learning more about teaching and researching in science education and one way to do that was to enroll myself in a doctoral degree course. I applied for admission to the Ph.D. program in science education in the U.S. Presently I am a doctoral student in science education in the University of Missouri.

I come from an Indian middle class family. The locality in which I grew up consisted of people belonging to this class of citizenry who were often struggling with

basic livelihood amenities such as supply of electricity, drinking water and cleanliness and hygiene issues. From my early childhood I remember that whenever some common problem arose, there were always a few persons who would come to the forefront to solve the concerns. These few were the ones, who would call meetings to discuss problems, most of the time other people would listen to them and sometimes they would take decisions on everybody's behalf which was ultimately accepted by all. These were also some of the respected persons in our community. This was sufficient for my early and novice self to develop a feeling of likeness for these persons. At this point of time when I look back, I think it was the power associated with them that attracted me.

It is also worthwhile to mention here that unlike USA our country has a number of national and state level political parties. Thus, due to obvious reasons these parties have a number of persons who look after the work of these political parties from local to the national level in a hierarchical manner. As I grew up I saw that these persons were termed as leaders and have seen/ heard about many such persons from my childhood – our national heroes. As I was already attracted to such personalities and thus many times in my adolescence I have wondered about leaders and their skills -- what is the difference between a common man and a leader? What/ which and how an extra mile makes these persons as leaders and others not so. Also, my likeness for those guys who were forefront in the class grew during my school days. I was impressed by their importance and power (monitoring the class in absence of the teacher, choosing a cricket team, etc.).

With this portrayal of leaders in my mind, I went to college that was away from home. This attraction towards the amalgamation of leadership and power very quickly led me to befriend those people in my college who were in the student council member

and had influence within the student group. Finally, these lead me to hold positions in the council in later years of my undergraduate degree. Same happened in my post-graduation degree, which I pursued in another university, and I was one of the student leaders (so called) of the hostel.

After finishing my degree courses, I eventually got a job as a primary school teacher. I served as a teacher for four years. During my teaching career, I came across teachers who were termed as ‘teacher leaders’. Those encounters and observations helped me to portray a particular image of teacher leaders. I found that most of the time these teacher leaders were outside their classroom and did all other sorts of job except teaching in the class. They held positions in teacher organizations. Most of the times, they did managerial tasks and organized teacher meetings. They were always outspoken and took the lead in bringing teachers’ problem to the notice of higher authorities.

Thus by the time I came here as a graduate student, I would say that I had some experiences of leadership and a mental image of teacher leaders. Those experiences led me to associate leadership with clout, power, position and popularity. As I joined the doctoral program here, I served as a research assistant on a PD program that focused on teacher leadership, *Leadership in Freshman Physics*. Given my background, it very well aligned with my interest. However, it should be mentioned here that the literature I read due to my involvement in this project and the work we did have shattered my power or position centered notion of leadership. In fact, this involvement has helped me broaden my horizon. I had alternative views about leadership in general and teacher leadership in particular, and this exposure showed me something very different. Due to my association with the program, I came to understand that teacher leadership is not always positional,

teacher leadership is not only formal but also informal in nature, and that every teacher has the potentiality to become teacher leaders and it is dependent upon the context and willingness. With these changed conceptions, I planned this investigation to gain insight into the teacher leadership development process.

### **Role of the Researcher**

I was associated with this project since its inception (five years). I was involved in conducting research, facilitating summer leadership workshops, disseminating our findings related to teacher leadership and other related activities. I will now explain my role in the present study context in terms of aspects identified by Patton (2002) including *participantness, revealedness, intensiveness and extensiveness*.

With regard to the degree of participantness (Patton 2002), a researcher can either take role of passive observer or full participant in the phenomena or event being studied. In this study, I played both the roles of participant observer and complete observer. I was a participant observer in their summer leadership workshop as I was helping my advisor in leading, conducting and facilitating various leadership activities in the summer workshop. On the other hand, I was a complete observer in the year round activities of the teachers such as blogging, midyear and final year reports and discussion forums. Revealedness (Patton, 2002) refers to participants' awareness about the ongoing study and ranges from complete secrecy to full disclosure. The participant teachers were aware of the research activities associated with the project as a whole. All the participant teachers in the project had consented to take part in research related activities. The third aspect of researcher's role as identified by Patton (2002) is intensiveness-extensiveness. It is defined as "the amount of time spent daily in the setting and the duration of the



study” (Marshall & Rossman 2006, p.73). For four years, I have spent most of the time with the participants during the days of the summer academy which were dedicated to leadership development. I had also spent time with them during their follow up sessions during the year. Moreover, I had also taken some physics content courses with the participant teachers in their first year of the academy. Thus, I built up a relation of trust amongst my participants before I began this study via all the interactions since five years.

## CHAPTER FOUR

### FINDINGS

#### **Introduction**

The purpose of this chapter is to present the results of my data analysis. My findings are presented in terms of case profiles for each of the participants. These cases are informed by the various data sources and illustrate the development of participants' identities as teacher leaders, while highlighting important influences and the role of PD in that process. Each case profile is then presented and organized under the following domains – background and context, leadership action foci, leadership views, leadership practices, leadership identity, shifts in views, identity and practices, and the influence of PD. It is important to point out here that both the leadership action plan foci and leadership practices point towards the leadership activities done by the participants in the span of three years and beyond. The leadership action plan foci were defined within their respective action plans each year of the program. Leadership practices in turn takes a more detailed and holistic approach by considering all such activities which fell within their scope of action plans, in classrooms, in school, and beyond school. These descriptive cases answer the first research sub question, and conclude with a synopsis that focuses on processes and pathways through which teachers developed their identity as teacher leaders.

The next section provides a cross case analysis across all the three cases in order to elucidate similarities and differences in the leadership trajectories of these teachers, who have differing years of teaching experience. This cross case analysis also aims to shed light on the second research question regarding similarities and differences in

leadership pathways traversed by my participants.

Data sources are referenced as follows: Application Information (AI) Action Plan (AP), Blogs (BL), Discussion Forum (DF), Final Report (FR), Mid–Year Progress Report (MR), Interview (INT) and Life Story Exercise (LSE). Numbers are used, where appropriate, to indicate the year (e.g., Y1) of the PD in which data were gathered.

### **Case 1: Brandon**

#### **Background and Context**

Brandon (pseudonym), a white male in his mid-forties, was in his first year of teaching when he joined the PD program. He joined this program to get “a better understanding of physics through discussions, collaboration, and training with fellow science instructors” (AI). The encouragement of his administrators, the graduate credit hours he would earn upon completion of this program, and the financial incentives offered influenced his decision to attend.

Brandon holds an undergraduate degree in agriculture and a master’s degree in public administration. After working over 14 years in the pest control and a few years in real estate, he decided to become a teacher, and is provisionally certified by the American Board for Certification of Teacher Excellence. He teaches subjects such as anatomy/physiology, chemistry, physical science, applied science and biology from grades nine through twelve. in a small school district.

#### **Leadership Action Plan Foci**

Throughout the program, Brandon’s action plans focused on disseminating the pedagogical strategies for teaching science, specifically modeling, that he learned through PD. Brandon’s goal in year one was to promote the use of modeling instruction. He used

modeling not only in his freshman physics course, but also in other courses, additionally helping other teachers apply modeling in their courses. While students were initially apathetic and unwilling to participate in whiteboarding activities associated with modeling, he gradually changed his strategy in order to ease the transition for them. By the end of the year, Brandon felt he had the “buy-in” of students, some colleagues, and the principal—who allowed him to order new whiteboards.

In year two, Brandon continued to promote modeling by focusing on whiteboarding specifically. To address resistance from colleagues, he presented evidence of his students’ participation and involvement in learning games, and invited teachers to observe whiteboarding in action. To ensure the success of his own whiteboarding, he focused more on classroom management—both developing expectations and creating consequences for students who failed to meet them.

Brandon’s third year action plan focused on ways to sustain PF curriculum in his school where he was the only high school teacher practicing it. To this end, he trained and guided a middle school science teacher in the pedagogy of PF curriculum. He also continued educating the administrators and parents regarding the benefits of inquiry education. As planned by Brandon, the overall progress could be evaluated down the road by comparing results of standardized tests of his school with other schools not following an inquiry oriented PF curriculum.

### **Leadership Views**

Brandon initially believed that leadership was achieved through holding a formal position, having experience, and initiating change ‘top down’. He used to think “leaders came with a title or a position of authority ...and were the ones who had been in the

organization longer” (DF Y1). He believed that everything in a school and henceforth reforms “came from the board and administration” (DF Y2) and were orchestrated by them. However, these beliefs shifted.

As a result of participating in the program, Brandon’s views changed. He now indicates that “...it’s not a title; and not that position creates a leader” (INT1). He believes that leaders can be found at any level of hierarchy and says that “leadership can and does come from anywhere within an organization” (FR Y2). He says that the action of an individual is crucial and a leader is able to have others follow her/him not by “coercion ....but by setting the example” (INT 1). This view was shaped by a former superintendent of schools, whom Brandon considers to be a model leader. Irrespective of his position, the superintendent was never hesitant to work at any level to get things done, Brandon noted, be it even doing the dishes in the kitchen.

According to Brandon, there is a wide range of attributes that a leader should have or that the leadership process should exemplify. These fell into three main areas: 1) personal characteristics; 2) skills for leading; and 3) leadership practices.

To Brandon, a leader should be charismatic, group oriented, collegial, reflective, and open to feedback. This trait is important when a leader is working within a heterogeneous group and must manage to complete task with various people at different levels while keeping a team intact. Brandon gave an example of his former director who was capable of exhibiting these two traits through his interaction with his subordinates. He stated that even though the director had a big office and title, “he always took the time to speak no matter where he saw you... he knew every employee by first name whether he saw you once or twice...[and] he was a very good leader, I mean people just

followed” (INT 1). This also exemplifies how a leader can exert authority while remaining mutually respectful towards her/his colleagues while allowing for open feedback. This ability for open communication allows for acceptance of criticism which again helps to promote self-reflection and personal growth within a leader.

In addition to these, Brandon also expressed that in order to achieve this level of open dialog and personal growth, within a group, the leader must possess strong communication skills. For situations such as this s/he must be able to express themselves in either a vocal or quiet manner, depending upon the needs of the situations. According to him, communication is not just what is said, but also how:

Communication [is] multifaceted, involving not only oral skills, but encompassing written skills. You have to be able to articulate what the bigger picture is; you have to be able to communicate both orally and by writing, and the way in which you are perceived... communication is not either something writing or something saying-- but it's also what you do... body language speaks highly and speaks volume (INT 1)

His idea of communication being a vital skill of a leader ties back to his conception of leaders being negotiators who hold back a team from disintegration. He communicated all those connections in the following excerpt from his interview:

...with any barrier you know it's about being ... able to show and communicate the benefits.... [and to] communicate the advantages, being patient and to lead, lead them along in the discussion, be willing to have that open discussion, listen to their point of view and being able to get them to see the bigger picture of the advantages, and all that comes right around to communication (INT 1).

He says leaders are team builders and has seen leaders be able to pull across the differences among team members to keep a team intact. He recalled an incident where his new school superintendent had shown his leadership capability by helping the faculty work together. The superintendent encountered “bickering going on back and forth

[between faculty members] and he did pull them all back together” (INT 1). However, Brandon also believes that an important characteristic of teacher leadership, which is not often considered, is the zeal to find solutions to problems and get things done. This can be seen when leaders, such as the case of the superintendent, tend to consider anything to be their ‘job’ if it helps accomplish the ultimate goal.

### Leadership Practices

Brandon’s leadership practices, before, during, and after the PD program did spread across various leadership dimensions identified by York-Barr and Duke (2004). Of the seven dimensions, his activities consistently fell into dimensions of PD of colleagues and participation in school change and improvement during this period. I will start this section by introducing a summary table of his leadership practices (Table 13) and then elaborate on it.

Table 14: BRANDON’S LEADERSHIP PRACTICES

	Dimensions of Practice					
	Coordination, management	School/District Curriculum Work	PD of colleagues	Participation in school change/improvement	Parent and community involvement	Contributions to the profession
Time						
Prior experiences				X		X
Year 1	X		X	X		X
Year 2	X		X	X		
Year 3		X	X		X	
Post Year 3	X	X	X	X	X	

Prior to joining this PD program, Brandon had served as a member of the school board. He stated that he was active in making policy and budgetary decisions. According to York-Barr and Duke (2004), this activity can fall under the dimension of participation

in school change and improvement. Although not specific to teacher leadership, Brandon practiced leadership during his prior careers. He stated “I had already [been a leader] in different fields of my life. I had owned and operated a successful business, managed a successful business for another individual, and worked for state government.” (LSE)

During his first year, Brandon chose to focus on promoting modeling as an instructional strategy. He documented that from the start of the school year, he was vocal about modeling strategies and its benefits. He popularized white boarding, which is a part of the modeling strategy. He discussed “with administration a method of making white boards learned from PF and was given the go ahead to make several” (FR Y1). He made several white boards with his middle and high school colleagues and distributed them among elementary teachers. Besides promoting white boarding throughout the school, Brandon also held workshops for his colleagues, hosted a visit by a school science equipment company representative for demonstration, and coordinated a classroom observation schedule with another middle school science teacher.

During the second year also he continued to popularize white boarding via collaborating with colleagues. In his second year action plan, he proposed to “take a more informal role by inviting and demonstrating the advantages...having teachers come and observe the use of such tools.” (AP Y2) He presented the white boarding process during the PD day in their school and offered assistance for its implementation. Finally his effort resulted in teachers using it in various grade levels. In one of his blog posts, he said “I was working with several different grade levels I noticed five of the teachers (out of 6) were using whiteboards in their classrooms” (BL Y2).



In year three and later, Brandon worked defining students' expectations and outcomes, worked with administration for school improvement and continued demonstrating in colleagues' classrooms, and pushing science curriculum changes in the school. Brandon tried to push against the status quo and prepare the students according to the expectation of NGSS and new standards by inquiry method of science teaching (BL Y3). In fact, at the beginning of that academic year, he planned to be "in the forefront of training the staff and educating the administration/parents as to the benefits of inquiry education" (AP Y3). He and a colleague developed a list of concepts/ activities and got parents involved in their child's education (BL Y3).

Looking across Brandon's activities over time, we see a shift in the dimensions of leadership practice (York-Barr & Duke, 2004) in which he engaged (Table 13). Prior to the program, Brandon participated in leadership activities related to school change/ improvement and contributing to the profession. While Brandon continued to be engaged with the former throughout the program, he did not engage in the latter after the first year. Brandon consistently engaged in leadership activities related to coordination/ management, PD of colleagues, and participation in school change and improvement. In year 3, he expanded his leadership practice to include school/district curriculum work and parent/community involvement. This represents a shift of his leadership scope from within his class/school to leadership activities outside the classroom/school boundary. Brandon never did any leadership activity related to pre service teacher education.

### **Identity as a Teacher Leader**

Brandon did not see himself as a 'teacher leader' when he joined this program, but eventually his self-perception changed. Initially, he was "extremely anxious and

nervous” (LSE) but after a few leadership sessions, he realized the relevance of his prior careers. “I felt as though I had a leg up on [other participants] in the field of leadership” (LSE).

Although confident about his prior life experiences, Brandon was not very self-confident as a teacher leader, and identified ‘self-confidence’ as a challenge he anticipated he would encounter in carrying out his first year leadership action plan. However, at mid-year he reported that “...self-confidence is not an issue.” (MR Y1) And by the end of the first year, he perceived himself as a leader-in-development. “I am not one to just sit back... I know I still have a long way to go to reach my full potential as a leader however; I am addressing this...” (FR Y1). He continued his leadership growth during the second year by helping his colleagues with white boarding strategies through various presentations and sharing of resources. He viewed himself as leader in the form of a ‘resource person’ (FR Y2) to his colleagues and gradually his view of himself as leader was also endorsed by the responsibilities given to him by his administrators. The administration asked him to take lead along with his colleague in encouraging and getting community members involved with the school (BL Y3). By the third year he had become confident of his teacher leadership abilities.

Presently, Brandon sees himself as a teacher leader in particular. Regarding his present leadership view, he said “how do I see myself as a leader? I just try to lead by example” (INT 1). He said that he leads by taking initiative in changing something if there is a need. For example, he feels the need to change some aspects of how students are currently taught. He said “as a teacher leader I feel like our students today don’t know how to think, they don’t know how to reason out answers, I feel like we don’t challenge

them” (INT 1). Moreover, he knows that unlike administrative leaders, he can’t delegate others as a way to practice leadership but “as a classroom teacher all I can do is try and so I am willing to step out and give a shot” (INT 1). Thus he said that as a teacher leader, “I am willing to spend the time to research... see what works best, and to me that is part of leadership.” (INT 1) It is evident that he perceives himself as a leader and claims that his prior life experiences have helped him in this regard.

Not only is Brandon’s identity as a teacher leader backed by self-perception, others also reinforced his perceptions, including administrators, colleagues, and members of his PF cohort. Brandon posited that his principal “knew that I had the qualities needed to be a leader and he really promoted me to get into the PF program” (INT 2).

Administrators also recognized his leadership and gave him responsibility. “[They let] me do what I wanted to do with the science department” (INT 2). Moreover, his colleagues also viewed him as a leader by realizing he has “good ideas” and could be a credible source to ask his opinion whenever “they are introducing something new” (FR Y2). Other teachers in his PF cohort also acknowledged his leadership efforts. When Brandon shared his classroom strategies to promote students’ learning in his blogs, other teachers responded in the affirmative: “Brandon, I agree with your approach” (BL Y2) and “Brandon, I have used the same thing. It has finally worked” (BL Y2). Acknowledging Brandon’s move towards vertical alignment by assisting elementary teachers with science, one of the PD staff encouraged his initiative: “Thanks for sharing this with all of us...this should [also] be shared with the [program] newsletter and with other science/education publications” (BL Y3).

Although Brandon had prior life experiences related to leadership, his shift in self-perception reinforced the concept of dynamic nature of identity. For example, he declared that he became more reflective, open minded, vocal, and “I am not afraid of asking questions any more” (INT 2). He described how he had established credibility as a leader over time – “[my colleagues] now feel like that I have something to bring to the table-- that I have information that I can share with them,” (INT 2). There were two visible shifts which resulted in his teacher leadership identity development. When he joined the program he was not sure about his ability to be a teacher leader. The first turning point occurred when he realized that his contribution as leader could be built upon his life experiences, irrespective of the fact that he was a first year teacher. The second shift, which was more gradual, helped him to transition from being a business leader to an academic leader.

These shifts did not occur all by themselves, but were promoted by Brandon’s participation in the PD program. This program, according to Brandon, helped him become credible, develop leadership skills, and also grow in a holistic sense. Brandon commented that “because of the program I have information, I have ideas that are valuable ...” and also “some valid points and that forward some information that could be beneficial” (INT 2). Furthermore, he is of the view that “...my leadership ways have changed [compared to my first year]... [the program] helped me understand that leadership ... is the action [for] change for the better, and I have really gained a lot of that from the program” (INT 2). The leadership component helped Brandon practice being reflective and well-rounded which helped him to grow as a teacher leader. Above all, the program helped him make a transition between his identity from a business leader to a

teacher leader. This is illustrated by the following excerpt:

...that's one thing I have really tried to focus is on bringing others with me as I move forward ... and I think that this program helps me do that. [It] helps me see that being a business owner you have one thing in mind and that's profit and ... you bring up a few [people] with you but you don't bring up a lot. Whereas this program has helped me realize that the more you bring with you the more impact you are going to have...so we have to bring as many teachers with us as we can...and then all the students will come forward [improve their learning] (INT 2)

### **Summary of Brandon's Case – Charting New Territory**

Brandon's process of becoming a teacher leader was marked by growth in confidence, broadening his view of leadership, development of skills for communication and collaboration, and expansion of the scope of his leadership activities. It was facilitated by a transfer of his leadership experience from the business world to the academic world, having models of effective leadership, and feedback from colleagues and administrators.

