Creating and Implementing an Early Induction Program for Science Education Alumni

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Creating and implementing an early induction program for science education alumni

by

William P. Sachman

May 2013

A project submitted to the
Department of Education and Human Development of the
State University of New York College at Brockport
In partial fulfillment of the requirements for the degree of
Master of Science in Education
Creating and implementing an early induction program for science education alumni

by

William P. Sachman

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Advisor                                          Date

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Director, Graduate Programs                      Date
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Abstract

Beginner science teachers can face jitters, nervousness, and insecurity during their first few years of teaching. Moving from the college classroom to your own classroom can be a daunting task, but they do not have to do it alone. There can be a structured program that provides support and guidance to beginner teachers in the early stages of their careers. These are called early induction programs. Through the literature review of early induction programs implemented at other secondary schools and institutions of higher education, a blueprint was created to implement a program at The College at Brockport. The work involved included collecting alumni contact information, sending correspondence to alumni, and creating a digital medium to serve as the platform of the early induction program. This project seeks to provide beginner science teachers with a support community to share and collect ideas from their Brockport science program peers.
Chapter one: Introduction

Problem statement and significance of problem

Lack of support for beginner science teachers is a silent killer in schools today. This can lead to retention problems and a lack of teacher empowerment among beginning science teachers (Johnson, 2011). If school districts do not have resources available to beginning teachers they will suffer this fate. But there is hope. Programs can be developed to combat these issues. Early induction programs (Luft, 2009) provide support and guidance to beginner teachers in the early stages of their careers. Science teachers need early induction programs to support their efforts with implementing student-centered classroom rather than a teacher-centered classroom. The stated goals for an early induction program are as follows (Brock & Chaitlin, 2008, p. 375):

- Improving quality of new teacher performance
- Improving student achievement
- Improving retention of beginning teachers

According to the National Center for Education Statistics (1999), only 20% of beginning teachers will have a chance to take part in an induction program. All teachers should have an induction program available to them. Whose responsibility is it to create and support one? Who are the stakeholders? It should be a cooperative effort with school districts and area institutions of higher learning (these institutions will have a school/department of education). In the United States alone, more than 300 schools and colleges of education have created programs that support beginning teachers after their four-year degree experience (Darling-Hammond, 1998). In addition 15 states have mandated induction programs and six states have proposed and/or are piloting programs.
Purpose and rationale

This culminating research is project based. The finished product will be useful to both alumni of the science education program at Brockport, the alumni office, and the department of education and human development. With the creation of this program it will benefit all stakeholders involved. The alumni office will be connected and engaged with a particular cohort of alumni. The alumni of the science education program will be connected with a common cohort in terms of profession and alma mater. They will be able to act as resources to one another. The department of education and human development will be engaged with their former students, have up-to-date employment and placement information on their former students, and possibly utilize the alumni base to act as a mentor-mentee program with current education students. This program will be beneficial to all parties involved.

Definition of terms

EARLY INDUCTION PROGRAM: a structured program that provides support and guidance to beginner/beginning teachers in the early stages of their careers.

SCIENCE EDUCATION PROGRAM ALUMNI: an alumnus/alumna who has graduated from the department of education and human development with at least a science certification. These certifications include earth science, biology, chemistry, and physics. Certifications can be received through an undergraduate degree, a graduate degree, or a certificate of advanced study (CAS).

Summary

In order to create and implement a form of an early induction program at Brockport, it is clear that a literature review must be completed to discover what components there are in a program. With the conclusion of the literature review, a blueprint of an early induction program will be constructed to put one in place at The College at Brockport.

The digital realm will work well to host an early induction program. A type of social media platform such as Wikispaces or LinkedIn would be useful in the exchange of ideas and the
creation of meaningful dialogue among the cohort. In order to promote the program among the alumni base various forms of correspondence must be sent. This can be done through mail, email, and social media. The following literature review will serve as the rationale for the project.

Chapter two: Literature review

What problems can an early induction program solve?

What are the components of an empowered teacher? Research states that it can be broken down into six components (Short, 2003). These include decision-making, professional growth, status, self-efficacy, autonomy, and impact. Decision-making includes any decision that directly affects a teacher’s work including budgets, curriculum, and other programming ideas. Professional growth involves opportunities for a teacher to grow and develop. Status reflects a teacher’s respect and support from their colleagues, peers, and supervisors. Self-efficacy refers to a teacher’s perception of their abilities; do they possess the tools to impose knowledge and skill sets to their students? A teacher must be confident with their skills and abilities to be an empowered teacher. Autonomy is also a characteristic, but it must be in a harmonious balance. Teachers should have a sense of control of how they manage their classroom, but in the end they must respect the views of the administration and the school. Impact is the final component, which refers to the effect and influence a teacher has on school climate. Is what they are doing worthwhile? The issue: if beginning science teachers do not rank high in these components retention problems could arise (Long, McKenzie-Robblee, Schaefer, Steeves, Wnuk, Pinnegar, & Clandinin, 2012). Creating early induction programs for beginning science teachers can resolve these issues. Early career teacher attrition is of economic, social, and education concern.
Induction programs, including mentoring, alleviate the problem of early career teacher attrition (Johnson, 2011).

