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Confronting Myths about Teacher Leadership

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Abstract
Leadership in Freshman Physics is an NSF-funded professional development program designed to support 9th grade teacher leaders in the successful implementation of a 'Physics First' or curriculum sequence that places physics prior to biology and chemistry. Leadership is viewed as an essential component in the initial success and long-term sustainability of such reforms. However, our own experiences working with teachers and the growing body of literature cautions that teachers may not view themselves as leaders and may hold ideas counterproductive to their development as leaders. In this article, we consider teachers' myths about leadership, and describe how we helped teachers confront these in a professional development program. In this program, each teacher designed a plan of action, based on his or her professional experiences and school environment. A web-based online learning community was established to serve as a platform of interaction and support among teachers and project staff throughout the year. We emphasize that by developing their capacity for leadership, teachers can make a difference beyond their own classrooms through empowering others.
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> *"Mr. Jones attended a workshop where he learned new teaching strategies to implement in his physics course. He tried these strategies, assessed his students, and continued to adjust his teaching to improve student learning. As a result of his instruction, student achievement improved significantly, and his students seemed to have a more positive attitude towards science. He found himself more enthusiastic and positive about teaching.*
> *Mrs. Land attended the same workshop, and similar to Mr. Jones was able to improve her instruction to better support student learning. She knew that the teaching strategies she had learned would benefit not only her students, but other students in her school as well. She invited the new science teacher at her school, Mr. Bell, to visit her classroom to observe her teaching. She also offered to help him implement the strategies in his courses. Mr. Bell, who had been feeling isolated in his classroom, eagerly accepted the opportunity to collaborate. Together, they began observing each other's teaching, and soon had the interest of colleagues willing to do the same in order to learn from one another's practice.*

Both of the teachers above benefited from the experience of attending the workshop; however, Mrs. Land was able to extend that benefit to another teacher in her school, making a far greater impact through her leadership. Mrs. Land's actions demonstrate just one of the many roles teacher-leaders can play. Through their leadership, teachers can build their school's capacity to improve. In addition

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to holding formal positions such as curriculum or instructional specialists, teachers can informally mentor, share resources, and provide classroom support to one another. Specifically, when adopting a new curriculum, this type of leadership is important to successful implementation, effective teaching, and ultimately student learning. However teachers are often reluctant to consider themselves 'leaders' and as such may be hesitant to take on leadership roles. The purpose of this paper is to describe how professional development can be designed to support teachers in developing as teacher-leaders. In this paper we consider the importance of teacher leadership, describe commonly held myths teachers hold about teacher leadership, and offer practical examples of how we designed a professional development program to help teachers confront these myths. Throughout, we synthesize findings from the literature as well as findings from our own research related to the project. In doing so, we hope to support other science teacher educators and professional developers in implementing similar efforts within their own contexts.

Why is teacher leadership important?

Park-Rogers and colleagues (2007) identified that encouraging teacher leadership is one of the criteria for effective professional development as recommended by policy and research documents. Various studies regarding professional development of teachers have indicated the importance of teacher leadership. A professional development study carried out with subject specialist teachers found that opportunities for leadership role in curricular (such as senior subject advisor) and other avenues helped growth in subject expertise and overall teacher leadership capacity (Taylor, Yates, Meyer, & Kinsella, 2011).

York-Barr and Duke (2004) defined teacher-leadership as "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" (p. 288). Thus we see that leadership in teachers is characterized by a particular type of relationship- one that mobilizes others to improve practice. As such, teacher leadership is a necessary ingredient for school improvement. Effective leadership provides a catalyst for change, and is necessary for implementing and sustaining curriculum reform efforts. Leaders provide the needed expertise to ensure initiatives are successful in achieving their intended effect—promoting student learning. Teachers who are committed to their students and to their own professional development can help advance school improvement efforts beyond their own classrooms.