Brandon began the PD program as the participant with the least experience in academia, being that it was his first year as a teacher. Despite this, he has come a long way with regards to his teacher leadership identity development during this journey. The most notable change discerned throughout his development has been his perception of his role as a leader, going from being a leader within the business world to one within an academic setting.

Brandon had begun his educational career not feeling confident about teacher leadership. This absence of confidence was also coupled with his lack of comfort when relating the course material. Nevertheless, it was through his involvement in the PD program that he realized he could incorporate his past experiences as a leader. Once he made this realization, his level of confidence began to elevate along with his comfort

with the course content and exposure to the material when relating it within a classroom. Additionally, he also made the realization that while his counterparts might have had a strong content knowledge the leadership aspect was not unknown to him, as he had a great repertoire of life experiences to pull from. As a result, he was able to chart through this new academic environment by transferring his prior leadership skills and enacting his actions plans within his school district.

When he first started the program, Brandon held a formal view that a leader must hold a position of authority and remain independent from others. By observing his supervisors, he learned that there is a level of collaboration needed to achieve goals and that the most effective leaders were ones that lead by example. To Brandon, a model leader would be his former superintendent whom never hesitated to work at any level or with anyone to get things done. This practice requires the use of communication skills, not in just the communication ideas, but also, in collaborating with others to reach a common goal. Brandon followed this model while working with his school principal, district administrator, superintendent, and school board members, when implementing white board intuitive to improve student learning.

Throughout his participation in the PD program, Brandon developed and executed his yearly action plans in conjunction with various other actives and he was able to incorporate the dimensions of practice that created his pathway to being a teacher leader. For his first year action plan, he took the initiative in implementing modeling pedagogy across all the classes that he taught and was available to any colleague if they needed any assistance. In addition, he also participated in professional organizations, leading to the dimension of contribution to the profession and also to the dimension of coordination and

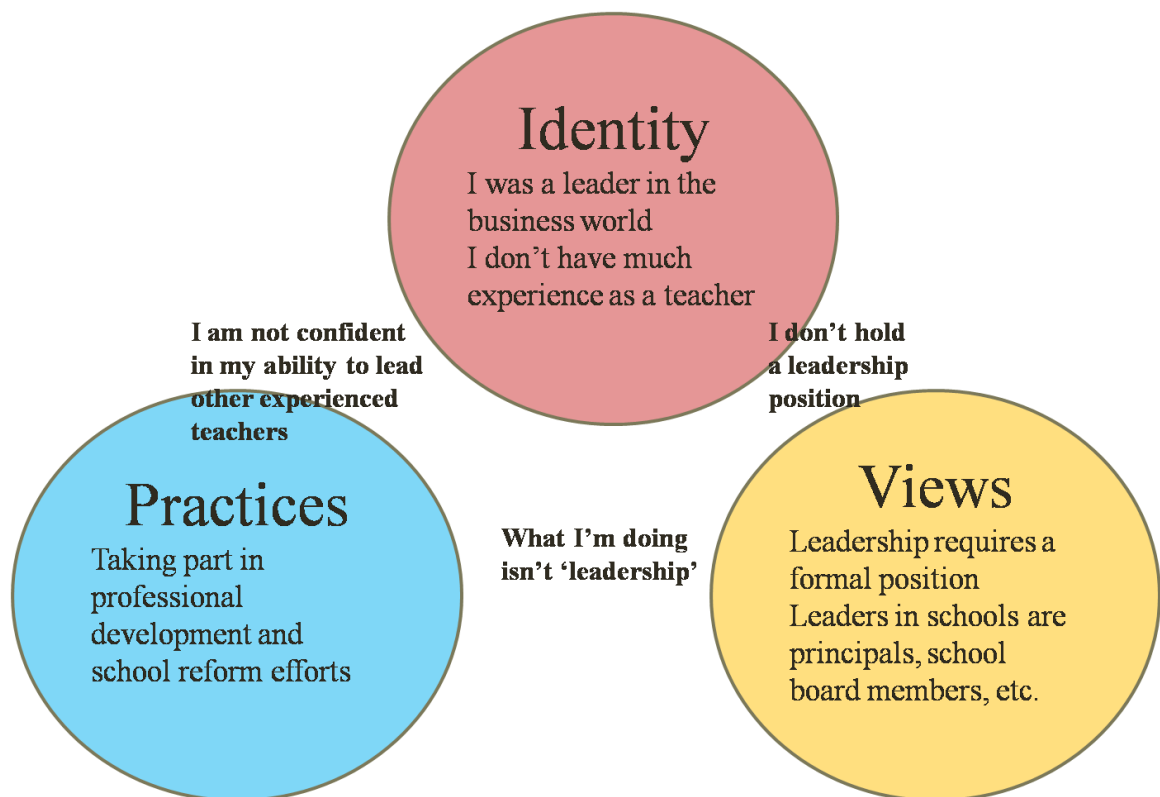
management through cooperative classroom observation with another colleague. In his second year action plan he expanded his scope of influence by launching the use of white boarding within the science courses. Through this process, he had actively communicated and collaborated with both his superiors and peers by leading workshops to train others on the programs various uses and benefits to student learning. With these enterprises and those which were described earlier, his activities fell in three dimensions of practice namely coordination and management, PD of colleagues and participation in school change and improvement. By his third year in the program, Brandon's action plan objective revolved around not just maintaining, but expanding his work from the past two years. He did this by becoming a mentor to one of the middle school science teachers and trained her on how to incorporate and utilize both the new curriculum and technological tools within her classrooms. Besides these, he worked within the dimension of school curriculum work by defining outcome expectations for students and got community members involved with the education of their wards.

By the end of the program, Brandon's identity as a teacher leader was solidified by the appreciation and recognition he received from both administrators and peers. He commented on how his superior's assurance in his abilities and their willingness to give him more responsibilities helped boost his confidence. This in turn provided him the confidence not just to enact his initiatives within his school district but to expand it to the larger community.

## Becoming a Teacher Leader

Brandon's process of becoming a teacher leader occurred through a synergy between three different components of identity, leadership views and leadership practices (Figure 7 and 8). Before he was a teacher, Brandon was successful in the real-estate business and self-identified as a business leader. However he was not a teacher leader due to the gaps which prevented alignment among the aforementioned components (Figure 7). The following diagram shows the three non-aligned components of identity, views, and practices. Each circle explains Brandon's prior self-perception, teacher leadership views, and leadership activities. Also, the prior disconnections among these three components are shown in bold. The PD program gave him tools necessary to address these gaps which finally instilled confidence in his ability to be a teacher leader.

Figure 7. BRANDON'S DISCONNECTED TEACHER LEADERSHIP COMPONENTS





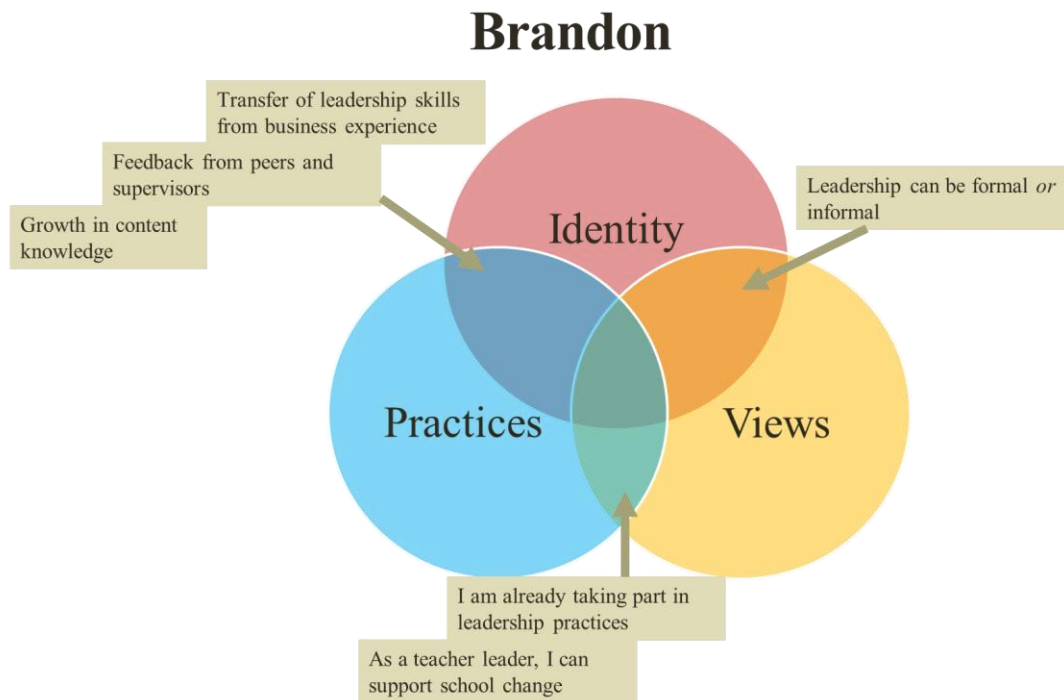
Brandon viewed leadership to be always formal and he thought that he was not a teacher leader because he did not have any official position. As he progressed through the program, his leadership views changed. By reading various literatures, taking part in both physical and virtual discussions, and interacting with the PD facilitators he changed his leadership views and started believing that leadership can be both formal and informal. This helped eradicate his notion that he could not be a teacher leader since he did not have any leadership position. Besides closing this gap between his leadership views and identity, this also helped him understand that he could also be a leader and worked towards gradual strengthening of his identity as a teacher leader.

The misalignment between his leadership views and practices created the gap between the two. Although he was engaged in what York-Barr and Duke (2004) would consider leadership activities, he did not perceive those practices to fall under the realm of leadership at the beginning. He was doing those activities simply as a teacher, and not within the scope of a position of authority. As he changed his leadership views, he started viewing his activities as falling under the realm of teacher leadership. For example, he thought that by challenging the status quo of traditional teaching and popularizing modeling pedagogy, he could support school change and make improvements. By doing informal activities such as educating his colleagues about whiteboarding , modeling and helping students transition to this new style of teaching, he started expanding his area of leadership practices. This addressed the gap between his views and practices and also encouraged him to do more activities which he now understood to be leadership practices.

Similarly with regard to his self-perception and leadership practices, he was not initially confident in his ability to lead other teachers who had been teaching for many years more than him. One of the reasons for low confidence was his unfamiliarity with the physics content. All the physics courses covered and activities done in the summer workshop helped him in his growth of content knowledge. This in turn made him confident as a teacher. Furthermore, as the program progressed, he engaged in various leadership practices, and found that he could successfully transfer his business leadership skills to his school. In doing so, he felt he could lead his colleagues who were not as familiar with practicing leadership. This growth in confidence as a teacher and a leader resulted in successful leadership endeavors such providing school wide PD sessions for colleagues and convincing parents and other stake holders to support the new freshman physics curriculum. All these resulted in great appreciation from colleagues and other school authorities and finally contributed to boosting his confidence as a teacher leader.

This whole process can also be represented diagrammatically. In continuation to the last one, this diagram shows that finally all the three components overlapped with each other as he went through this PD program. The brown boxes show how participation in the PD influenced to close particular gaps (highlighted in the previous diagram) by either changing his vision or by providing various supports.

Figure 8. BRANDON'S TEACHER LEADERSHIP DEVELOPMENT



## Case 2: Elisa

### Background and Context

Elisa (pseudonym), a white female in her fifties, was in the 13<sup>th</sup> year of teaching when she joined the PD program. She joined the program because she wanted to learn to use technological equipment related to physics. She also stated that the bottom line idea of this PD program influenced her to join this program -- teaching physics in the high school freshman level.

Before starting her career in academia, Elisa held the rank of Captain in the U.S. Army. However, she left this field because she felt she lacked the confidence needed to lead veterans whom she felt had much more experience than her within their duties. Since then, Elisa has held the position of a 9<sup>th</sup> grade science teacher. Currently she holds an

undergraduate degree in chemistry and a master's degree in instructional technology and is certified to teach physics, chemistry, mathematics, general science, and elementary education. Within her current school district she teaches physical science, physics, chemistry, science research, and earth systems in grade levels 9 through 12. Even though this is a very different career path from where Elisa started, she feels that it has been rewarding due to the experiences to which she has been exposed and the challenges she has overcome being the sole science teacher within her school.

### **Leadership Action Plan Foci**

Elisa was concerned with her students' understanding of science from the very beginning. Her first year action plan goal was to create a "well-constructed instructional program to lead students through the creation and use of scatter plots, bar graphs, line graphs, and circle graphs." (AP Y1). This was significant for her because her ninth grade students needed to have a better grasp of graphing to do homework and classwork related to the new curriculum. The major challenge was lack of clarity between math and science teachers about who was responsible for teaching about graphing and a lack of standard terminology between the disciplines. In order to address this barrier, Elisa collaborated with the math teacher to identify common vocabulary, teaching strategies, and assessments to be used by both of them. She also included the special education teacher in this endeavor. By the end of the first year, they had worked together to support particular students who were facing problems in understanding graphing concepts, used common vocabulary terms, and worked toward reinforcing particular concepts in both math and science classes. Although time issues posed to be an unanticipated challenge, she felt successful in this enterprise to a good extent by the end of first year.

For her second year action plan, Elisa continued to focus within her own classroom. Her goal was improving the questioning skills of students and herself. Learning to ask proper clarification questions was crucial to holding successful white board presentations, to promote interaction among students, to help students use peers' knowledge as a resource, and to enable them to take charge of their own learning. Her main concern was changing students' negative attitudes, such as seeing questions as something to feel embarrassed about and feeling that being questioned was something to be intimidated over. She wanted to change their perception from negative to positive; these experiences were instead opportunities for learning. She accomplished this by administering a survey on questioning, explicitly discussing the benefits and reasons for practicing questioning in class, increasing interaction time, and making sure that students were listening to their peers during a class presentation. In addition, she improved her own questioning skills in the class by reading various literatures and trying out new strategies.

Similarly to Brandon, her third year action plan also focused on ways to overcome challenges associated with sustaining the freshman physics course once this PD program ended. Elisa identified challenges related to her lack of expertise in modeling pedagogy, continued teaching physics at the freshman level after her retirement, and fitting chemistry into the PF curriculum so that the students would be well prepared for their junior year. She planned to take classes on modeling pedagogy either face-to-face or online during the summers. She videotaped her lessons, including lab works, and made detailed copies of various lesson plans and classroom activities. This was done to help herself and other new teachers after her retirement. She also worked on altering the PF

curricular sequence to integrate teaching chemistry. In this manner, she planned and accomplished various activities to address barriers in the way of sustaining the teaching of PF curriculum.

### **Leadership views**

Like Brandon, Elisa initially believed that leadership was always associated with taking charge, formal positions, and numbers of years of service. She “used to think that leadership was being in charge of something...Like the silverback of a gorilla troop or the principal of a school – *the buck stops here*” (DF Y1). She thought that people were hired as leaders and that “people who had been doing it the longest-- they are the ones who make the decisions; they are the ones that set the priorities and set the goal.” (INT 2). She also stated that persons at the top of the hierarchy gave orders and others had to follow them. Her view of leadership as a formal position of authority changed as she participated in the PD program.

According to Elisa, there is a wide range of attributes that a leader should have or that the leadership process should address exemplify. These are as follows:

- Leadership can be practiced by everybody and is not always formal.
- Leadership practices vary in scale.
- Leaders are group oriented, and democratic in nature, and negotiator.
- Leaders have good communication skills and encourage others.
- Leaders are visionary.
- Leaders are patient and persistent and take initiative.
- Once a leader, always a leader.

Having participated in the PD program, Elisa now believes that everyone has the potential to lead through formal or informal means, and that leadership can vary in scale and scope. As she put it, “you [don’t] have to be in charge of the whole shooting match to be a leader. You can be in charge of a little piece... by making a suggestion” (LSE). She distinguished between the scale of leadership efforts as ‘big’ and ‘small’. According to Elisa, small leadership is easier, informal, more collegial, less hierarchical, and deals with a small group such as at the department level while big leadership is more formal, hierarchical, and deals with more people who are unknown to each other as in a district level. Thus, big or small, leadership entails dealing with groups of people.

As evident in the last paragraph, if group involvement is inherent in leadership then leaders must be group oriented, encouraging, democratic, and exhibit excellent communication skills. While working in a group, “leaders should recognize and promote leadership in their subordinates or the people around them” (INT 1). Also they should rationalize their decisions in addition to gathering ‘consensus.’ In case of any differences between people, a leader should ask “is there anything you can compromise on ... so that we can get something that both sides can live with? And so that’s what you would do as a leader” (INT 1). Thus, an ideal leader is a person who leads a group to a common goal by considering others’ views, negotiating differences, and helping in reaching consensus. With this end in sight, Elisa sees ‘good communication skills’ as essential for successful leadership. She says:

A good leader, I think, probably ... the most important thing is that they need to be able to communicate in the best way; that they are able to make their ideas clear to rest of the people, they also need to listen to other people ... in case there are different opinions and ... difference[s]... and integrate them (INT 1)

While she feels a leader should be patient, persistent, and able to take initiative, Elisa claims that the “biggest thing in leadership is that the leader has a clear vision” (INT 1) and if a leader does not have an idea about where her/his group is going, then that person “probably need not be a leader”(INT 1). At times leaders may not be sure about a solution to a problem, “but at least [they] should try something and see how it works” (INT 1). In addition, leadership endeavors sometimes take time, and so leaders should be perseverant and patient enough to not to give up even after unsuccessful attempts.

Finally, Elisa claims ‘once a leader, always a leader!’ She says that even if you are not in the forefront, “...once you have been a leader, you will probably not go to the background completely” (INT 1). Depending upon the context, your way of leading may change. This idea connects to her belief that leadership can be practiced in various ways as demanded by the situation:

... once you see yourself as a leader you will never go back. You will never be the passive person. ... let’s say ... I could not spend a lot of [time] outside of class ... I still would be involved during school time and still would be a leader in things I could be in school, I still I would not be a passive person ... if I see something that needed to be done if even if my life changes and I could not do it I would probably somehow find out a way for it to get done... (INT 2)

Therefore according to Elisa, leadership is a complete and irreversible transformation and leaders keep practicing leadership irrespective of their circumstances.

### **Leadership Practice**

Elisa’s leadership practices across these years were concentrated mainly within four dimensions of leadership practice (York-Barr & Duke, 2004). Overall her activities fell in all the dimensions but one. This section starts with a summary table of Elisa’s



leadership practices (Table 14) followed by an elaboration of her leadership activities and how it developed through the years.

Table 15: ELISA’S LEADERSHIP PRACTICES

Time	Dimensions of Practice						
	Coordination, management	School/District Curriculum Work	PD of colleagues	Participation in school change/improvement	Parent and community involvement	Contributions to the profession	Pre service teacher education
Prior experiences		X	X	X		X	
Year 1	X	X	X	X		X	
Year 2	X	X	X	X	X	X	
Year 3		X	X				
Post Year 3	X	X	X		X	X	

In her application form, Elisa documented presenting in a conference, mentoring a new science teacher, and being a member of the school intervention team as some of her prior leadership enterprises [AI]. In addition, she also said that she facilitated “curriculum planning, assist[ed] other teachers in developing activities, order[ed] equipment and supplies, and organize[ed] the equipment and stock room” as a teacher of the secondary science department (AI). Outside of education, she had leadership experience serving in the army as a lieutenant and later captain.

In the summer of 2010, Elisa framed her first leadership action plan for the upcoming year. She planned to facilitate development of a “district standard for graphs and grade appropriate labs/ activities that use graphs... a new type PLC group to work on this project ... and a collaboration system with colleague” (AP1). In her mid-year progress report and blog posts, Elisa reported completed leadership plans for teaching

graphing at various grades, collaborating with special education and high school mathematics teachers to help students in learning, monitoring and coordinating (MR Y1; BL Y1). These activities expanded beyond her classroom, but were all connected to promoting student learning of the content. Though she accomplished everything else in her plan; she reported that the administration did not allow the formation of a new PLC group.