If beginning teachers do not feel a sense of empowerment it can lead to retention issues. With a large amount of teacher retirements in the future it is essential that stakeholders in the education of our country’s future support beginner teachers. This is especially true in school’s attempting to initiate reform efforts (Johnson, 2007). Reform efforts require buy-in for all school officials. Mr. Martin (a pseudonym), a five-year teacher at Glendale School (also a pseudonym), fits this exact description. A fairly young, beginning teacher who did not feel empowered to make his school’s reform efforts successful (p. 181):

“One of the things that happened, and I don’t know how to defeat this, is people, everyone on the science staff, is very willing to say, ‘I want to be involved,’ or ‘I like that idea. I want to do it.’ Then we get to that date and the accountability isn’t there. There is no reason, and I guess, good reasons. There is a reason why we couldn’t meet. There is a reason why this can’t happen. I do attribute a lot of this just right up the chain to the top. I mean, if your superintendent sets the tone and they are not expecting their principals to do certain things, then the principals aren’t going to expect the teachers, so on and so forth.”

Mr. Martin ended up leaving the teaching profession and Glendale’s reform efforts were poor. It is interesting to note, however, that the other school (Eastridge) that was involved in this same study thrived with their reform efforts. This is a question raised by the authors, but if Mr. Martin was a faculty member at Eastridge (also a pseudonym) would he have thrived with his reform efforts in the classroom? Why were the reform efforts more successful at Glendale than at Eastridge? Reform efforts had buy-in from all parties within the district. The school environment fostered a sense of empowerment among teachers.

Creating an induction program does not guarantee retention of new teachers. Bang, Kern, Luft and Roehrig, 2007 highlights this. In their study they polled a variety of teachers asking
them why they stayed in the teaching profession, why they left the teaching profession, or why they moved to a different school/district. Across all groups, stayers, movers and leavers, the induction program was not a factor in teachers' decisions to stay or leave. However, it seems apparent that teachers who stayed or moved tended to access support more often, and this was done in support of their instruction. Simply creating an induction program will not be the end all, be all for keeping new teachers in the classroom, but it’s certainly a step in the right direction.

With literature support collected an early induction programs a proposal for The College at Brockport will be created. This program will be adapted for a college or university’s alumni services program, specifically for The College at Brockport. The program will serve the needs of beginner science teacher alumni. Science teachers, especially those just beginning in the profession, need to have a sense of empowerment in their classroom and school district in order to be successful with reform efforts. An empowered teacher in turn assures better teaching (Wong, 2004). Creating an early induction programs is one way to produce empowered beginner science teachers from the education department at The College at Brockport.

**What makes or breaks an early induction program?**

In order for an early induction program to be created at Brockport for science-specific support, experiences from other induction programs must be taken into account. What makes programs successful and what makes them falter? A quality induction program can be defined with these six criteria (Wood & Stanulis, 2009, p. 9):

- Educated mentors
- Reflective inquiry and teaching process
- Systemic and structured observations
- Formative teacher assessment
- Administrators’ involvement
- School culture supports
**Educated mentors**

Mentors serve as a critical crutch for beginning teachers in times of need (Whitaker, 2000). Beginning science teachers need a wide range of support from mentors, including emotional and instructional support. This support from mentors may help with retention of beginning teachers. It is extremely important to consider the amount instructional, emotional, social, and psychological support that mentors can offer to beginner teachers.

There is a new initiative being seen with mentor programs and their role with induction (Smith, 2011). Recent research on induction calls for teacher education institutions to collaborate with Pre K – 12 schools to support new teachers. Colleges and universities are now taking part in induction programs for new teachers by providing support from faculty members in online communities and new teacher networks. Having this service available to new teachers can help ease the transition from student teacher to teacher. It also helps new teachers to enact principles learned during their teaching program. The role of higher education in induction will be discussed again in detail later in this literature review.