As exemplified in our vignettes above, professional development programs can achieve broader impacts when teachers take steps to lead within and beyond their own classrooms. By attending professional development programs and using their leadership capacities, teachers have brought about positive changes in their schools. For example, chemistry teachers who participated in a program designed to enhance their content knowledge, pedagogical knowledge, and leadership skills, gained confidence to become teacher leaders, and implemented new instructional techniques to improve their teaching effectiveness (Hofstein, Carmi, & Ruth, 2003). In contrast, professional development efforts related to 'Physics First' (e.g., Dreon, 2006; Korsunsky & Agar, 2008; O'Brien & Thompson, 2009) have focused primarily on student learning and/or curriculum, without including an emphasis on teacher leadership. Given the importance of leadership to successful implementation of such curricular change, we integrated leadership development into a professional development program designed to prepare 9th grade teachers to serve as leaders within their schools and districts as they adopted the 'Physics First' curriculum sequence. The program, A TIME for Physics First:

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In beginning our work with teachers, we were conscious that teachers' beliefs about leadership might serve as serve as barriers to their growth as leaders and willingness to lead. To better understand the professional needs of teachers in regard to leadership development, we investigated their ideas about leadership, activities they consider to fall in the realm of leadership, and how they perceive themselves as leaders within their classrooms and schools. Our findings revealed teachers held several myths about leadership that prevented them from viewing themselves as leaders (Rebello, Hanuscin & Sinha, 2011). These include:

- Leadership requires a formal role or position
- Not everyone can be a leader
- Leadership takes place outside of the day-to-day activities of teaching

In the sections that follow, we describe the design of our program's leadership development activities, and how we encouraged teachers to question these myths and rethink their notions of leadership and capacity to lead.

Learning to Lead: Professional Development for Teacher Leaders

Participating teachers attended a month-long summer academy, during which they learned the content through hands-on activities and participated in sessions related to the modeling approach utilized in the Freshman Physics curriculum. As part of the academy, they also attended a series of weekly full-day leadership sessions. Through collaborative activities and discussions, we helped teachers to develop a shared vision for science education, explore leadership qualities within themselves, acquaint them with possible teacher leadership models, and build their knowledge and skills related for leadership. One of our purposes of the professional development program was to help teachers confront various myths about teacher leadership. Below, we share information about each of these myths, how they serve as barriers to teacher leadership, and discuss how professional development can assist teachers to confront these myths and to grow as leaders.

Formal vs. Informal Leadership

If teachers believe that 'leadership' is limited to those who hold a formal title or position, then they may not realize the many opportunities for leadership that exist within their schools. Teacher leadership includes both formal and informal roles (Muijs & Harris, 2006; Danielson, 2007), and contrary to the much popular belief it "may be informal through influence that does not involve designated authority over peers" (Taylor, Yates, Meyer & Kinsella, 2011 p. 86). In accordance to prevailing misconceptions, teachers in our program often associated leadership with serving as a department chair, officer in a professional organization, being a curriculum specialist, etc. On the contrary, there are many informal ways in which teachers exert influence and make a positive difference in their schools, and teachers have the capacity to become leaders (Barth, 2006) irrespective of any formal position. Lieberman and Miller (2004) stress that informally, teachers lead by serving as advocates, innovators, and stewards. As *advocates*, they speak up for what is best for student learning, framing and reframing issues so that student learning is the central focus. As

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innovators, they act as change agents, implementing new practices. As *stewards*, they positively shape the profession by contributing to their own professional growth and that of their colleagues. Specific tasks that teacher-leaders take on outside of formal leadership roles may include:

- Mentoring new teachers
- Providing classroom support/coaching to peers
- Managing resources for the school science program
- Writing and receiving grants
- Building support among parents and the community for the science program
- Encouraging involvement of others in bringing about change
- Building a presence for science in the school
- Participating in professional organizations

Professional development can increase teachers' awareness of opportunities to lead informally. The *Leadership in Freshman Physics* program helps teachers recognize the many informal roles they can play in supporting implementation of Physics First in their schools and districts. For example, teachers were provided opportunities to collaboratively brainstorm what was necessary for successful implementation of the new program, and the stakeholder groups involved. Teachers realized important needs for mentoring colleagues in using the new curriculum and pedagogy, and for communicating these changes to parents and the community in order to garner their support. In this manner, teachers realized that they could solve problems and bring about change in their own capacity, irrespective of holding any office of authority.

However, teacher-leadership is more than simply the skills necessary to complete these tasks—it includes broader competencies, such as being able to elicit and integrate multiple perspectives of stakeholders, and develop longer-term action plans to develop a critical mass for change.