During her second year in program, she collaborated with colleagues to improve questioning skills and also modeled how to use white boarding in class. During the year she co-taught classes demonstrate white boarding techniques. She also continued coordinating with high school students in order to demonstrate science activities to elementary kids. In addition, she took the lead and worked for a whole-school curriculum integration project, shared resources among colleagues, and organized science nights to involve parents and the community with the teaching and learning of students. Moreover, through seeking out volunteer opportunities with the Science Teachers of Missouri (STOM), she ended up being encouraged to run for and won a seat on the organization's board of directors. "I am the Director for District 6...started my newsletter article and ...made contact with the District Leader in the next district to work together" (FR 2).

The next year, she focused on reworking the curricular sequence of the PF curriculum in order to accommodate the teaching of chemistry at the end of the third year. She also started keeping records, archiving edited copies of PF laboratory activities, and taking steps to video tape her lessons so that a new incoming science teacher would have those as a resource. Elisa also took initiative and started a recycling initiative in her school. She made contacts outside of the school in order to bring in recycle bins. At the

beginning, she even transported these bins to and from the main recycling center. Her efforts extended beyond the school: eventually the community made similar changes, putting their paper trash up for recycling. What started as a small school effort expanded to improve the community as a whole.

Overall, Elisa's leadership activities were spread across all dimensions of leadership practice (York-Barr & Duke), except for pre service teacher education (Table 14). Prior to the program, Elisa participated in leadership activities related to the dimensions of 'school/district curriculum work', 'PD of colleagues', 'participation in school change/improvement' and 'contribution to the profession.' For example she facilitated curriculum planning, mentored teachers, served as a school intervention team member, and presented in a conference respectively. Elisa consistently engaged in leadership activities related to 'coordination, management', 'school/district curriculum work', 'PD of colleagues', and 'contribution to the profession' for all the three years. She participated in leadership activities related to 'participation in school change/improvement' in the first two years of the program. In year two she began to do activities related to 'parent and community involvement' as she organized a science night to help parents and community members understand science teaching in school and to get them involved with their child's learning. In addition to these, she has been serving in other leadership roles. In her interview she said that she is the department chair and also on the technology committee where she carries out most of the responsibilities of a chairperson. She is responsible for ordering books, taking the minutes of meeting and reporting them to the principal. As seen in the table above, Elisa's activities fulfill six of the seven dimensions of leadership practice.

## **Identity as a Teacher Leader**

Elisa had never perceived herself as a leader when she joined this program. Before she came into teaching, she was in the army and rose to the rank of captain when she resigned her commission. Although she listed some prior leadership experiences during her previous teaching job in her application, she referred to her military officer position as “probably the first leadership position I ever had” (INT 2). Despite this position, she did not consider herself to be a leader. She said, “To be honest, I was not comfortable with leadership in the military because I never felt that I was competent enough” to lead veterans who were more experienced (LSE).

After her time in the military, Elisa switched careers and became a teacher. She was hopeful this time because “I actually have found something that I do know what I am doing” (INT 2). While teaching for 14 years and before joining this program, she had taken part in small projects and had been a department chair. However, she did not consider herself a leader even then because she said “it was not something that...I had the burning desire to fix something” (INT 2)

Elisa gradually started perceiving herself as a teacher leader as she went through this program. After a few leadership sessions she said “I was feeling more pedagogically competent...in developing myself as a leader” (LSE) and she felt that her prior activities could also qualify as leadership. Despite her confidence, she did not perceive herself to be a teacher leader until her second year in the program. This is evident from some of her remarks made during the first and early second year. For example, in her first year DF she said “Right now I don’t feel like I can be a reform leader, just maybe a point man” (DF Y1). Over an incident of mentoring her colleague, she remarked that “I was not

being a leader” (BL Y1). She was questioning her identity as a teacher leader on the grounds of her student achievements. She posed a rhetorical question, “How can I be a leader if everyone else seems to have kids who are doing so well and mine are in academic support so often?” (LSE).

Gradually as she gained confidence about teaching her PF curriculum and students’ learning her self-perception started changing. At the end of first year she said that until that time she preferred to be a ‘worker bee’ but now “I am more confident in taking responsibility for a project” (FR Y1). During the beginning of the second year in her leadership action plan she said that she was gaining experience in the leadership process. In her final progress report the same year, she said “The final way I have increased my leadership is by assisting with my school district’s improvement of rigor in [the] classroom” (FR Y2). That same year, she held a position of leadership in a professional organization. To that she further commented “If you’re on the Science Teachers of Missouri [STOM] board, you probably see yourself as a leader” (LSE). Thus by the end of second year of the program she started seeing herself as a leader and her leadership identity was becoming robust.

Presently, Elisa sees herself as a teacher leader in particular. “I see myself as a more capable person and I think that’s both in being a teacher and being a colleague of a group of teachers and also a leader of a group of teachers” (INT 1). She is a lifelong learner and her participation in PD “... has made the difference with my feeling of competence and ability to lead” (LSE). Elisa is also particular about her leadership style. She describes herself by saying “I am more of a democratic leader” (INT 1) and she takes consensus of the majority while making decisions. She is an active member of the

technology committee, she organizes science outreach program, and mentor colleagues. Though she characterizes herself as an ‘informal leader’ (LSE) she does hold a formal position as department chair. In regard to this position she states, “I want to make sure that things get done. I have opinions, so I will put in the paper work, and I have the vision for the way I want my department to go” (INT 1). Elisa recognizes her growth in aspects of leadership such as having a voice, but also being open to new ideas, and has also developed her communication skills and mentoring ability.

Elisa’s leadership identity is also corroborated by others’ views. Her colleagues, administrators, and other PF fellows also recognize her as a teacher leader. Elisa said that her principal had started asking for her input and comments on various school related issues. Besides the principal, administrators also recognized and rank her “very high in leadership compared to other teachers” (INT 2) because of her persistency and advocacy of the PF curriculum. Her colleagues also enhanced her credibility as leader. They respect her and her ideas; ask for her opinions and suggestions when “they would be willing to try something” (INT 2). Not only that, community members of Elisa’s school can vouch for her leadership identity development. Elisa says “the community would know me as an innovator that I start new programs [science night, science crew outreach program, and recycling program] that helps the school and the community” (INT 2). The science crew program is a science outreach program organized by Elisa. Every month, she takes her high school students to demonstrate and do hands-on science activities to elementary or primary kids. The recycling program has been explained earlier.

Other physics teachers and staff members from the PD program also recognized her leadership. They recognized her leadership capacities, acknowledged her ideas, used

her strategies, and requested further opinions –“Elisa, I applaud your tenacity and dedication.” (BL Y3); “Elisa, I really like your idea about the bubble lab, and I agree with you about the sequence of these models” (BL Y3); “What a neat idea, Elisa! I have been thinking about trying something like this at our school. How often do you do this? Every Friday, once a month, etc? I will have to pick your brain.” (BL Y2); “Elisa... I am very impressed with your drive and ambition to go to administration and present your thoughts” (BL Y2).

Elisa’s leadership identity development account will remain incomplete until this PD program’s contribution is highlighted. This program, according to Elisa helped her to identify herself as a leader and to develop leadership potential. She found the leadership sessions “kind of eye opening when you really think of some of the things we do and we think ‘oh that’s not a big deal and everybody does that’, but that is a leadership position” (INT 2). Regarding leadership development, she posited that “I have more skills [leadership] that I would not have developed without PF” (INT 2) and the program helped her realize that “you can actually get things started yourself” (INT 1). Similarly, Elisa mentioned that various interactions from time to time during the follow up sessions round the year helped her to see her growth and evaluate her development as a teacher leader in comparison to others. The strongest testimony was how this program pushed her to run for the STOM board, which she referred as the turning point in her leadership identity development. The related verbatim is as follows:

I had told her [STOM coordinator] that I wanted to help in the STOM conference and I just said help like helping the book store or something like that.....but then she emailed me saying ... we need somebody to run for that place [district coordinator] ... and I want you to think about it. So this was right about the time that she [the PD Facilitator] saying okay ‘you need to think about getting out of

your comfort zone and you need to getting outside your school’ and I said ‘okay fine!’ and ... there was me and another person that put in for voting and then we had the STOM conference and I won! ... and so I think that’s probably the turning point right there, like having the kind of push from the PD, okay get involved at a higher level you are used to ... (INT 2)

### **Summary of Elisa’s Case - Leading from the Ground Up**

Elisa’s process in becoming a teacher leader was most noted by her shift in philosophical views of what marks a person as a leader, expanding her leadership views, finding her voice in a group and gaining confidence, and the experience of a formal leadership position. In her transformation to a role of teacher leadership she started with working mostly at the grass root level –within the classroom and school. Eventually, she became more confident in her role as a teacher leader, becoming more active in her community while remaining focused on leading within her classroom for overall improvement in student learning.

While Elisa started the PD program with more teaching experience than Brandon, she failed to gain the same level of confidence as quickly. At the beginning of the program, she was more comfortable in seeing herself as a ground level worker and working cooperatively with colleagues. During her participation in this program, her level of confidence began to slowly build, yet was still subject to moments of doubt about her abilities in being a leader. An example of this wavering in confidence was evident when she began to measure her ability to be a leader in relation to the level or her student’s success. However, this level of confidence did gradually improve as she became more involved in the alignment of school curriculum to that of PF and her willingness to reach out to colleagues who faced the same challenges within classroom to find and



implement solutions. It is important to note here that although she eventually raised her level of confidence, she still preferred to lead informally.

Not unlike the other participants within this study, Elisa also began with a formal view of leadership, believing that authority was granted through title and position, and influence worked its way down the chain of command. This may be a reflection of her previous experiences, serving as captain in the army, a position she left because she felt that she neither had the experience nor the makings to be a leader within that structure. After leaving this post and joining the academic realm, she veered away from roles that placed her in the forefront. In order to be a leader, she wanted to have the experiences of the persons she was supposed to guide and lead. Thus she wanted to work at the ground level and be an informal leader to begin with. Although she had affinity towards informal leadership, this is not to say that she completely avoided formal leadership experiences during this journey. With an intention to move beyond her classroom and school, she volunteered to help in the organization of a STOM conference. However, she was urged to run for the position of the district coordinator. Elisa gladly accepted the challenge, ran for the position, and served in that position for one year. This demonstrates that her ground level work is more of a personal choice, versus lack of any confidence or skill that she had gained during this process of leadership development. Moreover, it was throughout the PD program that her philosophy as to what makes a leader had shifted—from defining a leader as a single authority, standing at the apex of command, to one of leaders working alongside each other in a democratic fashion. After the completion of this program, Elisa now views herself to be a leader in a group, in which a consensus is

formed as to how and what to address in order to implement improvements that best meet the unique needs of the school and community.

During Elisa's participation within in the PD program, she developed and implemented her yearly action plans, while utilizing the various dimensions of practice, all of which aided in creating her pathway to becoming a teacher leader. For her first year's action plan, Elisa focused on improving students' ability to comprehend, use, and create graphs within physics course content. Although with this goal she was leading within her classroom, the activities she did to achieve it branched to different dimensions. For example, it eventually resulted in activities such as coordination, collaboration, and supporting with mathematics teacher and special education teachers, facilitate developing district standard for graphs, and formation of a new PLC group to aid forming those standards. All these fell under the dimensions of coordination, management; PD of colleagues; school/district curriculum work, and participation in school change/improvement respectively. In a similar fashion, her second year action plan was also directed towards student learning by simultaneously improving the questioning skills of both her and students. This enterprise resulted in doing activities under all the same dimensions of teacher leadership as similar to year one. However, this year she also organized the science night and invited parents which again fell under the dimension of parent and community involvement. Finally for her third year action plan, she extended her scope beyond her classroom and worked towards sustaining of the teaching of PF curriculum. She videotaped her classroom teachings for a new teacher and edited the curriculum with regard to laboratory activities and to accommodate teaching of some

chemistry concepts. These activities again fell under the dimension of PD of colleagues and school/ district curriculum works.

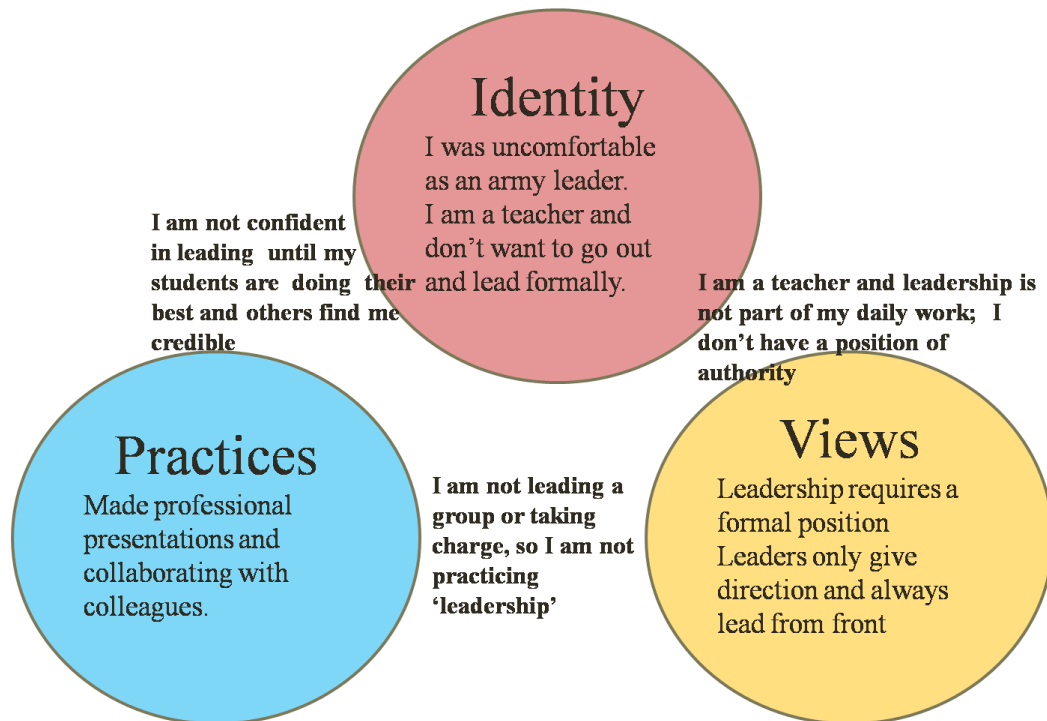
Overall, Elisa's identity as a teacher leader was reaffirmed much like Brandon's, through acknowledgement and approval from administrators, colleagues, and student success. However, her views of what warrants one as a leader differ in that she sees herself as a leader collaborating with the group, taking a democratic approach to problem solving and implementing solutions. This practice is geared toward working from the ground up, starting with addressing issues within the classroom and expanding outward to not just improve her own student's success, but for all the students within her school. Her philosophy regarding leadership within a school setting is that of participation and collaboration with not only members of the school board and faculty, but as well as the community as a whole, in order to find the right solutions for the individual needs for both student success and curriculum development within her district.

### **Becoming a Teacher Leader**

Elisa's teacher leadership development can also be described based on the process of transformation of her leadership views, identity and leadership practices (Figure 9 and 10). Prior to being a teacher, Elisa served in the army. Although she had a leadership position, she never perceived herself as capable enough to lead the veterans who were more experienced than her. Similarly when she started teaching and also after being a teacher for a while, she did not view herself as a teacher leader due to disparities among her leadership views, practices, and identity. The following diagram shows those disparities in bold. Besides that, it also highlights her prior conceptions when she joined

this program. Finally she was successful in finding harmony among these components as she went through the PD program.

Figure 9. ELISA'S DISCONNECTED TEACHER LEADERSHIP COMPONENTS



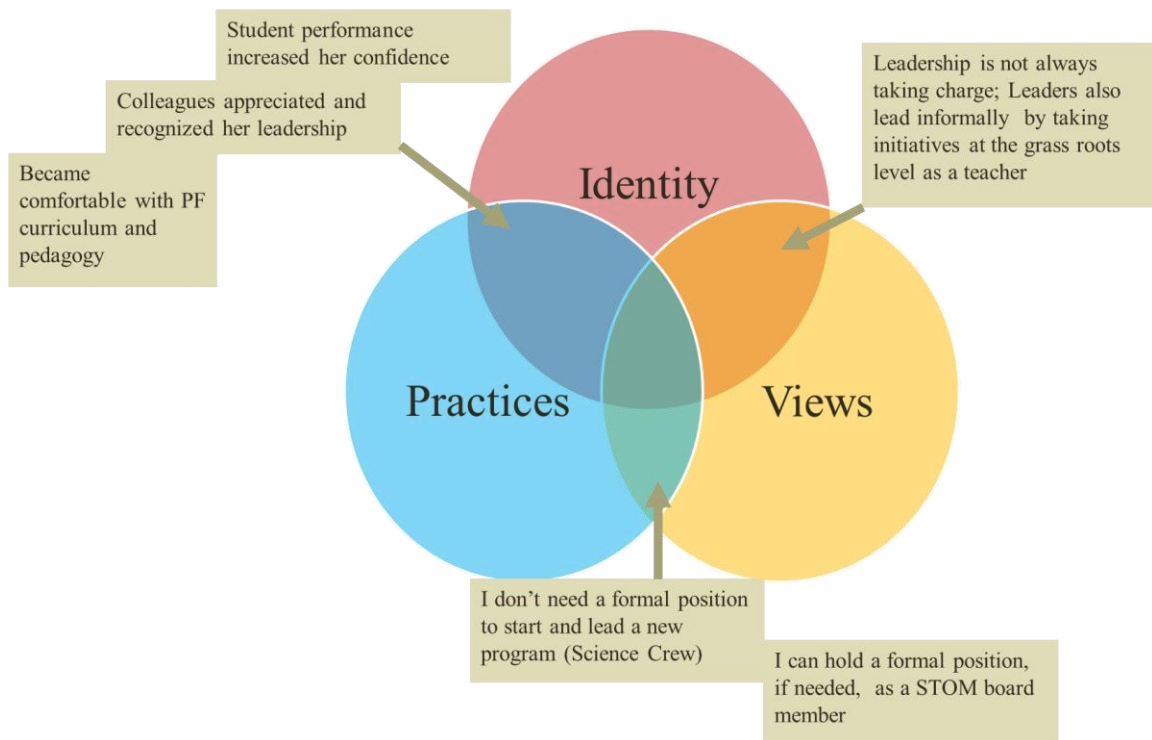
Elisa was of the view that leadership always requires a position of charge and that leaders always lead from the front and only direct others. These preconceptions and perceptions created barriers which prevented her self-perception and development as a teacher leader. As she participated in the leadership sessions, she addressed such myths regarding teacher leadership. She realized that leaders also lead informally, sometimes even by taking initiative and working behind the scenes. This created a bridge between her leadership views and identity as she understood that she could be a teacher leader even though she did not have a formal position of authority. Furthermore, this change in view also contributed to closing the gap between her views and leadership practices.

Elisa also did not consider any of her activities as falling under the realm of leadership. She did not recognize them as leadership practices because she was not leading a group from the front. Although she did not note them as leadership activities, some of Elisa's prior activities before joining this PD fell under the scope of teacher leadership according to the dimensions provided by York-Barr & Duke (2004). However, transformation in her leadership views helped her connect her current practices with those of being a leader. She understood that leadership could be practiced as a teacher by working at the grass roots level as she proceeded through the program. For example, she understood that she did not always need a formal position and so informally initiated a successful science outreach program in her school. Moreover, she formally served as a member in a professional organization which showed that she could also take charge and lead from the front if needed.

Finally with regard to her self-perception, she thought of herself as 'teacher' and confined her roles to within the classroom at the beginning as she entered the PD program. In the beginning, her view of teacher-leadership was tied to the perception of those around her: she did not feel confident unless her students were doing the best in class and others found her credible. Gradually as a result of learning more about the PF pedagogy and teaching, she became comfortable, which also resulted in better student performance. As discussed earlier, she also successfully served as a STOM board member for one year. In sum, all of these experiences led to a boost in her confidence and she started seeing herself as a teacher leader. It was further supported by all the appreciation and recognition she got from her colleagues about teacher leadership. All these discussions can be synthesized in the following diagram summarizing her teacher

leadership development by eradicating disparities and bringing all the three components of teacher leadership identity, views, and practices together.

Figure 10. ELISA'S TEACHER LEADERSHIP DEVELOPMENT



### Case 3: Martin

#### Background and Context

Martin (pseudonym), a white male in his forties, and was in his 17<sup>th</sup> year of teaching when he joined the PD program, which he viewed as "...a challenging program that will help me to engage my students and do a better job of teaching them" (AI). The low standard of the grade-level curriculum he was teaching, his readiness for a change, and an opportunity to learn a new curriculum further influenced him to attend this program.

Martin holds a graduate degree in educational technology. His early career was influenced by his desire to coach football, which “was the reason I chose to pursue a degree in education. In college, I worked as a student assistant for the football team, and this is where my passion for coaching stemmed from. As an assistant coach at the first two schools I taught at, this was what consumed a majority of my time” (LSE). He is certified to teach science from grades five through nine and physical education from K-12. He teaches in a 9<sup>th</sup> grade center and teaches earth science and physical science. He is one among five other science teachers in his building, and serves as the department head.

### **Leadership Action Plan Foci**

Martin’s first year leadership action plan, unlike other two participants’, did not entirely focus within his classroom. On the contrary, he went out and enlisted help and expertise of other teachers in his building to form a peer evaluation team to observe and give feedback on each other’s teaching. By the middle of the year, he was successful in having three teachers from his building on the team, and they set up norms and started to evaluate each other’s’ classes. As time progressed, this whole team effort “gained momentum as we [teachers] became more comfortable with the idea of sharing our classroom” (FR Y1). It also helped Martin to show instructional strategies related to PF pedagogy and how successful they were in teaching science. This initiative was also welcomed and supported by school administration. This whole process impacted Martin in two ways – it made him reflective regarding his own teaching strategies and helped him realize the importance of peers as resources.

In his second year action plan, Martin focused on the feasibility of departmental common assessments to track student improvement. His particular goal was to compare

students' pre and post test scores based on those departmental assessments. He listed time and unwillingness of some teachers to use these common formative and summative assessments as major barriers. However, he did not encounter these anticipated barriers and even stated that his "department is working well together" (MR Y2). Working cooperatively with his colleagues, Martin achieved a lot by the middle of that academic session – he had written new summative assessments, as well as collected and analyzed students' pre-post test score data by gender, race, teacher, and math class in which students were enrolled. Based on separating students by math class, he found that lower level math students scored lower compared to their peers. For the second semester exams, Martin and his colleagues revised their initial set of questions and limited calculation problems to no more than 25% of total questions. Although the overall average gain dropped a little, the gain for lower level math students was about 12% higher than that of their first semester peers. Finally, as a result of all these analyses through the year, Martin and his colleagues were successful in working with the guidance office to move lower – level math students into sections offered later so that they would get extra time to develop their math skills which would in turn help them to do better on their exams.

In his third year action plan, Martin focused on ways to "maintain the interest in the integrity of the [PF] program and pedagogy" (AP Y3). This was similar to that of Brandon and Elisa. On a personal level, he said that finding time to work on that issue would be a challenge. However, Martin's building administrator helped him rework his schedule and gave him an additional planning period for the present and following school years. This helped him to work with other teachers on a one-on-one basis to guide them through the implementation of the PF curriculum. He also planned to continue all other



activities such as training and collaborating with his colleagues to sustain the teaching of PF curriculum in his school.

### **Leadership views**

Martin initially believed leadership to be hierarchical, requiring formal positions, and as such did not consider teachers to be leaders. He said he identified leaders only as “business leaders, professional sports coaches, and in the world of education-administrators. I honestly hadn't thought much about the classroom teacher as a leader” (BL Y1). He viewed leaders to be those who guided others and expected them to be blind followers without any idea where they are heading, very much “like a group of kindergartners taking a field trip in a crowded city....grabbed hold a rope... and be tugged along by those in front” (FR Y2). He also confessed that he did not see various informal leadership opportunities before and envisioned leadership similar to the structure of a pyramid with leader at the top of the triangle. At the end of the program, Martin recognized a change in his views of leadership.

His leadership views have widened; as he said, “...there is so much [more] to it than I originally thought” (INT 1). His present view of leadership emphasizes the following:

- Leadership is being group oriented, democratic and a balanced negotiator.
- Leaders should be easily approachable and patient listeners
- Leadership requires vision and presence of a common goal.
- Leaders encourage others to become leaders and promote student learning.
- Leadership depends on performance, making use of available resources, ability to serve others, and shooting for high standards

- Leaders should be creative, take initiative, impulsive, approachable, humble, reflective, visionary, and optimistic

Martin describes his model leader as team-oriented. “It’s always ‘we’ and I never hear her say ‘I’... we always work together as a group and try to solve problems together” (INT 1). While working in a group, Martin believes a leader should always be available and should “always has time to talk to people” (INT 1). This patient listening allows leaders get “real valuable input.” Reaching a mutual agreement via negotiation is another leadership skill. Martin explained that negotiation is good as long as it helps in gathering momentum to move forward towards the goal and not deflect from it. Presence of a common goal is one of the essential requirements in leadership too. With regard to teacher leadership this should be related to improvement of student learning – “that’s where all those leadership roles point towards...the end product is helping students succeed” (INT 2). Reaching together to a common goal cooperatively is another group dynamic. A leader should “...motivate other people to feel like they are empowered to be a leader... [and] push towards that goal side by side, rather than *Hey follow me!*” (INT 1)

Leadership is also related to performance through the use of available resources, the ability to serve others, and shooting for high standards in addition to being a group oriented person. While having a title may place a person higher on leadership hierarchy, it is not always the only way to become a leader. Martin discovered “that leadership does not reside in any title or position. It is the work that a person does being in that position counts” (INT 1). Moreover, these efforts should be directed towards serving others and perfection. Martin described his model leader and says “she wants for our school... greatness, and she is not going to be happy with mediocrity here” (INT 1). In order to

avoid mediocrity, it is important to make optimum use of available resources. Martin believes his model leader is effective in this because “she is very good at looking at all the options and trying to find ...which works best... what we have are these kids, and we are going to do the best we can with them.. [with] the teachers we have...[with] the classrooms that we have .... So we are going to find the best way to teach” (INT 1).

In addition, leaders should also be initiators, reflective and creative. When it comes to showing initiative and taking chances, Martin is of the view that as teacher leaders “we have to be careful not to depend solely on the administration to be the compass for our buildings” (BL 1) but “act quickly on things...like let’s just do it” (INT 1). In order to do that an individual should look out for chances for practicing leadership. According to Martin it is important to “reflect upon ... what it means to be a leader ... to become more aware of opportunities ... I think as you change your [leadership] view ... you will see ... and then take advantages of those opportunities” (INT 2). Finally, it is not only about earnestness to start-off an enterprise but also about the way it is accomplished. Martín stated that leaders should “...be able to think outside the box and not always just do things as they always had been done or not be afraid to take risks”(INT 1).

### **Leadership Practices**

Martin’s leadership practices, unlike Brandon’s and Elisa’s, were spread across all the seven dimensions of leadership practices given by York-Barr and Duke (2004). However, PD of colleagues and contributions to the profession were the two dimensions in which his leadership activities fell consistently. The following summary table describes how his leadership activities developed and got spread across the various dimensions through the years.

Table 16: MARTIN'S LEADERSHIP PRACTICES

Time	Dimensions of Practice						
	Coordination, management	School/District Curriculum Work	PD of colleagues	Participation in school change/improvement	Parent and community involvement	Contributions to the profession	Pre service teacher education
Prior experiences			X				
Year 1	X	X	X	X	X	X	
Year 2		X	X	X	X	X	
Year 3	X		X			X	X
Post Year 3		X	X			X	X

Martin had conducted training programs for his colleagues before joining this PD program. Specifically, he led a workshop to train staff on the use of Smart Boards in the classroom. Martin had also been coaching the school's football team alongside teaching. He had served as assistant coach in two schools and finally rose to the level of head coach.

Martin did various activities which fell under the scope of teacher leadership. Within his leadership action plan, he formed a peer class observation team in his building. He took initiative to communicate with the principal to get his 'buy in' and updated him from time to time. He led this group by managing observation schedules to evaluate each other's teaching and provide feedback. Not only classroom-observation, this team "had put together assessments, coordinated materials, paced our curriculum, and trained 2 other teachers in our department" (DF Y1). Additionally, Martin pushed forward the agenda of PF. Martin "had numerous conversation with the Director of Secondary Education as well as our Director of Curriculum and Staff Development, voicing my [his] opinions about the implementation of PF in our district" (FR Y1). Moreover to further popularize it, Martin coordinated with another colleague and contacted with parents, community members and media. They came forward with

presentations in the district media summit and also for math and science colleagues of the school. In addition to all these he acted as the head teacher of the department during this first year and organized departmental meetings, ordered supplies and performed other responsibilities.

Continuing as a formal head teacher leader, Martin transitioned into the second year. For this year's leadership action plan he focused on students' learning gains. He tracked "student improvement from pre-test to post-test on our department's common assessments" (AP Y2). This common assessment in turn was a result of collaboration with other colleagues. Not only did he practice leadership within the classroom but outside as well. He served as a member of the leadership professional learning committee where every month he had to attend training and bring back important information and disseminate in the school. He also contributed as a committee member to decide the future "path that our entire high school will take for the next several decades" (FR Y2). Moreover, he gave his classroom a virtual platform by creating a classroom blog and twitter account. This again continued as a venue to be connected with the parents of the students. Not only did Martin try to inform the community about what was happening inside the class, he continued to bring resources from outside to improve student learning. This can be exemplified by him attending an assessment workshop in Texas, for his membership on the Problem Based Learning Team Project, and bringing back this information to utilize within the school as a whole. Besides all these, he continued to share resources, successful teaching strategies, and his reflection along with his colleagues and other PF teachers.

During the third year and after, Martin directed his effort toward sustaining the freshman physics program in his school. Martin worked with other teachers on a one –on-one basis to help them implement the curriculum. Martin also mentored new teachers in his department and a student teacher who taught his class. Presently he has some district-wide leadership roles in addition to his responsibility as the department head, member of the professional leadership committee, and pre-service teacher mentoring. He is in the district cadre of the planning committee and also on the district wide assessment for learning leadership team.

Overall, Martin’s leadership activities (Table 15) were spread across all the seven dimensions of leadership practice (York-Barr & Duke, 2004). Quantitatively, in year one his activities were spread over all the six dimensions of leadership practice, which was a great leap from his prior experiences where he concentrated only on PD of colleagues. In year two it narrowed down to only five dimensions of leadership practice. Again in year three and post, his leadership activities confined to five dimensions. In fact he continued mentioning his leadership activities in the dimension of ‘coordination and management’ again in year three, similarly to year one, without mentioning it in year two. Interestingly, he started doing leadership activities under the dimension of ‘pre-service teacher education’ from year three.

### **Identity as a Teacher Leader**

The idea of teacher leadership had not been very appealing to Martin up until he joined this PD program and started recognizing leadership opportunities. He viewed himself as a football coach and commented, “Leadership was something I never thought about” (LSE). His very early thoughts were “I am just a teacher...” and even though in

later part of his career he carried out important responsibilities, he said “I just saw myself as filling up positions...” (INT 2). This self-perception gradually transformed into an identity of a teacher leader after he joined the program. He said “my eyes were opened to all of the leadership opportunities that surrounded me” (LSE).

Although he saw various leadership opportunities, his teacher leadership identity development was not instantaneous but gradual. To begin with, he was not confident serving the position of lead teacher. In his first year leadership action plan he stated, “As a lead teacher in our department... I have no more experience than any other teacher” (AP Y1). In order to gain experience he made good use of various leadership opportunities. He saw “those opportunities and my [Martin’s] confidence as a teacher leader grew” (INT 2). Later on during the same year he posted in the virtual discussion forum that “I feel like I will have to take on several new teacher leadership roles ... I will serve as resource provider, an instructional specialist, classroom supporter, and mentor” (DF Y1) which helped him to feel that he was developing as a leader by the end of that year. By the end of year two he declared that “I am a much better teacher...have gained confidence in the classroom to a large degree as a result of my leadership roles, and this has affected my leadership in classroom”(FR Y2).

Once he gained confidence, Martin’s teacher leadership identity became robust through certain shifts. These identity shifts were also slow and gradual in nature. A major shift occurred when “I saw that I could be a leader” (INT 2). As he transformed as a leader he became self-reflective as “that started the ball rolling” (INT 2). He changed his attitude towards school and colleagues- “I think my approach to just being in a school had just changed a little bit, I feel like I am more collaborative, I am more open to sharing

ideas and hearing other people's thoughts on you know things that I find and so on” (INT 2). Besides those, he also shifted to being more focused, consistent in his effort and giving others a chance to lead and all these resulted in self-perception of teacher leader.

Presently Martin sees himself as a teacher leader. He says he is successful in leadership role, feels “like a leader and I have the confidence to take risks” (LSE), “I like the idea of being an instructional leader” (BL Y3), and in particular “I would say that as a product [of this program] I am a teacher leader” (INT 2). As a leader he identifies himself as an instructional coach, pre service teacher mentor, cadre of the district planning committee, head teacher of the PF team in his school and member of the district committee for assessment and learning. He said his leadership influence is like ‘concentric circles’ affecting his immediate teacher colleagues at first and then finally moving out to students. About his leadership style, he says he leads by “helping other people...empower[ing] or motivate [ing] a little bit to lead” (INT 1). Moreover, Martin also identifies himself with his model leader and says “I think we are a lot alike in the fact that we are kind of big picture people”(INT1). Finally, he perceives himself as a model teacher leader for his colleagues. “I am kind of model you know” he says, and is excited, happy and “proud that somebody would think that I am a leader” because according to him teachers “aren’t the best at accepting other teachers doing well” and thus if they admit so then it really is meaningful (INT 2).

Martin’s leadership identity is also backed by similar views of others. Martin said that his principal “recognized the fact that I am passionate about teaching and that I wanted to help make a difference... make our school better” (INT 2). Similarly, his administrators also view him as a passionate educator who is always willing to get



involved. Moreover, his colleagues view him in “a more active participatory role compared to past” and grasping “different leadership opportunities” to make “change” (INT 2). Other teachers and staff members from the PD program also recognize his leadership. The staff members are aware of his successful transformation to a teacher leader, and jokingly referred to him as the ‘poster child’ for the leadership program, to which he playfully assented. Other physics teachers also corroborate his leadership identity by considering him as a person to ask for various teaching strategies. Knowing about Martin’s success with teaching honors kids, a teacher asked “How are you teaching differently?” (BL Y2). His initiatives have also been praised by other teachers. Acknowledging Martin’s personal educational blogs, one participant commented “Great website Martin!!” and so did another “Martin, Martin, Martin. The website looks great. I have visited it twice already and have shared it with the middle school science teacher” (BL Y2). Furthermore, coach and mentors of the program also acknowledged his mentorship abilities and his perspectives on teaching. One PD coach commented that “She [pre service teacher] too, is fortunate to have cooperating teacher of your status” and another commented that “Your perspective is inspiring!” (BL Y3)

Although this process seemed to be quite smooth, Martin’s present teacher leadership identity development can be viewed as a result of two major shifts. It should be noted here that these shifts were slow and gradual but also piecemeal and progressive in nature. The first occurred when he took a “designated” leadership role of a head coach and the second one was one when he joined PF and identified of all preexisting leadership opportunities surrounding him. Basically these resulted in changing his ‘exclusively formal’ leadership conception to one with both formal and informal

elements which reflected in his identity development. After taking the head coach job, his identity skewed more towards the depending nature as he came to rely on "...assistant coaches, the school secretaries, the athletic director, and a host of other people that I [Martin] needed in order to be successful"(LSE). The second shift and the main turning point came when he joined this PD program. This participation prompted all the shifts which gradually resulted in the teacher identity development.

Martin describes that this PD had "been a hugely transformational thing for me" (INT 1). He further said that the "leadership part of that [the program] have been very beneficial to me, very eye-opening to me and honestly kind of in a surprising way" (INT 1). Martin was surprised because he thought "it would be kind of like the PD I had always been part of," but it was a different experience. The PD program helped him become reflective, which he considers a great leadership skill. He said "I didn't do a lot of [reflection] before the leadership class ... did not take time to be reflective, and I think that's one of the biggest assets I have had out of this program" (INT 1). Besides that, he also said that this program helped him to recognize opportunities and become confident as a teacher leader. Finally it has helped him emerge as a leader both in school and district. He says:

I would say the biggest outcome is that ... I am a teacher leader, and I feel like I am a leader. And you know... I don't know at what level of leadership I am in, but I think for sure am a leader in our building, and in our district. I think that's a result again, to a great extent, due to the program... (INT 2)

### **Summary of Martin's Case – An Eye Opening Experience**

Martin's process of development from a teacher to a teacher leader was marked by refining his leadership views, wise utilization of various leadership opportunities,

development of skill such as that of reflection, expansion of scope of leadership practices, and supporting others to lead. It was greatly supported by his transformation of leadership views, an eye opening experience, the result of which provided him the ability to discern a varied range of leadership opportunities which he thought never existed before going through this PD program.

Martin began the PD program as the most experienced participant. He had been a veteran teacher 17 years and had also been a football coach, a leadership experience which was hierarchical in nature. It is owing to this fact that he did not face the same struggles as the other two participants, Brandon and Elisa, when it came to his level of confidence and comfort in relating course content. The greatest stride that was made, however, was in the complete alteration in his views of what constitutes a leader. Martin began the program with a very rigid belief that teachers could not be leaders until they possessed some kind of authoritative power and that leadership was very much a hierarchal structure and that only those who held absolute authority, such as principal and other administrators could be leaders. Yet, over the course of this program, Martin discovered that teachers do have the potential to be leaders given they recognize various available opportunities to broaden their scope of knowledge and influence through engaging in collaboration with peers and the community to strive for a common goal.

In part due to his years spent in the classroom, Martin's pathway to become a teacher leader did not start in his classroom. Rather, he began his first year's action plan by creating a community of teachers working together to improve each other's teaching skills as well as enriching student success. Directing his actions towards the action plan goal and variety of other activities such as convincing higher academic authorities and

presenting in a media summit to promote PF curriculum, he was able to hit upon six distinct aspects of dimension of leadership practices. It should be noted here that it was a great leap in the first year as his prior leadership experiences fell only under the dimension of PD of teachers. He continued with his varied leadership activities such as contributing in the development of a common assessment for students, establishing virtual presence in his classroom, presenting at conferences, facilitating workshops for colleagues, serving in different committees, and getting the parents involved with the school during his second and third year. Another highlight of his pathway was his activity directed towards the leadership dimensions of pre-service teacher education. He mentored pre-service teachers to hone their teaching skills while they taught his students

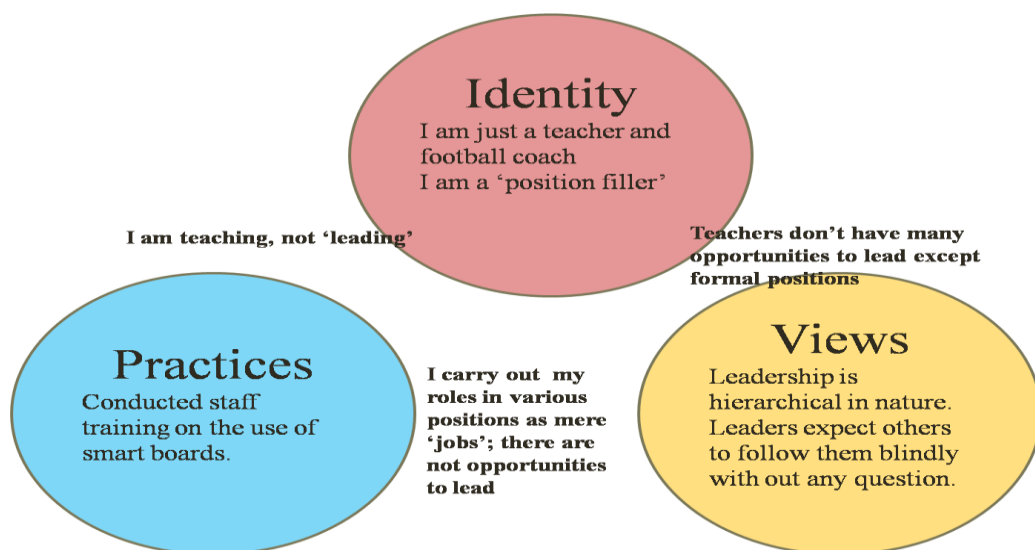
Martin's ability to identify himself as a teacher leader came as result of his complete transformation in views and other practices. His once firmly held belief that leaders need to hail from a formal and authoritative position was shattered once he was introduced to new opportunities to expand his influence outside the class and within the school, district and community as a whole. While Martin did not face the same level of uncertainty with his confidence as the other two participants, he still had to address this factor when making the transition to being a teacher leader. Throughout his participation in the PD program, there was a gradual increase in his confidence, both in relation to his teaching strategies, and getting involved in various other leadership projects. He also developed the skill of reflection, which helped him to see how he could act as a leader in different circumstances. As he was able to become more assertive and expand his leadership practices, off the football field and in the classroom, and venture into new territory, he became more confident in his ability to lead others. He now holds the role of

a leader, by not just having the ability to assert his commands to those in subordinate positions, but also by paving the way for other teachers to rise to the positions of leadership in their own right.