Can There Be More Than One Leader?

A closely related myth is that the sole leader of the school is the person who has the title "principal", and that all others are followers. However, Pellicer & Anderson (2001) identified that effective schools tend to demonstrate shared leadership responsibilities among the principal and teachers. The principal was not the only source of leadership. Hence, ALL teachers have the potential to be a teacher leader; by the virtue of their own efforts to bring about change in their own classrooms, teachers lead by example. Nonetheless, because teachers in our program often associated leadership with a formal role, they believed that not everyone is capable of leadership—in other words, teachers expected there to be one leader who "takes charge" and that others follow. Yet, the undertaking of implementing a new curriculum, for example, requires leadership on many different levels and in many different forms. The variety of possible areas in which teachers can lead cut across seven different dimensions, identified by York-Barr and Duke (2004) in their review of the literature.

(a) Coordination and management (e.g., Coordinating daily schedules and special events)
(b) School or district curriculum work (e.g., Selecting and developing curriculum)
(c) Professional development of colleagues (e.g., Engaging in peer coaching)

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(d) Participation in school change and improvement initiatives (e.g., Participating in research, notably action research)
(e) Parent and community involvement (e.g., Becoming involved with parents; encouraging parent participation)
(f) Contributions to the profession of teachers (e.g., Participating in professional organizations)
(g) Pre-service teacher education (e.g. Building partnerships with colleges and universities to prepare future teachers)

Thus, there are opportunities for many different leaders within a single school, and leadership can have many different faces (Danielson, 2007). Our program emphasizes that implementing Physics First is not just a matter of preparing teachers in content and pedagogy, but of assisting teachers in serving as innovators, advocates, and stewards of reform. Throughout the academic year, teachers share success stories from their respective districts in regard to implementing Physics First—ways they have arranged school schedules to maximize instructional time and effectively use resources; how they have engaged colleagues in peer observations and professional development; and how they have reached out to parents and the community. We also encourage teachers to share beyond our group by providing support for their participation and presentations at the annual meeting of our state science teachers' organization.

Leadership

"Not in my job description?"

In the past it was believed that if you are a teacher and want to become a leader, you need to leave the classroom and maybe even the school (Barth, 1998 & Boyer, 1983 as cited in Katzenmeyer & Moller, 2009). A common myth is that a teacher leader's responsibility is completely different than a teacher's responsibility. When we asked teachers in our program to consider whether they viewed many of their routine activities to be forms of leadership, the majority of teachers responded 'no'—yet, these activities are within the seven dimensions of leadership practices discussed above. In other words, teachers were already taking on leadership roles and functions in their schools, but did not consider themselves to be leaders. They viewed leadership as being something above and beyond their day-to-day work as educators. As one teacher commented, "I think many of us were predisposed to reject [the leadership training] as irrelevant to our jobs as teachers. The content of the workshops addressed that predisposition." Nonetheless, teachers voiced concerns about the amount of time it would take to carry out leadership activities in addition to their existing responsibilities.

An underlying assumption of our professional development program is that leadership should be embedded in teachers' practice. If the ultimate goal of teacher leadership is improving student learning, then leadership activities should overlap with teachers' day to day responsibilities and enhance their work and in meaningful ways. Yet, when leadership takes place within teachers' daily classroom activities, they may not recognize their own contributions as leadership. This is where our program tried to provide teachers a new perspective through which their leadership could become visible. For example, working with parents is a normal part of teachers' responsibilities. Opportunities for leadership through interaction with parents become critical when adopting a new curriculum, such as Physics First. Teachers lead by identifying ways they can serve as ambassadors for the program and build parent support for curricular changes. For example, teachers in our

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program identified opportunities within their existing Open House to showcase changes in the 9th grade program and to involve parents in experiencing the new curriculum firsthand.

Another good example of leadership embedded in practice includes serving as mentors to other teachers in their own subject area. While working with colleagues in this capacity, a teacher can deepen the subject matter knowledge used in her/his daily teaching. Thus a teacher who leads through mentoring contributes to the improvement of students' learning both within and beyond his/her own classroom. For example, one group of teachers in our program set up a peer-observation schedule to support one another in implementing white-boarding effectively. As a result, they refined their use of this formative assessment practice to support student learning.