### **Becoming a Teacher Leader (Martin)**

Similar to the other two participants, Martin developed as a teacher leader by aligning his identity, leadership view, and leadership practices (Figure 11 and 12). Unlike Brandon and Elisa, he had been a teacher from the beginning of his career along with being a football coach. Despite this, Martin, like them, did not look upon himself as a teacher leader and the reason for this was his prior conceptions and non-alignment of all those three components of identity, view and practices. The following diagram (Figure 11) shows those misconceptions in bold which prevented the alignment at the beginning. Attending the PD program supported Martin in transforming his leadership views, expanding his horizon of leadership practices, and finally, by building his confidence as a teacher leader.

Figure 11. MARTIN'S DISCONNECTED TEACHER LEADERSHIP COMPONENTS



Martin's general notion of leadership posed barriers to his self-perception as a teacher leader and his development. Martin viewed leadership as hierarchical in nature and thought that leaders always lead with authority, demanding absolute adherence from the followers. As such, he believed teachers did not have many opportunities to lead unless they had formal positions. This prevented him from thinking that he could be a teacher leader, since he held no such position. However, taking part in the PD exposed him to broader ideas of leadership, increased his awareness of others' leadership views, and gave him a platform for reflection. All these helped him realize that teachers can be leaders as long as they see and utilize leadership opportunities along the way.

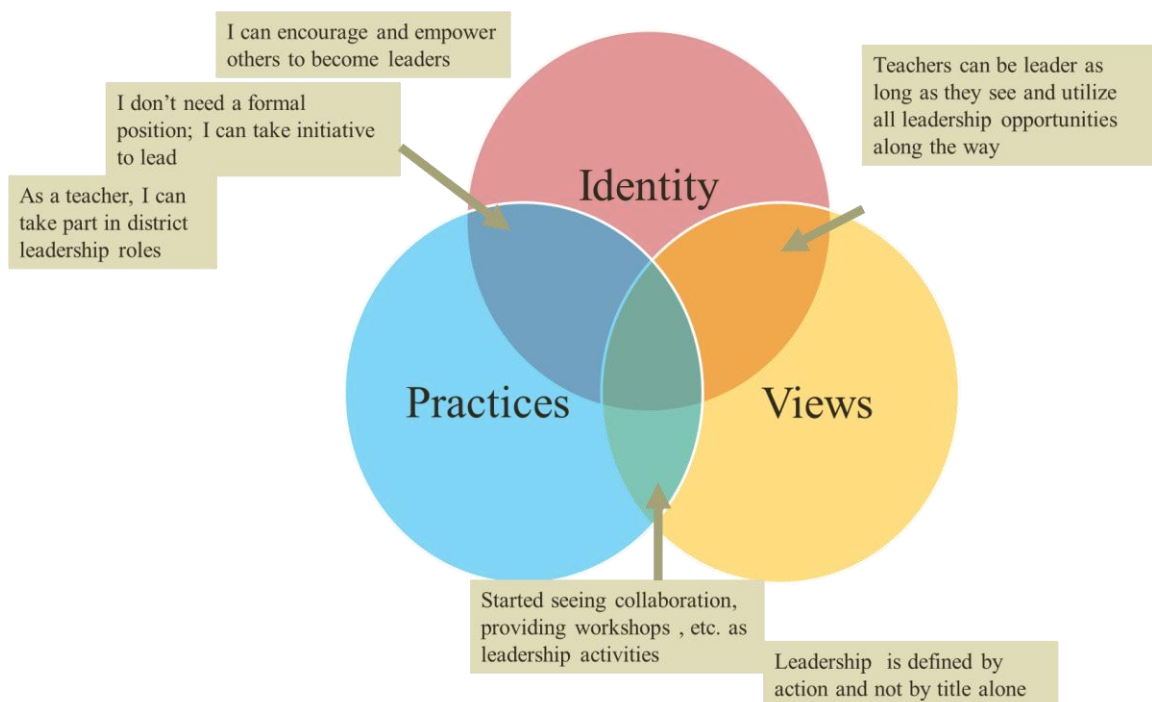
Martin's initial views of leadership also prevented him from considering some of his prior activities to be leadership roles. Moreover, due to his belief that teachers cannot be leaders and his self-perception as that of a 'position filler', he considered his activities and roles in various positions as mere 'jobs' assigned to him versus opportunities to lead. As he went through the program and as he changed his views, he understood that leadership is defined by action and not by title alone. He also started seeing collaboration with colleagues and providing workshops to colleagues as teacher leadership activities. Finally, Martin's leadership practices were aligned with his transformed leadership views.

Similarly, on the basis of his prior notions of leadership and his activities, he did not view himself as a leader. He thought that he was simply teaching and not engaging in any leadership activities. This misconception that teaching was not leading faded away as he started recognizing his activities as falling under the realm of leadership. Furthermore, Martin was also encouraged by PD staff to take initiative and make use of leadership

opportunities at the district level. The success he encountered through various leadership engagements helped him gain confidence. As a result, he gradually started viewing himself as a teacher leader. Within that role of teacher leader, he ultimately started encouraging and empowering others to become teacher leaders

Similar to Brandon and Elisa, this whole process of Martin's teacher leadership development can be represented diagrammatically. This diagram shows that finally all the three components aligned with each other as he went through this PD program. The brown boxes show how participation in the PD influenced alignment of those components by changing his views, providing support, and helping him see opportunities for practicing teacher leadership.

Figure 12. MARTIN'S TEACHER LEADERSHIP DEVELOPMENT



## **Cross Case Analysis**

This section deals with the second research question of my study – What differences or commonalities with regard to their leadership practices, if any, were evident for teachers with varying years of teaching experience? In this part I compare and contrast the leadership pathways of all three participants. The similarities and differences with regard to their teacher leadership identity development trajectories spread across their leadership practices, views of leadership, and identity as teachers and leaders. I address these in terms of eight major areas: (1) expansion of teacher leadership views, (2) expansion of dimensions of teacher leadership practice, (3) working with colleagues, (4) modeling oneself after another leader, (5) appreciation and encouragement, (6) leading within and outside the classroom, (7) building content knowledge competency, and (8) leadership development priorities.

### **Expansion of Views of Teacher Leadership**

Throughout this program Brandon, Elisa and Martin were able to broaden and redefine their conception of teacher leadership and overcome naïve ideas that prevented them from envisioning themselves as teacher leaders. All three of them held views of leadership as a formal position, and thought they could not be leaders until and unless they had a title and authority. Brandon had experience with the business world and he thought leadership was always ‘top-down’; Elisa, with army leadership experience, envisioned leadership to be associated with taking charge; Martin had been a football coach and believed entirely in ‘leader-follower’ relationship where the leader, similar to a coach, would give instructions and followers had to follow it unquestionably. However, all the participants expanded their leadership definitions as they advanced in their



pathways of teacher leadership. This common change in view ultimately broke the wall which prevented them from seeing themselves as leaders.

All three participants unanimously asserted that leadership is both formal and informal in nature after participation in the program. They also indicated that formal leadership by itself is neither a necessary nor sufficient condition for one to be a leader. All of them believe that leadership can be practiced by each person in their own way, even if they do not have any position of authority. Although they agree that leadership can be informal, some of their ideas regarding it are varied and highlight different components. For example, Brandon says leadership is title independent, Elisa highlights informal leadership by saying that a leader never ceases to be a leader although s/he may not be at the forefront always, and Martin makes the same point by saying that a leadership title only gives access to leadership opportunity that can be used by anybody irrespective of a position.

Brandon, Elisa and Martin equivocally highlighted that leaders should be group-oriented and democratic in nature. They emphasized traits such as the ability to work with different people, considering group members' views, and helping group members negotiate and agree on some common ground. Each of them drew on examples of model leaders to exemplify these qualities. Brandon recalled how his model leader knew everybody's name in the group. Elisa says that leaders should make their decisions transparent to all their group members. Martin explained how his model leader creates an environment of trust among the group members by considering and accommodating everybody's views.

In addition, they also expressed complementary ideas about leadership qualities such as taking initiative, being open to feedback, and being ready to take risks. Brandon felt that leaders step up and take the first step when others do not do that. Elisa further felt that although sometimes leaders do not know what to do exactly, they step up and try out new things. Martin explained that by being open to new things, leaders gain experience and learn new things which help them in future situations.

The PD contributed greatly in changing leadership conception of each of the participants. Brandon stated that this PD helped him widen his vision regarding teacher leadership and that everybody can be a leader if they are willing to be so. These changes in conception came through various discussion sessions held during the summer academy. Elisa highlighted how talking with other PF fellows about various kinds of formal and informal leaders helped her understand the importance of grass root level leaders. The virtual discussions via blogging also helped in this regard. Martin also brought out the significance of reflection, he said “I think the really big part of it [PD leadership session] was the reflection that we constantly had to do...look at that definition of leadership and reflect on why we thought...” (INT 1). He further specified other factors of the PD which helped him change his prior leadership ideas -- the various components of 8900 leadership course such as reading of various literatures, reading blog entries and experiences of others, completing his own action plan, and insights gained through documenting his own progress.

### **Expansion of Dimensions of Teacher Leadership Practice**

All the participants expanded the repertoire of leadership activities within the various dimensions of practice of teacher leaders (York-Barr & Duke 2004) as they

developed their teacher leadership identity. With regard to activities before joining this PD program, all the participants had some leadership experiences varying depending upon contextual factors. However, irrespective of previous experiences, all three of them expanded on their leadership practices which spread across other leadership dimensions. Among the three, Martin expanded his horizon the most followed by Brandon and Elisa. Martin's leadership activities fell under only one dimension of PD of colleagues before he joined this program but it expanded to all the seven dimensions by the end of three years. Brandon, on the other hand had leadership experiences falling in two of those dimensions earlier which extended to six of them by the end of third year. Finally, Elisa expanded from at least three dimensions to six.

Throughout their participation in the program, during, and after, all the participants' activities fell within six dimensions of leadership practice except Martin's. Since the first year all three of the participants have continued to participate in the PD of colleagues. Besides working alongside colleagues, all of them influenced their school via their leadership activity. For example, each of them at some point in time either coordinated some special school event such as science night or participated in administrative meetings. They also contributed to school improvement by actively engaging themselves in professional learning communities, and by challenging the status quo by pushing the practice of white boarding or the use of technology in classrooms. Initiative was also taken by all three to promote PF curriculum in their schools. These were not only limited within the schools, but they also involved parents and community members outside the school. They informed them about the importance and benefits of PF curriculum in terms of how it helps in building students' base of science knowledge.

They did so by organizing parents' night or talking to the local media and sharing their classroom successes.

While all teachers' leadership practices expanded, only Martin participated in all seven dimensions of leadership practice identified by York-Barr and Duke (2004). He alone mentored pre-service teachers from the local university; however, this may be more a consequence of an opportunity available to him, but not the others.

The PD contributed in various tangible ways which helped the teachers practice leadership. For example, leadership action plans and their transformed views about teacher leadership helped Brandon, Elisa and Martin in expanding dimensions of teacher leadership practice. As the participants changed their views about leadership, they started seeing various opportunities to lead. Furthermore, execution of their action plans provided them with venues to actually practice it. Martin testified "I honestly believe that the other leadership opportunities I have taken advantage of this year have been as a result of the spark initiated by this course and my action plan" (FR Y1). The leadership sessions helped him in seeing real life applications of leadership literature, and how leadership activities can be embedded in daily duties of a teacher. This made a big difference in terms of his leadership practices as it addressed the gap between leadership conceptions and practices. It forced him to think about various leadership roles he had already been practicing and the roles that he had played where he was a leader but did not realize it.

Another contribution in this regard also came through the PD staff. Elisa said that she was encouraged to practice leadership outside her classroom by the "push to get involved within school and district" (INT 1) she got from the leadership session

coordinator. In a similar way, Brandon highlighted how the PF curriculum materials (books, rationales to invert science sequence, graphs showing why teaching of physics at freshman level is needed) helped him to expand his leadership activities in terms of his endeavor to align school's science curriculum with PF curriculum.

### **Working with Colleagues**

Another visible commonality about their leadership pathways is that everybody worked with their colleagues at some point of time or other. These endeavors varied both in terms of collaboration and the scope and influence of their work. All of them collaborated with colleagues both within and outside their department. Brandon worked with his colleagues to raise the bar of academic expectations of students and to align his school's existing one with PF curriculum. Elisa collaborated with the biology teacher and gifted and talented teacher to carry out the monthly science outreach program called science crew. Martin on other hand, created a 'peer evaluation team' by inviting his colleagues to help each other in observing evaluations, and presenting ideas with regard to their classroom teaching and management. Besides all of these, they also informed, helped, and worked together with teachers to improve their teaching skills by promoting strategies learned in the PD program. For example, Martin has facilitated workshops with his other colleagues to promote the use of whiteboards by other teachers. These endeavors helped the colleagues in their PD in various ways by either increasing their pedagogical knowledge, content knowledge or promoting leadership skills.

All my participants also said that they learned from the experiences of working with others. Brandon learned "to be accepting of other people, willing to change as an individual, everybody has room for growth... [and] to be patient" (INT 1). Elisa said that

compared to her previous discomfort of assigning others with responsibilities, she is “learning how to delegate and so that I can say *Okay. You can be in charge of this and I will step back*” (INT 1) and also working on making her expectations clear to others when working on a common agenda. Martin has experienced the importance of understanding everybody’s effort, and compromising when striving towards a common goal so that everybody is equally invested in it. Working with others has made him understand the value of diversity in a group for cultivating new innovative ideas and ways to do things differently

### **Modeling Oneself After Another Leader**

Brandon, Elisa and Martin were all influenced by a ‘model leader’ and tried to imitate her/ him with regard to their leadership skills and practices. Their ‘model leader’ was a person with whom they had either worked or associated with at some point of time in their career. Brandon’s model leader was a former superintendent, Elisa found her junior high principal to be an exemplary leader, and Martin’s principal served as the prototype of a leader. They identified and exalted these persons due to various reasons and highlighted their personal characteristics, leadership skills, and leadership practices. For example, Brandon was influenced by his model leader’s charisma, Elisa admired how her principal was goal oriented, and Martin appreciated his principal’s negotiating skills and vision.

In addition to admiring various characteristics of their model leaders, participants of this study also tried to act like their ‘model leaders’ as they developed their teacher leadership identities. Brandon found his former superintendent to be a very skillful communicator encompassing oral, written and body language skills. So, Brandon tried to

improve his communication, express his viewpoints effectively and to be a patient listener. Elisa, on the other hand, found her model leader to be vocal and democratic in nature. She imitated this, and said that she developed as a leader by “speaking up for myself” (INT 2) and providing a rationale for her views to other group members. Similarly Martin picked up on his principal’s practice of empowering others and giving them chances to lead while being supportive and encouraging. Martin said that “ ... [regarding] leadership opportunities, I think I have done a pretty good job of helping other people, [to] empower or motivate [them] a little bit to lead ... giving them ownership in different things ...” (INT 1).

### **Appreciation and Encouragement**

Evident in data sources is the encouragement and appreciation all of my participants received as they developed in their leadership pathways. The contribution of one of the PD components is indispensable in this regard: web log posts, a mandatory aspect of this program, were the virtual year round interaction platform through which Brandon, Elisa and Martin received inspiration and recognition of their leadership efforts.

For example, in his first year blog post describing successful use of white boarding strategy, Brandon received comments such as “Wow, I’m impressed with all the effort!(BL Y1). It should be noted here that Brandon listed confidence as one of his weakness regarding teacher leadership identity development during the first year progress report. Similarly, Elisa described her plans for revising the PF curriculum to help students learn graphing techniques better in one of her second year blog posts. Her idea and strategy was well-received by her colleagues. In the same manner, Martin was acknowledged along the way. When he described innovations introduced in his teaching

strategies, another PF teacher commended him: “Great job, Mike! It’s great to see how you are utilizing student feedback” (BL Y3).

These expressions of appreciation and recognition of their leadership efforts by others helped them view themselves as leaders. This made Elisa and Martin proud of their leadership. Martin pointed out, “...sometimes teachers aren’t the best at accepting others doing well” (INT 2) and so when a colleague praises him he feels very “happy.” Likewise, Brandon felt credible and trustworthy when his administrators recognized the value of his ideas, relying on him for his feedback as if “they are talking to another leader [Brandon]” (INT 2).

The contribution of the PD program in this whole process of receiving appreciation and encouragement is indispensable. Weblog communication, a mandatory aspect of the program, was the main platform where the teachers received most of the acclamations and admirations. This helped in participants’ identity development. As defined earlier, identity of a person is dependent both on self-perception and also perception of others. All my participants gained confidence as teacher leaders when they were recognized as leaders by other PF fellows via blog interaction. The feedback and encouragements helped Brandon, Elisa, and Martin to find themselves credible as leaders. Although colleagues in participants’ respective schools recognized their leadership practices, the feedback they received via this virtual platform was crucial as it involved a community of physics teachers all over the state. The involvement in this virtual realm helped both my participants and other teachers. Brandon, Elisa, and Martin received the fuel required to keep their morale high as they were overcoming challenges and marching



forward in their leadership pathway. Other teachers received various resources in the form of classroom strategies.

### **Leading Within and Outside the Classroom**

Brandon and Elisa both started leading within the classroom and slowly extended their sphere of influence within and outside the school to the immediate community and beyond. Brandon felt his students were not challenged enough and felt they had potential to excel and do better in science. So after attending the academy, he started promoting whiteboarding and modelling among his colleagues. He initiated the use of technology in his classroom so that students could get acquainted and efficient with various educational technological devices and useful software. For example, he strived to procure iPads for his class and also started using Edmodo. In addition, a major part of his leadership activity encompassed working with colleagues to help them learn white boarding strategies, giving teaching demonstrations in other classrooms, and working with the principal on overall student improvement issues and assisting in interviewing staffs. Elisa was very explicit about her concern to do things better in her class from the very beginning. She thought that “How can others take my ideas if I am not having good results [in class]?” (LSE). In fact, she said that she focused on leadership outside of her class towards the end of second year of PD. Most of her leadership endeavors were directed towards being successful in her class. She also said that she preferred to work informally. Outside of her classroom responsibilities, she mentored a colleague, served on school committees and collaborated with other teachers to promote modelling and white boarding strategies. She also moved beyond school and got “involved in higher level of educational leadership” (LSE) by serving as a STOM board member.

Martin on the other hand, took his leadership activities in a different direction. From the very first year, his leadership efforts took place outside of his classroom. He formed a group of colleagues to observe each other's teaching and give feedback, and promoted implementation of the PF curriculum within the school district. He carried out district-wide workshops for teachers, met with the local media to inform the community about the success of the program, and promoted Physics First to school district leaders. Besides his activities related to PD of his colleagues, he also served in a committee to make school-wide decisions. Presently he is associated with various district level committees; he also serves in the district cadre of planning committee, district wide assessment for learning leadership team, and district wide project base learning team.

### **Building Content Knowledge Competency**

All participants were not equally at ease in terms of their content knowledge as they developed their teacher leadership identity. Brandon and Elisa were skeptical compared to Martin with regard to their content knowledge and teaching of physics in their classroom. Brandon does not have a degree in science, whereas Elisa was chemistry major. Brandon was "very nervous, very apprehensive" (LSE) as he was entering a profession where everybody knew more than him, and after a few weeks in the PD program he felt that he was not on par with other PF fellows as "they were extremely strong in academic areas of PF" (LSE). He also faced difficulties in following the PD content classes and was disappointed with his performance in the Physics Praxis exam. Elisa, similarly, was also concerned about her content knowledge of physics in comparison to other PF fellows and felt that she was incapable of implementing the PF curriculum as it was intended. She focused on strengthening her knowledge of the content

for the first two years until she “...got to the point where [she] could feel like, *Okay...I do not have to worry about physics part...*” (INT 2), then she focused on other teacher leadership activities. In contrast, Martin never expressed any worries about teaching physics in his class. Both Brandon and Elisa needed to develop their own competence before progressing in their leadership.

This confidence in content knowledge and pedagogy, which in some way formed the basis for leadership outside classroom, resulted solely due to their participation in this PD program. The primary goal of this program was to develop well qualified physics teachers who would become intellectual leaders and advocates for excellence in physics content. All of my participants received more than 300 hours in person and online PD which covered 12 units of physics content. The various components of this program such as group discussions and activities, designing and conducting of laboratories, developing explanations of scientific data by using multiple representations, examining real world application of the theories of physics, and learning modeling pedagogy helped them to gain command over the 9<sup>th</sup> grade physics curriculum. The reading materials containing explanations of concepts, descriptions of lab activities and practice problems helped them further reinforce their knowledge and carry out teaching of the content in their respective classes. Martin was excited about learning physics and how to teach physics and stated that “... the physics program in general ... have been very beneficial to me” (INT 1) and his confidence in the classroom increased due to the pedagogy learned in the PD sessions. Elisa also stated that she understood physics better and learned different teaching skills after going through this program. She further highlighted the importance of follow up

meetings where teachers would share their successful experiences and strategies of teaching physics in class.

### **Leadership Development Priorities**

As Brandon, Elisa and Martin developed as teacher leaders, they had their own priorities. While traversing in their individual pathways of teacher leadership identity development, they found their own niche. Besides other aspects, they prioritized some features according to their interest and needs. Brandon and Martin said that being reflective helped them to grow as teacher leaders. Brandon used reflection to avoid jumping to conclusions without considering various factors and to make sure that a particular decision was “based upon what’s best for most” (INT 2). On the other hand, for Martin, reflection helped him identify various opportunities for teacher leadership. In contrast to them, Elisa strived to find her voice as a teacher leader and hone her delegation skills. She focused on being comfortable with “making decisions that people might not agree with ... explaining why I [she] decided things and speaking up for myself [herself] ...” (INT 2). Besides that, she also developed her confidence in sharing responsibilities among group members while leading.

All of them viewed communication to be an important leadership skill but Brandon and Elisa strived to develop those skills as they were less confident about it in comparison to Martin. As they developed as teacher leaders, Brandon said he was “learning how to communicate” (INT 2) and Elisa felt that she was “getting better at” (INT 1) at communication skills as she successfully delegated and made her expectations clear to colleagues while working towards a common goal.

Although all three participants carried out activities related to the leadership dimension of PD of colleagues, they did this in different ways. Whereas Elisa and Brandon's leadership activities related to PD of colleagues were focused on improving their colleagues' teaching skills, Martin's efforts were unique in that they focused on empowering his colleagues to be leaders as well.

### **Summary**

In this chapter, I have presented cases of the leadership development of three teachers at different stages in their career. Each participated in a PD program designed to support their growth as teacher leaders, and each was successful in their leadership endeavors and grew to recognize themselves as 'teacher leaders'. I compared and contrasted the leadership development processes and the leadership pathways of all three participants. The similarities and differences with regard to their teacher leadership identity development trajectories spread across their leadership practices, views of leadership, and identity as teachers and leaders. In the next chapter, I will discuss these findings as they contribute to the literature and existing research related to leadership, identity, and teacher-leadership. I will also discuss the limitations of the study, and the implications of this work for professional developers, school-based administrators, and researchers.

## CHAPTER FIVE

### DISCUSSION, IMPLICATIONS, AND LIMITATIONS

#### **Introduction**

In this study, I have investigated the teacher leadership development process of three high school science teachers. My primary research question was, *How do teachers with various years of teaching experience develop as 'teacher leaders'?* The two sub questions used to answer this broad question included:

- Through what processes and pathways do teachers develop their identities as teacher leaders?
- What differences or commonalities with regard to their leadership practices, if any, are evident for teachers with varying years of teaching experience?

This is the culminating chapter of the study in which I will discuss my findings in relation to other published works. I will also propose a leadership development process model, based on my investigation, and then compare and contrast this with existing models. Finally, I will discuss the limitations and the implications of my study.

#### **Discussion**

The preceding chapter presented the ways my three participating teachers evolved as they developed their teacher leadership identities. I described how they expanded their teacher leadership views, conducted activities in different dimensions of teacher leadership, and developed their teacher leadership identity as they participated in a PD program. Next, I compared and contrasted the differences evident across their leadership

pathways. In this section, I will make some assertions based on my findings of previous chapter. These include:

- Teachers widen leadership views as they develop as leaders
- Teachers expand their scope of leadership practices as they develop as leaders
- Model leaders are an important resource for teacher leadership identity development.
- Newer teachers, compared to veterans, tend to start leading within the classroom and then transition to leading outside the classroom.
- Teacher leadership trajectories depends on the priorities of the teacher and his/her context

I elaborate on each of these assertions and the data that support them below.

### **Teachers Widen Their Leadership Views as They Develop as Leaders**

All three participants initially held very formal views of teacher leadership that changed over the course of their involvement in the PD. Moving beyond their narrow views of leadership was necessary in order for them to identify opportunities for them to be leaders. For example, Brandon, Elisa and Martin thought that teacher leadership opportunities were limited to those who held formal positions, took charge, or were veteran teachers. In fact, Martin even felt that a mere teacher without any formal position could never be a leader. However, after entering the program, they slowly began to change this narrow view of leadership as a title or position and finally began to focus on specific practices, skills, and characteristics of leaders. All participants said that leadership practice should be democratic. Leaders should take initiative, be flexible, open

to feedback, and be good negotiators. Besides these, there were also other attributes which were highlighted by the other two participants. Brandon and Martin felt that high self-confidence, better communication skills, a goal-oriented focus, congeniality, reflection, vision, being vocal and upfront in communication, patience and persistence, and patient listening were all needed in a teacher leader. This widening of views can be attributed to their participation in this PD program. The leadership sessions, in particular, impacted all participant teachers from the very beginning. The literature they read and discussions they had with peers helped them understand the broad nature and scope of teacher leadership. Furthermore, through virtual discussion forums, teachers also shared their thoughts on leadership, highlighted shifts in their leadership views, and discussed how they developed as teacher leaders.

These findings are in alignment with similar investigations. While there have not been many investigations regarding how PD programs help support teacher leadership development, several do show that workshops focused towards leadership helped teachers develop as leaders (Hofstein et al. 2004; Howe & Stubbs, 2003). Similar to my experience, Grant (2006) also found that teachers at the outset thought leadership to be exclusively formal when participating in a PD program. The way my participants changed their teacher leadership views also corroborated the findings of Emira (2010) and Hanuscin et al. (2012). In the context of the same PD program, Hanuscin et al. (2012) found that a cohort of 36 teachers also harbored teacher leadership views in terms of personal qualities and knowledge and skills of leadership (e.g. expertise, competence, decision making skills, and organization and facilitation skills). Also, Emira's (2010) results also showed that her subjects defined teacher leadership in relation to leadership



characteristics, styles and activities. Although there was a mention of various characteristics, Emira (2010) pointed out that most of her participants did not consider decision making abilities to be a teacher leadership aspect. Interestingly, this again resonated with my findings, as my participants did not exclusively mention ‘ability to make decisions’ as a teacher leadership characteristic. However, all of them talked about the need to have the ability to reach an agreement based on group consensus.

Furthermore, my results do not indicate any stark difference with regards to change in teacher leadership views between teachers with various years of teaching experience. All three participants had similar views of teacher leadership and some views were at least shared by two, if not all three. This finding both contradicts and aligns with previous studies. Day (1999) found that teachers differed in their views of leadership according to whether they were a novice, experienced, or an expert. Emira (2010), whose investigation results also resonate with my findings, contradicted this. Emira found that the length of teaching experience of teachers may not contribute to their teacher leadership views and minor discrepancies may be due to individual differences. Moreover, the fact that my participants went through the same PD program might have contributed to some extent to the similarities in their leadership views. However, despite that limitation, it is important to know that their views were not affected by PD workshops alone. All my participants had very different backgrounds, school contexts, and experiences, as will be emphasized in the sections that follow.

### **Teachers Expand Their Scope of Leadership Practices as They Develop as Leaders**

The previous chapter described how all three teacher participants’ leadership activities spread across various dimensions of teacher leadership practices. I considered

the seven dimensions of teacher leadership practices highlighted by York-Barr and Duke (2004), which included coordination and management, school or district curriculum work, PD of colleagues, participation in school change and improvement initiatives, parent and community involvement, contribution to the profession of teachers, and pre-service teacher education (York-Barr & Duke, 2004). As teachers in this study broadened their views of leadership, there was a parallel broadening of the dimensions of their leadership practices.

While all three had engaged in leadership activities in at least of one of those dimensions before they joined the PD program, as they developed as teacher leaders they extended their range of activities to other dimensions. Martin's activities spread across all seven dimensions including 'Pre service teacher education.' On the other hand, Elisa and Brandon activities extended only to the other six dimensions. These teachers were not involved in mentoring any pre-service teachers. Most likely this was because Martin's school district promoted such options and had connections with the nearby university; whereas Elisa's and Brandon's schools were located in rural areas, away from any such university.

Participation in this PD program encouraged participants to undertake leadership activities in a variety of dimensions by explicitly introducing this framework to teachers. Just as the program helped them widen their views regarding leadership, program activities also helped teachers see the different areas where they could practice leadership. Their leadership action plans each year encouraged them to identify and engage in activities according to their interests and needs. Participants indicated the program helped them practice being a leader, understand the importance of various

leadership practices, take initiative, practice self-reflection, and develop as teacher leaders.

Howe and Stubbs (2003) investigated the development of science teachers into teacher leaders as they participated in a PD program. They found that teachers moved into new roles of teacher leadership by doing various activities such as writing curriculum materials, delivering workshops, sponsoring science clubs, serving in city councils to help environmental issues, participating in science teacher associations, etc. Although Howe and Stubbs (2003) did not group their participants' leadership activities in terms of various dimensions, nevertheless their practices resonated with that of all the three science teachers of my study. Similarly to my findings, these authors also found that teachers became leaders by expanding their scope of leadership practices.

Grant (2006) highlighted practices revolving around four levels of teacher leadership as understood by teachers going through a PD -- within the classroom by managing teaching learning process; working with other teachers; taking part of a whole school's development through building and policy development; and as an extension beyond the school by leading in community and cross-school networking. My results in regards to the expansion of leadership practices by teachers not only confirm Grant's (2006) findings, but also that of other studies. Hofstein et al (2004) highlights leadership activities practiced by teachers limited only to dimensions of coordination and management, curriculum development, and PD of colleagues. As described earlier, my results further document leadership practices in addition to these four levels (Grant 2006) and three dimensions (Hofstein et al. 2004) related to participation in professional

organizations or building partnerships with colleges and universities to prepare future teachers.

While analyzing data, I encountered several activities in which participants engaged that did not fall in any of the seven dimensions of leadership practice, but nevertheless they were related to teachers' leadership identity development. Activities such as pursuing graduate level coursework, interning with the principal, reading leadership literature, taking firm steps to improve teaching skills (e.g., videotaping their own teaching), reflecting about personal leadership styles and how to improve, and accepting feedback from others fell into this category. York-Barr and Duke's (2004) dimensions of leadership practice points towards various leadership activities teacher leaders *do* and various *roles* they play. Thus, these activities cannot be viewed as a particular type of *leadership practice*, but rather as a form of personal growth and development. For example, working on a principal or superintendent certification course and interning with a principal would pave the way for a teacher becoming a principal or superintendent. Similarly, seeking and accepting feedback from others could support teachers' leadership practices in relation to coordination and management issues. Therefore, personal growth activities are crucial in conjunction with various teacher leadership practices for a holistic development of teacher leader identity.

The importance of personal learning and growth has been highlighted by other studies as well. Such as with Komives et al (2005), who made a separate category for 'Developing Self' in their leadership identity development model. These authors pointed out activities related to deepening self-awareness, building self-confidence, establishing interpersonal efficacy, the expansion of personal motivation, and the application of new

skills. Some of these resonate with what my participants were doing under the realm of personal development. However, my conception of self-development in relation to teacher leadership contrasted with what was described by Hofstein et al (2004). These authors highlighted the personal development aspects of Bell and Gilbert's (1899) PD model of science teachers. Hofstein et al (2004) described personal development in reference to affective development which involved attending to personal feelings about personal growth and about being a teacher and a leader. In contrast, my data regarding teachers' self-development was not limited to affect.

### **Model Leaders Are an Important Resource for Teacher Leadership Identity Development**

Teacher leadership identity development, a dynamic characteristic, is also dependent on the presence of a model leader. Brandon, Elisa and Martin described leaders in their field to whom they looked to as role models. Their views, practices, and identity development were affected by these model leaders. Their identities were developed as they perceived themselves in relation to their role model and vice versa. Role models also provided teachers with examples of leadership styles and practices they did *not* want to emulate. For example, Elisa had seen a lot of positional leaders through her career in the army and in school, and decided she didn't want to be a formal leader or have any position of authority. Rather, she chose to be an informal leader who worked on the 'ground level'.

The significance of a model leader is well documented by various other studies such as Komives et al (2005), Komives et al (2006), Komives et al (2009), and Posner (2009). Komives and her colleagues stated the presence of a role model is an essential

developmental influence for a leader-to-be. They emphasized that during the early phases of leadership identity development an individual needs a person “to look up to, the role model, that figure you aspire to be.” (Komives et al 2005 p. 596). The presence of a role model also helps in developing leadership self-efficacy (Komives et al. 2009).

Observations allow an individual to compare themselves with others, for example observing a role model creating a change on campus. Furthermore this aspect of role model is not limited to initial stages of leadership development, Komives et al (2006) found that individuals also strived to become role models for others at their final stages of development – ‘Integration/ synthesis.’

### **Newer Teachers Tend To Start Leading Within the Classroom Initially**

Among my three participants, the most experienced one lead mainly outside of his classroom. This doesn’t mean, however, that the other two participants never focused on leadership activities outside their classroom. In fact, all of my participants’ leadership activities impacted the whole school and beyond. However, Brandon and Elisa started to lead from within their classrooms initially, and then ventured into leadership practices beyond their classrooms. To a great extent, this is related to the degree of comfort and self-confidence of these two participants. For example, Elisa focused on leading outside the class after her second year in the program, once she felt confident about her students’ success inside her classroom. For her, this was an issue of personal credibility, that is, viewing herself as a ‘successful’ teacher. Also contributing to this was teachers’ beliefs with regard to their content knowledge. Martin had been teaching physics for 17 years, Elisa for 13 years, and Brandon had only taught for one year at the time of joining this program. Their familiarity and comfort with their understanding of the content influenced

their decisions of leading within the class.

Angelle and DeHart (2011) said that the idea of teacher leadership, often reflected by the realm of its practice, is understood differently by teachers based on their years of service. My results contradict their assertion in regard to *ideas of teacher leadership*, as participants initially held very similar views of teacher leadership, regardless of their years of service. However, my results support their assertion in regard to *practice*, as Brandon and Elisa started leading inside their classrooms while Martin, who had more experience, started leading outside his classroom and school. Furthermore, the authors also said that compared to newer teachers, “leadership training for experienced teachers may enhance their desire to step out of their classroom and take on a larger school role” (p. 156). This again resonates to what I found with respect to Martin, the most experienced teacher among my participants.

Although not in relation to years of teaching experience, Grant (2006) stated that leading within the classroom is the first level of teacher leadership in a four level teacher leadership development process. In contrast to my study, Grant (2006) used a different theoretical framework – distributed leadership. The tutors in this study mentioned leading within the classroom during an early period of their leadership development. Gradually they started working with other teachers in their second level of development. Finally, they came out of the classroom and their buildings to participate in a whole school development and also reached out to the community. These happened in the third and fourth levels, respectively. This consideration by Grant’s (2006) participants was noted during the initial stages of leadership within the classroom and gradual extension beyond is analogous to my results related to newer teachers. However, in contrast Emira (2010)

found that irrespective of experience, teachers emphasized leadership within the classroom. However, she said that this view of teacher leadership might have been influenced by the Ministry of Educations' view of teacher leadership which 'confines it to the control which teachers exercise on their students' (Emira, 2010 p. 602). Context also played a role in the leadership trajectories of my participants, as described in the next section.

### **Teacher Leadership Trajectory Depends on Priorities and Context**

The leadership pathways chosen by teachers depended upon their personal interests, i.e., what leadership activities they wanted to do. As stated in last chapter, they had various priorities such as honing delegation and communication skills as leaders or empowering others to become leaders. For example, Elisa strived to improve her communication skills and let her voice be heard by doing various presentations and writing newsletter articles. She also stated that her priorities included working on decision making abilities in her PLC groups. On the other hand, Brandon said that he had no priorities at the beginning of the program. Eventually that changed and he prioritized changing the science curriculum of his school to align it with that of PF. In addition, leadership practices were also influenced by the school context where they practiced leadership. For example, Martin was the only one to practice leadership within the dimension of 'Preservice teacher education.' This was possible due to the fact that his school district is a rural one and is in collaboration with the local university. On similar contextual grounds, as this PD program is over and Elisa is about to retire, she says that her priority now is to refine and prepare her courses for her replacement. For example, she plans on writing classroom lesson vignettes and videotaping activities which she does



to help any new teacher who would take her position after she retires. In this sense, while the PD helped teachers identify priorities, those were ultimately shaped by their specific contexts.

Other studies have also found that teachers' preferences guide their leadership aspirations. Bradley-Levine (2011) studied four teachers to examine their leadership development and found that two of them sought administrative positions in order to address what they viewed as various teacher leadership drawbacks. Similarly, the other two teachers became leaders by striving to be more confident, standing up for their beliefs, and finding their own voice. These results are on par with mine. Contextual factors have also been identified as crucial to teacher leadership development by other studies (Angelle & DeHart, 2011; Grant, 2006; Jolie Mayer-Smith, 2003; Molle) as endorsed by my results. Jolie Mayer-Smith (2003) advocated the "presence of educational environments that nurture and nourish leadership activity" (p. 96) as well as "natural attributes of the participating teachers" (p. 96) for success of teacher leadership in a PD program. In addition to this, Angelle and DeHart (2011) advocated that the leadership vision held by a school/ school district affects teachers' commitment both in and outside the classroom. All three schools, from which my participants came, were very favorable with regard to teacher leadership development. Brandon, Elisa, and Martin have each talked highly about their cooperative principals and other administrative staff. This is perhaps unique, given the literature documents a number of challenges teachers are likely to face in becoming leaders, among those the support of peers and administrators (Silva et al., 2000; Weiner, 2011; York-Barr & Duke, 2004).