A Plan for Action

Katzenmeyer & Moeller (2001) recommend that teachers develop an action plan; this provides teachers an opportunity to learn new influencing skills by carrying out a real-life project in their schools or school districts. By the end of the summer academy, each teacher has designed an individualized Action Plan for leadership that they will carry out during the upcoming year. (Figure 1) The purpose of the action plan is for each teacher to identify a goal or pressing concern about implementing Physics First, anticipate barriers, envision their formal or informal roles, determine actions to be taken and leadership skills needed to be sharpened, point out essential resources, fix a time frame, come up with evaluation and communication strategies for their outcomes.

Teachers in our program have different lengths of experience teaching physics, are at different stages in their careers, and also have different levels of past leadership experience. The Action Plan allows individual teachers to develop a plan that aligns with their goals, but is achievable given their diverse backgrounds and comfort serving as a leader. For example, one first-year teacher developed a plan focused on improving her own pedagogy. She collaborated with colleagues in her school to observe their instruction and in turn get feedback on her teaching. In contrast, a more experienced teacher surveyed her colleagues on their use of white-boarding and organized workshop sessions to assist teachers in her school to improve their practice. Another teacher organized a Physics First Night for parents to learn more about the program and participate in activities firsthand. By putting a plan in writing, teachers were provided a tool to track their progress, evaluate their leadership, and remain committed to their goals.

Table 1. Action Plan Worksheet

What is a pressing concern you have about implementing Freshman Physics? What would you like to see happen in your classroom? At your school?	
Barriers & Challenges	As you address your concerns, what challenges are you likely to face?
Roles for Leadership	What roles (formal or informal) will you take as a leader?
Taking Action as a Leader	What actions will you take to Lead within and beyond your own classroom?
Developing as a Leader	What leadership skills will you need to carry out these actions? What will you need to learn in order to carry out these actions?

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Planning for Action	What resources will you need to carry out these actions? What is your timeline for carrying out these actions?
Evaluating & Dissemination	How will you evaluate the success of your actions? What data will you need to collect in order to do this? How will you communicate the outcomes of your efforts and lessons learned? With whom will you share these outcomes?

Supporting Teacher Leaders

There are several conditions that influence the promotion and support of teacher leaders including: having a safe environment for risk taking, administration that encourages teacher leadership, and seeking opportunities to learn leadership skills (Danielson, 2007). Yet, teachers themselves hold the power to unlock their own leadership potential and foster their leadership growth. There are many different paths through which teachers can become leaders; however leadership success is dependent upon one's persistence, commitment to self development, communication and building relations, having a clear, passionate goal, and defining success as positive incremental changes (Barth, 2001).

To support teacher leaders, leadership development that incorporates training, meaningful activities, sharing advice, follow-up sessions, workshops, and continual support is crucial. Both face-to-face and virtual (e.g. online) networks can also provide a safe environment to support the continued growth of teacher leaders (Berry, Norton, & Byrd, 2007). Virtual environments that include synchronous and asynchronous communication can address barriers of time and geographic distance so that teachers have more opportunities to interact with others. These can allow teachers to share advice, support colleagues, and encourage self-reflection about their own involvement and leadership abilities (DiMauro & Gal, 1994).

In order to sustain teachers' growth as leaders, *Leadership in Freshman Physics* utilizes a web-based online community during the academic year. Teachers share their experiences implementing their Action Plans, offer advice to others, and learn from each other's successes. Through this regular interaction, they are able to identify and address common issues and barriers to successful teacher leadership. For example, finding time to collaborate with peers is a struggle for many teachers. Several teachers have shared ways they have been able work with administrators to arrange their schedules to enable peer observations and common planning times, while others have suggested alternatives such as email and forming professional learning communities (PLCs). In particular, unique solutions for collaborating with math teachers have emerged from these conversations, for the benefit of students. By opening up these discussions across disciplines in their schools, teachers are more effectively supporting students in grasping the mathematics underlying the physics. Through their interactions with others, teachers recognize their own expertise and the value of their contributions to the successful implementation of Physics First in their school districts, which supports their development of an identity as a "teacher leader" (Hanuscin, Cheng, Rebello, Sinha, & Muslu, 2012).

Conclusion

According to the definition by Rost (1991), leadership can be thought as "an influential relationship among leaders and followers who intend real changes that reflect their mutual purposes" (p. 102).

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Here the influence based relation is multidirectional (anyone is entitled to become a leader and/ or a follower; leaders and followers can exchange places), there is more than one leader in the relationship accompanied by active followers, and finally both the followers and leaders do leadership as long as they desire certain changes which reflect their common purposes. According to this notion, any teacher can take on a leadership role and influence their colleagues to make real changes (for example, developing and implementing new curricula, providing professional development to colleagues, etc.). Building on this, rather than viewing individuals as 'born leaders', we argue that teachers can *learn to lead* and that professional development can be intentionally designed to enhance and build teachers' leadership capacity. We emphasize that leadership occurs irrespective of any formal authority or position, that leadership is a shared responsibility, and that leadership opportunities are embedded in teachers' day to day work. Yet, we are also aware that the ideas about leadership that teachers hold may not align with these ideas, and thus may serve as a barrier to their development as leaders.

Because of the myths teachers may hold about leadership (e.g., being a leader is outside of my job responsibilities as a teacher), teachers may not realize the many ways in which they can personally benefit from being teacher-leaders. Many teachers choose to become leaders for the chance to make a difference. Research also shows, however, that teachers benefit both personally and professionally from serving as leaders. Barth found that teachers can be enriched and energized through pursuing leadership opportunities. "Rather than remaining passive recipients of what their institutions deal to them, teachers who lead help shape their own schools and thereby their own destinies as educators" (2001, p. 445). Teacher leadership can increase personal and professional satisfaction, contribute to a reduction in the isolation teachers often feel, and contribute to further professional growth—all of which positively impacts their teaching. Teacher-leaders become owners and investors in the school, rather than mere tenants (Barth, 2001). By developing their capacity for leadership, teachers can make a difference beyond their own classroom through empowering others.

Through their development as teacher-leaders, participants in our professional development program have played varied and important roles in the successful implementation of 'Physics First' in their schools and districts. These highlight the many faces of leadership—from department chairs who have orchestrated peer observation schedules, to individual teachers who have organized parent information nights, to teams of teachers who have developed common assessments to obtain useful data to both evaluate and inform their instruction. Their work has illustrated that there are many opportunities for leadership at different levels and in different areas of the school—from interfacing with parents and the media, to working as colleagues in the classroom, to collaborating with local businesses and professional organizations. They have found ways that leadership can be a seamless part of their daily work, and how it can enhance their efforts in supporting student learning. These experiences have challenged the myths they initially held about leadership. Key to these efforts, however, has been the development, implementation, and ongoing evaluate and reflection on their individualized leadership action plans and opportunities to interface with one another to discuss their challenges and successes as leaders (Hanuscin, Cheng, Rebello, Sinha, & Muslu, 2012).

Through on our work with the *Leadership in Freshman Physics* program, we have come to recognize the value of embedding leadership development into professional development programs. Adopting a new curricular sequence is more than just a matter of learning new content—it involves changes that impact teachers, students, and the community. Leaders play an essential role in supporting this change process. However, we also recognize that professional developers play an essential role in supporting the development of teacher leaders. One implication of our work for

professional developers centers on the importance of recognizing teachers' initial perceptions about leadership and customizing individual or group sessions as far as possible to challenge their counterproductive views of leadership cultivate their leadership skills. Professional developers should recognize the variety of roles that teachers leaders can play and help teachers identify fruitful venues for serving as leaders within their school, while keeping in mind that teachers at different professional stages or with different interests and talents may lead in very different ways.

Physics First initiatives have been gaining momentum since 1995, spearheaded by Physics Nobel Laureate Leon Lederman (2003). Nonetheless, such sweeping change has not been widespread. Based on our work, we recognize how this particular movement might benefit from considering teachers as stakeholders and change agents in the reform process, and how teachers' own leadership can benefit other curricular efforts as well. We encourage professional developers to attend to teachers' ideas about leadership and to assist them in growing not only in their content knowledge and pedagogical skills, but also in their capacity to acts as advocates and leaders in their profession.

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