### **Final Synthesis, Contribution and Suggestions**

The prior section discussed the assertions based on my findings. In this section, I am going to present an overall synthesis of my analysis with regard to how teachers develop their identity as teacher leaders and a holistic view of the teacher leadership development process. Furthermore, I will also discuss the contributions of my study, share suggestions regarding further research, and address the limitations of this study.

#### **Leadership Identity Development**

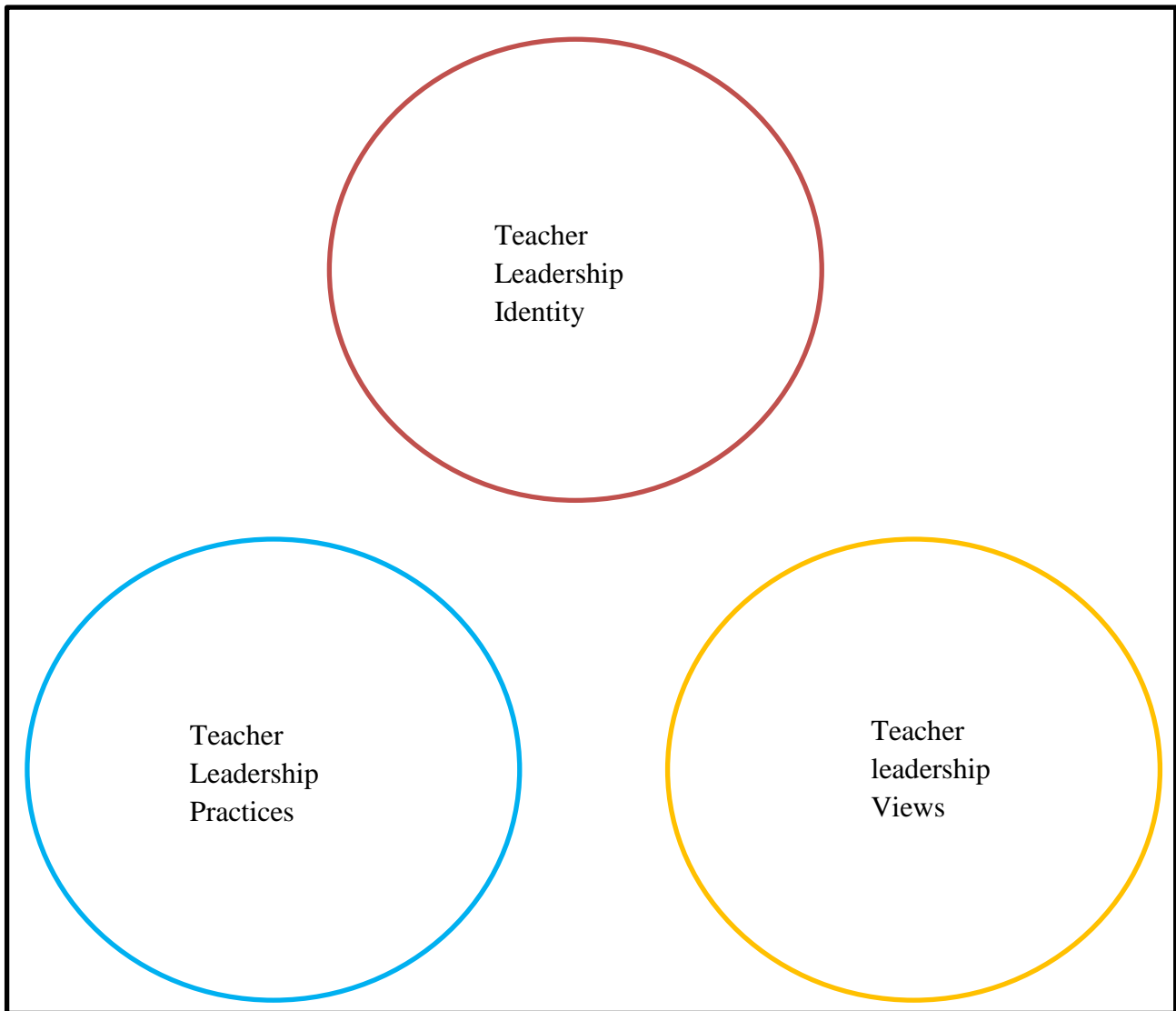
My experiences with this investigation brought forth the complex nature of teacher leadership identity development. All of my participants started with the self-perception that they were not teacher leaders and finally ended up recognizing themselves (and being recognized by others) as such. In regards to the nature of this development, all three were unequivocal in saying that this development was gradual and time dependent, versus being an abrupt change. My results suggest that they started with low confidence and slowly gained confidence when met with success in their various teacher leadership activities. Their progress reports for their leadership action plans (mid-year and final year) documented how the accomplishment of their action plan goals helped them gain confidence. It should also be noted here that sometimes a teacher's confidence is associated with their comfort in teaching the content and supporting student success in their own classroom. The two newer teachers had less background and experience with teaching the physics content and hence their associated comfort level was also low. Specifically, Brandon had not taught physics courses earlier which affected his level of confidence in teaching his courses and Elisa was not comfortable with the pedagogy and reestablished way of teaching physics within the PD program.

Although teachers' leadership identity development was gradual, there were instances of identity shifts in all of three cases. For example, codes such as "I have changed and become more confident and recognize leadership opportunities" and "I have changed as I developed as a leader – I am more vocal now" clearly depict their identity transformation. Again, these changes did not occur all by themselves. They were made possible by the presence of an ideal leader and a support system. All participants mentioned the presence of a model leader – a personification of most of the teacher leadership characteristics they valued. Moreover, the identity of a person is not limited to her/ his self-perception only; the viewpoint of others is also significant. In this study, feedback, recognition, and support from colleagues and PD staff were also crucial for participants' identity development. Colleagues' and other fellow PF teachers' recognition not only boosted participants' confidence, but also established their credibility and competence as teacher leaders within their school contexts. This was directly evidenced by blog conversations in which fellow PF teachers' acknowledged my participants' credibility and their leadership qualities.

### **Leadership Development Process**

Based on my study, the process of teacher leadership development can be said to be characterized as a synergic interplay of an individual's views of leadership, practices and identity development. As a result of this investigation process, I am proposing a model for teacher leadership development process (Figure 11). The three main components explain the process of teacher leadership development as a result of their synergic interplay. The three components being teacher leadership views, teacher leadership practices, and teacher leadership identity.

Figure 13. COMPONENTS OF TEACHER LEADERSHIP DEVELOPMENT



A persistent question in the literature is the point at which teachers may be considered ‘leaders’, particularly given identity is an ongoing construction. This model addresses that question, while maintaining a view of identity as dynamic. According to this model, teacher leadership occurs when all of these components become aligned with each other. This alignment is facilitated by a variety of factors; including opportunities to practice leadership, develop competence, receive feedback, engage in reflection, be

exposed to new ideas, identify role models, and interact with others. This model does not promote any particular aspect to be more important than another. However, for the convenience, I will start with the teacher leadership viewpoint.

To start with, a teacher is expected to have some prior ideas about a teacher leader/ leader and teacher leadership/leadership. A teacher also adds to this repertoire as s/he learns new things, views other teacher leaders, works with other teacher leaders, and through her/his personal experiences. This broadening of the view of teacher leadership is recommended by Hanuscin, Rebello and Sinha (2012). For example, one of the teachers (Brandon) had the view that leaders take initiative and step up when something needs to be done and others do not take the lead. This component is crucial because an understanding of what teacher leadership is and what a teacher leader does, helps a teacher to be aware of leadership practice opportunities irrespective of their years of experience (Angelle & DeHart 2011).

The next component is leadership practices. This encompasses various activities teachers do as they develop as leaders, such as those identified by York-Barr and Duke (2004). An intersection occurs when they do the same activities which they consider to be leadership and vice versa. For example, Brandon viewed taking initiative to be a leadership characteristic and he himself took lead to educate his colleagues about various modeling and white boarding strategies.

The last component is teacher leadership identity- a dynamic characteristic dealing with the perception of self and others. A teacher may perceive her/himself as a teacher leader in various ways, however an intersection occurs when s/he views herself/himself as a leader due to the leadership activities they do or how they define

‘leadership’. As in this example of Brandon, he ultimately views himself as a teacher leader due to all the initiatives he takes which he viewed as what teacher leaders do. Thus, this leadership identity becomes stronger and more well-defined as they successfully practice more such leadership activities which they think fall in the teacher leadership realm.

These components are related and are influenced by each other. A teacher may have idealistic views of leadership, but if they do not enact those views into leadership practices, then it does not contribute in their leadership development process. Those thoughts and views just remain abstract ideas. Hanuscin et al (2012) found this mismatch between leadership views and leadership practices and stated that “there exists an interesting dichotomy between the activities that teachers engage in and those they perceive as constituting leadership” (p. 17). They found that there were some aspects of teacher leadership that teachers did view as leadership, however they either did not / or did not have chance to practice it. Similarly, sometimes they practiced some leadership activity, but they did not view those as teacher leadership. This misalignment can ultimately prevent them from seeing themselves as teacher leaders; that is, developing an identity as a leader. On the other hand, and as described in the previous paragraph, the alignment between these two aspects helps the identity development of teacher leaders. In a reverse manner, if we start from the identity aspect of an individual teacher, s/he cannot perceive her/himself to be a teacher leader until and unless they practice teacher leadership through various activities. As detailed earlier, self-perception is dependent on self-confidence which in turn happens via successful teacher leadership practice (Gonzales & Lambert, 2001). Thus, teacher leadership identity development is a gradual

process happening via leadership practices which in turn is dependent on teacher leadership views. Therefore, these three components equally contribute to the whole teacher leadership process and it occurs within the junction of the three. Also, I would not say that these three aspects are not independent of each other. They can be exclusive of each other, but may not result in the leadership development process in its holistic entity, involving ideas, practices and identity.

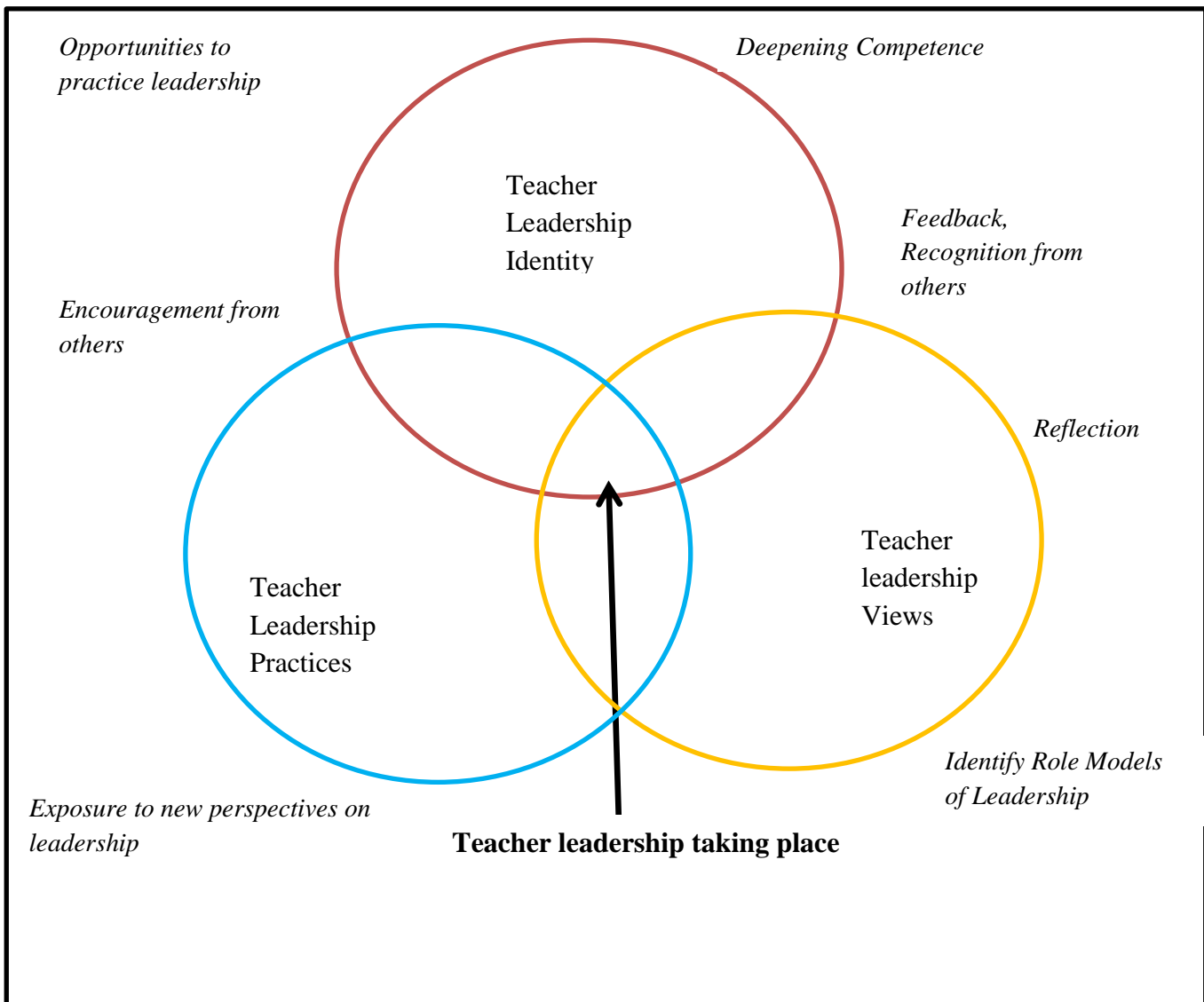
In my explanation, I have assigned leadership views as the base, followed by leadership practices, and finally how both affect the development of teacher leadership identity. Although arranged this way, the model does not imply a pyramidal structure starting with leadership views and ending in leadership identity via leadership practices at this point. I would suggest more research is needed to establish such a relational or hierarchal structure. Depending upon further investigation, I also think that these components can be organized interchangeably and am strongly of the opinion that they are linked in a cyclic order, i.e., views affecting the practice and identity, in turn affecting the practice and identity development. The same goes with practices and identity.

What becomes critical within this view is the identification of the mechanisms and means by which all three components are brought into alignment. All the participants of this investigation took part in a PD program which contributed in transforming their leadership views, developing their leadership identity, and expanding the horizon of their leadership practices. Their teacher leadership views were broadened by the leadership literature they read, the discussions with others regarding their leadership thoughts, and the reflective practices promoted by the leadership course in which they were enrolled. As they participated in this program, the PD staff encouraged them to expand their

horizon of leadership practices and helped them identify leadership opportunities which the participants did not see earlier. The leadership action plan helped them to chalk out and execute a series of leadership activities each year for three consecutive years. In a similar manner the recognition from others and deepening of their content knowledge helped them build their competence and confidence as teacher leaders and also as teachers respectively. This confidence in turn contributed to their identity development. The presence of a role model and imitating that person also helped all my participants to construct their teacher leadership identity. All these factors mentioned here have been highlighted as contributors to this process of teacher leadership development by any of the participants. These factors can be represented in the model as the forces acting on each circle to bring all three into alignment.



Figure 14. TEACHER LEADERSHIP DEVELOPMENT PROCESS



### Comparison of Proposed and Combined Model

The model I proposed can be compared with the combined model of teacher leadership development. As a result of the literature review, I combined the leadership development program model by Palus and Drath (1995) and leadership identity development model by Komives et al. (2005). Komives et al (2005) investigated the leadership identity development of college participants and Palus and Drath (1995)

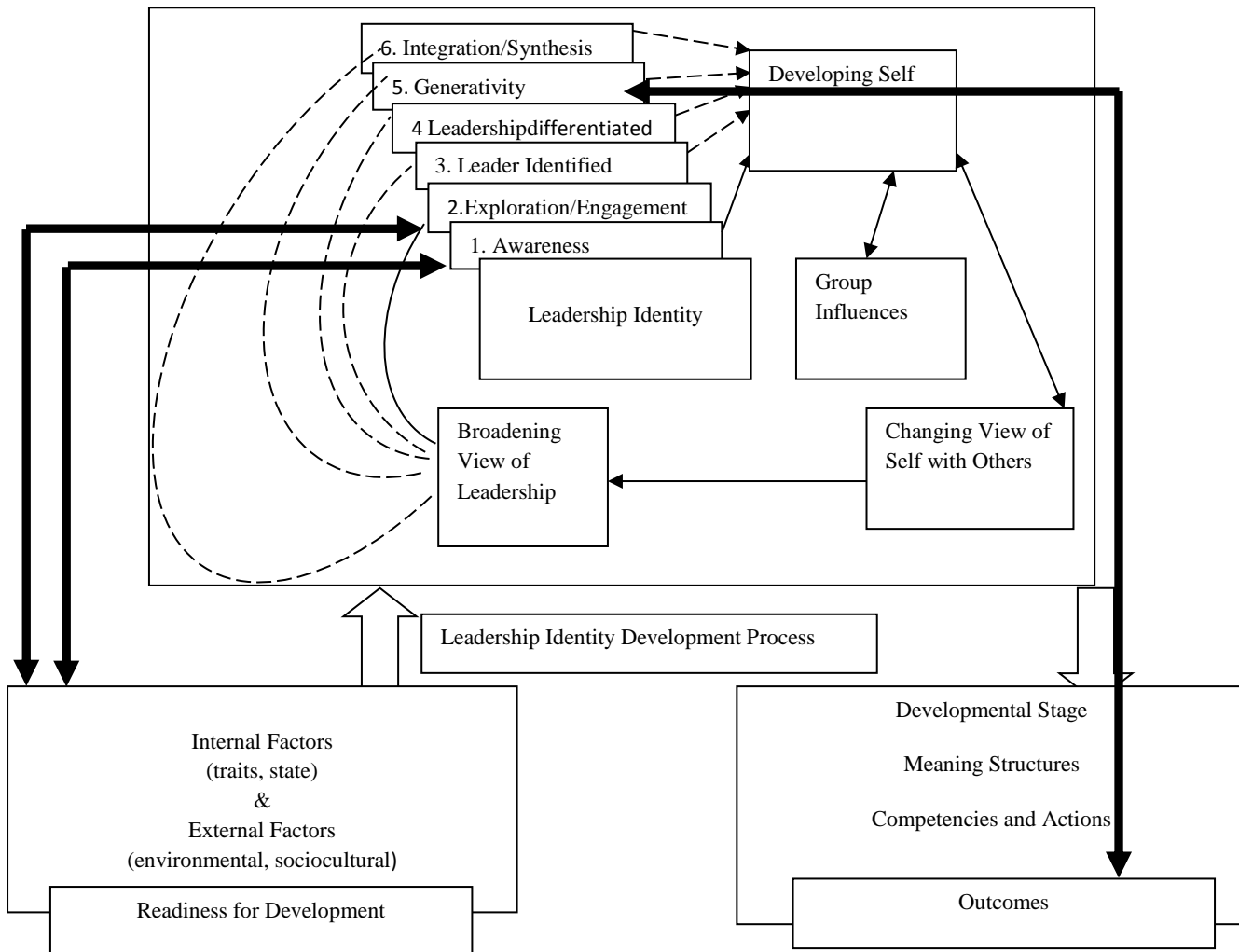
designed this leadership development model for professional developers, which had been used by Howe and Stubbs (2003) to explore the leadership development process of three science teachers. Henceforth, in this discussion the model I proposed will be termed the ‘Proposed model’ and the other model that resulted from the literature review will be termed the ‘Combined model.’ The proposed model is much simpler than the combined model. However, some details of the combined model are covered in the previous discussion regarding leadership identity development. In the proposed model there is no separate component for the development of readiness. Although not exclusively mentioned in the model, it is assumed that in this context that my participants were ready for leadership development in the sense that they applied for this PD program, which focused on their leadership development. In fact, the participants’ motivation to apply and a push/ encouragement from the school/ administration/ principal can be referred to as the internal and external factors associated with the combined model. The ‘Views’ in the proposed model can be seen as the counterpart of ‘Broadening of View of Leadership’ and ‘Changing View of Self with Others’ taken together of the combined model. The ‘Views’ component highlights teachers’ leadership past and present views - how they broadened these from being formal to informal, and spread across various dimensions (York-Barr & Duke, 2004). Similarly, those two counterparts together in the combined model also relate to broadening views of leadership – from dependent (external leadership) to independent (leadership being positional) to interdependent (leadership being practiced by various members of the group). Similarly, the ‘Identity’ component in the proposed model can be equated to the ‘Leadership Identity’, ‘Developing Self’ and ‘Group Influences’ altogether in the combined model. The last two components had been

acknowledged to be highly interactive and are related by a double arrow by Komives et al. (2005). In the combined model, the personal development and group influences deal with self-confidence, self-awareness, an individual's standing in a group, and how involvement in group activities influence them. These ultimately contribute to their self-perception as leaders and the development of leadership identity, which is highlighted by various arrows connecting the stages of leadership identity development and those two components. The proposed model has one component 'Identity' summing up all those things together including self-confidence, group experiences, identity shifts, leadership differentiation, etc. In addition to that, it also includes others' perceptions as a contributing factor for identity development in addition to self-perception, which was not considered in the combined model.

The last part of the combined model is 'Outcomes.' The possible outcomes include either one or all -- moving into a higher developmental stage, acquisition of new meaning structures, and the development of new skills and competencies (Howe & Stubbs, 2003). These first two aspects of 'Outcome' in the combined model are included in 'Identity' and 'Views' of the proposed model.

Moving into a higher developmental stage with regards to teacher leadership can be perceived as a gradual advancement from an self-doubting teacher to a confident teacher leader. The 'Identity' component describes this via various shifts in identity. Similarly acquiring "new, revised, and alternative ideas, insights, and perspectives" regarding teacher leadership is considered to fall in the realm of changing leadership views and is explained in the 'Views' component of the proposed model. The development of new competencies and actions in the combined model can be

Figure 15. COMBINED LEADERSHIP DEVELOPMENT MODEL



related to the ‘Practices’ component of the proposed model. In fact, Palus and Drath (1995) state that the final aim for an individual is to establish “the ability to foster and effectively participate in processes of leadership in their communities” (p. 25). The ‘Practices’ component in the proposed model deals with leadership skills and activities teacher leaders do affecting their classroom, school, community, or school district.

These above paragraphs show the alignment of the components of the proposed and the combined model. I have highlighted how all the components of the combined

model have been considered and dealt with by the proposed model. This act of comparison brought out some interesting facts. Although the proposed model is a much simpler attempt to understand the process of leadership development, it highlights the ‘Practice’ component, which is not exclusively featured in the combined model. This does not mean that the combined model does not acknowledge leadership activities as a part of the development process, but that it considered it to be included within other components. However, I do feel that leadership practice is crucial and it should be a major component in itself contributing to the holistic process of leadership development. The combined model talks about competencies and actions, which focus more on the gaining of various leadership skills. On the other hand, the ‘Practice’ component moves beyond the skills of an individual teacher and deals with various dimensions of leadership practices suggested by York-Barr and Duke (2004). The proposed model looks at ‘Practices’ as an enactment or performance phase/ ground for the teacher leaders. It can viewed as a crucial intermediary state, where teacher leaders, either via working individually or in a group, execute those activities they view as characteristic of leaders. These successful executions promote self-confidence which helps them self-perceive themselves as teacher leaders. Beyond that, the combined model has competencies and actions as a part of the ‘Outcome’ which means it promotes them (i.e. leadership competencies and actions) to be the end of the leadership process. However, within the proposed model, the ‘Practices’ component works in conjunction with ‘Views’ and ‘Identity’ and as said earlier an intermediary phase. The proposed model views leadership practices as an ongoing endeavor, versus an end product, as highlighted in the combined model. Practicing leadership is not an end in itself. Rather, engagement in leadership

practices is an ongoing process which helps shape teachers' leadership views and contributes to their identity development and vice versa. For example, if a teacher does not perceive her/himself to be someone who would lead in a formal position; s/he may be practicing leadership by doing activities like coordinating with colleagues to present something or help other colleagues to learn some teaching skills (for example Elisa).

Moreover, if we view leadership actions as an end product, this indirectly indicates leadership identity development as the end of the process. Given that identity is dynamic in characteristic and is an ongoing thing, the process of identity development never truly ends, rather, it changes in different ways. For example leading from the front and taking charge to empower others or preparing others to lead. Thus this proposed model, in contrast to the combined model, views 'Practices' as an ongoing aspect leading to the leadership development process. In fact, this model sees all the three components to be dynamic in themselves and their intersection and extent of alignment as an ongoing process. The greater the intersection or alignment, the stronger the leadership development process will be.

There is another difference between the combined and the proposed model. The combined model is a linear structure starting with readiness for development and ending with outcomes. Furthermore the components in the combined model are related in a unidirectional way. The proposed model on the other hand is nonlinear and espouses the greatest degree of possible interaction among the components. Although it is convenient to start explaining the model with 'Views', it does not have a particular starting point per se. The most important thing which the proposed model seeks to highlight is that mere presence of all the components does not guarantee the leadership process to occur. All the

components have to come to an alignment and the greater the alignment, stronger and smoother is the leadership process. It is stronger in the sense that in case of an alignment each component is backed by other two. For example, if a teacher perceives her/himself to be a leader by being a good negotiator and keeping her/his team intact, then this identity of her/ himself would be much stronger if it is backed by a democratic/ group oriented view and at the same time s/he listens and considers all s/his group members' ideas when making any particular decision. Similarly, if all the components are in alignment, the transition from having a particular leadership view to forming a teacher leadership identity will be facilitated.

### **Implications**

This study has several implications in light of the results described in last chapter and discussion presented above. The findings of this investigation have significance for professional developers, teacher preparation, school administrators, and educational researchers.

**Implications for professional developers.** Based on my study, in order to help develop teacher leaders, PD should attend to (1) broadening teachers' views of leadership (i.e., defining 'teacher leadership'), (2) expanding teachers' awareness of opportunities to lead (i.e., finding a personal niche for leadership), and (3) supporting them in forging identities as 'teacher leaders'.

Prior participating in this PD program, my participants considered formal leadership to be the only form of teacher leadership. They viewed teachers with official leadership positions, principals and administrators to be the only leaders in the school arena. This calls for professional developers to break this prevalent myth among teachers

as a first step towards teachers' development as leaders. They should further help teachers understand that leadership can be embedded in their day to day practices and does not require abandoning their teaching responsibilities for leadership. For example, one of my participants gathered his colleagues and led this group to observe each other's teaching and provide feedback for the betterment of classroom instruction.

The observation that teachers developed their leadership identity by widening their views and expanding the scope of practices related to leadership is crucial. Therefore, professional developers with a focus on teacher leadership development can support teachers by taking a several key steps. The first step should be to develop an understanding of teachers' prior views with regard to leadership. The next step would be to help teachers build, improve, or refine their views of leadership by exposing them to various literature and others' perspectives. The third step would be to familiarize teachers with various options in terms of leadership activities which can be done by discussing explicitly the varied dimensions of practice of teacher leaders (York-Barr & Duke, 2004).

Although they went through a common process of teacher leadership identity development, my participants did so by pursuing different pathways according to their experience, priorities and contexts. This clearly indicates that there is no single 'panacea' or a pre-fixed pathway for leadership development. Professional developers should pay attention to various subtle and discerning background differences and customize their programs/ workshops to through flexible options that take into account all these differences. That is, programs should be flexible enough to accommodate participants' contexts, personal leadership development priorities, and career stage. For example, in this particular program, the action plan was based on a leadership goal selected by



teachers, rather than having ‘leadership’ be defined as a set of specific task expectations by the program.

As endorsed by my model, professional developers should give equal weightage to all the three aspects of the teacher leadership development process – views, practices and identity—and help participants bring those into greater alignment. Workshops should be designed to synchronize teachers’ views with ability and opportunities for practice various leadership activities. Those, in turn, should be matched with leadership identity development requirements such as providing enough time for gradual development of self-perception, building of self-confidence, helping in identity shifts, others’ feedback and suggestions, and presence of a role model.

Additionally, programs should take into account how colleagues and others’ views are important to teachers’ leadership identity development. The blogging platform used in this program, in particular, provided key identity resources and opportunities for participants to engage in identity work (Hanuscin, Cheng, Rebello, Sinha, & Muslu, 2014). Feedback from peers reassured Brandon, Elisa and Martin that they were making progress on their leadership pathways. Discussions about challenges and successes helped them develop their own leadership practices. Similarly, discussions about what it means to be a ‘leader’ helped broaden their views of teacher leadership. Through reflection, participants brought their views of leadership, leadership practices, and identities into greater alignment.

**Implications for school administrators.** As evident from my findings and supported by other studies, context plays an important role in teacher leadership development. Furthermore, my results also indicate the importance of self-confidence,

support and suggestions of colleagues in leadership identity development, and the ability to practice leadership. Principals, superintendents and other administrators should strive to create conducive environment within school for teacher leadership development. Part of this will require administrators to be aware of various opportunities for teachers to serve as teacher leaders. (For example, Martin's awareness of leadership opportunities helped him support others in capitalizing on these opportunities.) They should encourage teachers to take on leadership roles, include them in various decision making procedures regarding school issues, pair up novice teachers with established teacher leaders, and give equal recognition to both formal and informal leadership.

All of my participants gained confidence by making presentations at various levels -- school, district, regional and national. Furthermore it also helped other teachers gain knowledge about successful teaching strategies. Administrators could encourage and make arrangements for teachers participating in PD programs to make presentations and bring back to their colleagues what they learn in the workshops. As an extra step, administrators may also form groups headed by a PD participant teachers to observe each other's class teaching to incorporate newer methods of teaching.

**Implications for educational researchers.** The leadership development process model I have proposed describes how a teacher develops into a teacher leader through alignment of their views, practices, and identity. Further research is needed to validate this model against a larger sample of teachers at different career stages and in different contexts.

Development of a teacher's identity as a teacher leader is not an end in itself. It is also important to understand how teachers continue being a leader and sustain their

leadership identity, as identity is a dynamic characteristic versus being static. Therefore as a next step, a follow-up study with my participants would be useful to examine how teacher leaders continue their growth beyond their participation in the PD and what further shifts occur in their identity.

My investigation showed that teachers developed their identity as teacher leaders by practicing leadership within and outside their classroom and school. My study, however, did not assess the impacts of their leadership practices. Additional research is necessary to understand how these teachers and their activities influence their students, colleagues, and communities. This would also provide evidence of the broader impacts of the PD program beyond its immediate impacts on participants.

### **Limitations**

Every research study has some sort of limitation. It is the duty of the researcher to identify the limitations of any study and acknowledge them. Limitations are those factors which have the potential to constrain a particular study in some way or the other and are generally out of researcher's control. With regard to my study, limitations are associated with sample, context and theoretical lens.

### **The Sample**

I used the method of purposeful sampling to select my three cases from a pool of teachers participating in the PD program. These three teachers were selected on the basis of their teaching experiences to align with my research purposes. The first limitation may be posed by one of my sample, Brandon. Although he was a first year teacher when he entered into the program, he had significant life experiences including some leadership ones. Nevertheless he did not have any teacher leadership experience earlier but his prior

experience had built up some confidence in him. I cannot deny the fact that an ‘ideal’ novice teacher whose first profession would have been teaching would not have that repertoire of life experiences to build upon. Therefore, that ‘ideal’ novice teacher might not have been so confident at the beginning and the related leadership pathway might have been different. It is worthwhile to mention here that he was the only teacher in the group with teaching experience less than five years who showed interest to take part in this study. The second limitation is of generalizability. This study is conducted with a very limited number of participants and thus one must be cautious to generalize my assertions across all the teachers having different teaching experiences. Therefore, while my study suggests there are key differences in the leadership practices of teachers with different years of service, it also illustrates many similarities. In essence, my evidence does not provide a definitive answer to research question 2.

### **The Context**

The context of my study is *Leadership in Freshman Physics*, a National Science Foundation (NSF) funded five year Math and Science Partnership (MSP) PD program aspires to develop teacher leadership capabilities among high school teachers. Since one of the focuses of this program was leadership development, it is obvious that my participant teachers were encouraged and provided with needed scaffolding to become leaders. However this may not be the case with regard to general PD programs and let alone with teachers not participating in PD at all. Therefore my inferences regarding teachers’ leadership pathways may not be valid in the broader field of school teachers who do not participate in a leadership development program.

## **Data Collection**

Another limitation is related to the duration of time for which I had been observing the participants. As I have learnt through the literature that leadership development is a long term process, data collected over three years may not be enough to capture a detailed picture of this particular growth. Furthermore, one more shortcoming can be associated with the fact that I did not conduct any interview at the very beginning of the program. Interviews with the participants at the very beginning and at regular intervals each year would have helped me to get a more robust idea about their initial views regarding teacher leadership and how their views changed over time. Although the mid-year and final year reports serve this purpose to some extent, but then again those data cannot fill the gap completely. Because the program began prior to the start of my dissertation within my timeline of graduate study, pre-interviews were not possible in the design of my study.

## **The Theoretical Lens**

A theoretical lens or framework in any investigation is crucial because it guides the data analysis by influencing what is found and how it has been found (Honan et al. 2009). In other words it helps the investigator focus on what data to seek and how to interpret the data . On the other hand it also limits or narrows down the horizon of the researcher with regard to data analysis and representation. I used ‘Identity’ as the theoretical lens for this study and interpreted my data on the basis of it. While analyzing the data I focused on how individual teachers developed their identity as leaders. In this process it is possible that I might have overlooked some other aspects such as how everybody contributed to be a leader when working in a group scenario or within the

whole school as might be the case when viewed through the lens of distributed leadership. Although using a particular theoretical lens helped me focus and concentrate on a particular aspect of leadership, it nonetheless may have prevented me from seeing other aspects.

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## **Appendix A: Life story exercise**

- 1) I would like you to think about your leadership journey through the Physics First program specifically as if it were a book. Most books were divided into chapters. I would now like you to divide your own leadership journey into chapters in any way you see fit. Each chapter tells a kind of story; that is, it has a plot. Think about this for a while. Then, divide your leadership journey through this Physics First program into four or seven chapters. Give each chapter a name. Below, list the chapters by name and for each provide a short plot summary. Try to capture the uniqueness of your biography in this exercise. Everybody else's leadership journey may "divide up" differently, so it is probably best to think about how your chapter structure is different from other people. Try to think about the major events in your life as "turning points" leading from one chapter to next. These turning points should be unique to you.
- 2) Many people report 'peak experiences' where a person feels a sense of transcendence, breakthrough, uplifting, self-confidence, duty/ responsibility, altruism. Please describe something akin to a peak experience that you have experienced during your leadership journey through the Physics First program. Please be specific. Include what happened, who was there, how it felt, what you were thinking, and how (if at all) the experience changed you.
- 3) A 'nadir' is a low point. A nadir experience, then, is the opposite of a peak experience. Please think of your leadership journey through the Physics First program. Try to remember a specific experience in which you felt a sense of disillusionment and/or despair. This would be one of the low points in your leadership development. Even though this memory is undoubtedly unpleasant, please be specific and report as much detail as you did for the peak experience.
- 4) Many of us have implicit models for our behavior and experience. These were people whom we probably admire, and, therefore, we strive to model some aspect of your life around theirs. These may be people whom we know (parents, neighbors, friends, siblings) or others whom we do not know but serves as exemplary leaders for us ( politicians, famous public figures, sports figures, literary characters, diplomats, etc.) . Do you have any such models or exemplary leaders in your life? Below list as many as four of these (you do not have to list this many), and for each provide a sentence or two describing why this person is a model for you?
- 5) In what ways have your leadership beliefs and attitudes changed in past 10 years? Please be as specific as you can. (If you have not changed much on this, please tell us. Also, if you do not believe that you have a particular leadership viewpoint, and then say so. Do not feel pressured to make something up in order to satisfy the reader!)



## **Appendix B: Interview protocol**

### Interview protocol 1

#### Background information

- 1) Tell me a little bit about how you got into teaching and where you are now in your career?
- 2) Can you describe the school in which you are teaching? (Demographic info, Atmosphere of the school – how is the school like?)
- 3) What influenced you to join Physics First leadership academy?
  - Was there any influence of anybody or any incident which triggered you?
- 4) What has been your experience with PF so far?

#### Working with others

- 5) Tell me more about your experiences with working with other people (colleagues, administrators, community members) to get something done? What did those various experiences teach you about working with people?
- 6) Do you find the persons you normally work/ have worked been professionally similar or different from you? If they are similar or different, then in what ways?
  - What are your experiences working with people different from you? And what have you learnt/gained from such experiences?
  - What are your experiences working with people similar to you? And what have you learnt/gained from such experiences?
- 7) When you work with others, which role do you feel most comfortable with – follower (someone who goes along with the group), contributor (someone who makes a contribution but does not necessarily lead), or leader (someone who leads the direction of the group)?
- 8) When working with others to accomplish something, what makes a good team member?
  - What makes a good leader?

#### Thoughts on leadership

- 9) Do you see yourself as a leader? If so, how and in what way? If not, why not?

## Appendix B (Continued)

- If yes, how did you begin to think of yourself as above or what you said yourself just now? When did that start to happen - tell me about that process
- If not, can you describe a situation in which you took the role of a leader to accomplish something? How did you manage that role?

10) Can you identify somebody whom you feel as a model leader?

- What characteristics does this person exhibit?
- How does this person work with others?
- How is this person able to get things done?
- Which of the skills that this person have/ does you see yourself possessing or developing?

11) What is your philosophy of leadership?

12) What has led you to have this view of leadership?

### Interview protocol 2

#### Leadership processes

13) Think about a time within the last three years that you worked as a leader to accomplish something that you feel is substantial or that gives you a sense of pride?

- Tell us about what that was?
- Who did you work with?
- How did you manage others?
- What process did you use to be successful?
- Did you have any barriers and how did you overcome them?
- What outcomes did this project produce for your community/school, team members, and yourself?
- What leadership skills did you learn as a result of this?

#### Leadership development

14) What leadership roles are you taking now?

- What leadership roles had you been taking earlier
- Do you think your leadership roles changed along the way in this course of PF training?

## Appendix B (Continued)

15) How has your view of leadership change as a result of participating in the PF academy?

- Was there a turning point/ any incident or any such thing that made change your initial views on leadership OR At what point you switched from initial to present view.
- Can you say that you have acquired a new, revised, or alternative ideas, insights, maps and perspectives on leadership?

16) What other things changed with this change in view of leadership, for example is there any change in your view/ attitude

- Did your view towards your colleagues change?
- Did your view towards your principal change?
- Did your view towards your administrators change?

17) How has your relationship with colleagues and administrators changed as you have learnt more about leadership?

- How it was earlier and how is it now?

18) How do you think each of these persons would describe your leadership development -- colleagues, students, administrators, community members, and PD staff?

### Outcomes

19) What's next for you? What are you working on to be an even more effective leader?

20) How do you react to people calling you a "leader"?

21) Is there anything else you want to add about leadership or your experiences?

22) How would you describe yourself as a final PF leadership product? OR What leadership outcomes you see in yourself as of now or at the end of this developmental process?

23) Can you tell me of some leadership skills that you have finally developed till now?

24) If a teacher colleague to ask you about how s/he can develop into an effective teacher leader, what advice would you give that person?

## VITA

Somnath Sinha was born and raised in India. He earned Master's Degree both in science and education from University of Burdwan and Utkal University respectively. After that he served as a primary teacher in a rural school for few years. Then he decided to come to the United States to pursue PhD in science education.

In 2009, he was accepted as a doctoral candidate at the University of Missouri, Columbia. As a graduate student, he worked under Dr. Deborah Hanuscin in various projects and research studies. He completed his PhD in fall of 2014. He is currently working as a postdoctoral research and teaching fellow at the University of Maine, Orono. Somnath's future plans include working as a faculty member in a reputed institution with ample opportunities for research work.