**Reflective inquiry and teaching process**

Reflection is when teachers are learning from and within teaching (Molner, 2004) and is an integral part of becoming a successful teacher. Molner found that new teachers have heightened sense of themselves as teachers and their colleagues observed a high level of professional growth as a result of reflection and working in collaborative teams. Reflecting on teaching process can take many forms. It can be something as simple as keeping a daily notebook recording the actions that occurred in your classroom. Electronic media is also another option. This would include any form of video recording in your classroom. This could help teachers’ recognition of their specific teaching style and allow for another form of reflection. Having a mentor involved
in the process as a second set of eyes (to reflect) would also be useful.

**Systemic and structured observations**

Observations go hand-in-hand with reflecting on the teaching process and are an element of many induction programs. It is a form of reflection. Usually, a mentor or administrator observes a beginning teacher and provides feedback with regard to the focus of the observation (standards, criteria from professional organizations, standards for certain academic areas, etc.). Sometimes, the beginning teacher observes a more experienced teacher. Roehrig, Bonn, Turner, and Pressley (2008) examined two groups of beginning teachers. All beginning teachers had school-provided mentors and participated in a state-run induction program. One group also received additional mentoring, which included mentee observation, mentor observation, and discussion about observations. In terms of effective teaching practices, there were no consistent differences between the groups of beginning teachers. Once again, the beginning teachers are reflecting on their teaching practices. Better yet, they have another set of experienced eyes offering them feedback on how to improve in the classroom.

**Formative teacher assessment**

Yusko and Feiman-Nemser (2008) stated that assessment is an essential building block to fostering an early induction program and in turn promoting and gauging teacher quality. Their study found there are four features to combining induction and assessment: programs are goal driven and learning orientated, evidence-based analysis of teaching and learning is employed, mentors are respected, and accountability if part of the induction program.

**Administrators’ involvement**

The principal plays a central role in the effectiveness and success of an induction program
(Brock & Chaitlin, 2008). Through their research it was shown that the success of new teachers seems to be connected to the school culture where their first teaching experiences take place. It is extremely important that a school principal create a healthy and warm school environment. It could very well make or break the career of beginning teachers. The satisfaction levels for induction programs expressed by beginning teachers demonstrated that strong leadership from the principal, a whole school approach to learning and teaching with clear goals and expectations, small class sizes, and the opportunity for professional growth were among the factors that contributed positively to this sense of satisfaction (Long, McKenzie-Robblee, et al., 2012). Principals can also be a part of the reflective process. It can be something as easy as initiating a conversation with the beginning teacher. They should also play a role in observing instruction, providing feedback, and help facilitate with the transition between their higher education experience and the real life experience in the classroom. First year teachers, who were in schools where the socialization by, and interactions with, the principal focused on student learning, teaching practice and fostering relationships, encountered fewer problems. More problems were encountered by first year teachers in schools where socialization focused on administrative elements, school routines, and requirements (Tillman, 2005).

**School culture supports**

School culture supports can vary from school to school, but there are similar qualities and themes that can be identified. A supportive school culture for novice teachers is critical for their success (Wood & Stanulis, 2009). Some school support systems offer nothing besides a novice teacher orientation day while others provide a full week of new teacher orientation. These workshops help new teachers familiarize themselves with the school’s social norms. Peer-to-peer interactions through formal and informal settings can also foster a positive school culture. An
informal setting could include talking with a veteran teacher during lunch or a passing period or discussions in the faculty lunch room. A more formal process would be a mentor-mentee relationship fostered by the school district. These types of programs will be mentioned later in this review.

**Examples of early induction programs: Their successes and failures**

New teachers encounter a variety of learning experiences as their induction programs support them during the first few years in the classroom. Most often, the induction programs focus on general topics, such as helping teachers to build their knowledge and abilities to plan lessons, organize their classrooms, and manage their students. While these are useful for all teachers, content area teachers need specific training and assistance in their areas (Luft, Firestone, Wong, Ortega, Adams, and Band, 2011). Most new science teachers do not participate in early induction programs that stress the importance of learning to teach science. This needs to be addressed when creating an early induction program for beginning science teachers: a program tailored to their needs.

Luft, 2009 highlights how an induction program specifically tailored to science teachers can have positive effects on their teaching strategies and confidence. Quantitative and qualitative analysis of the data revealed that, as a group, the beginning teachers held teacher-centered practices, beliefs, and pedagogical content knowledge. Analysis by induction program, however, revealed that teachers who participated in science-specific induction programs significantly changed their beliefs and used more investigations in their classroom lessons than did their peers in the other induction programs. Below is an excerpt of an interview with a first-year middle school science teacher before their participation in the induction program (p. 2355):
“The most frustrating part of this year changed over the course of the year. At the beginning of the year, I was frustrated with the lack of assistance provided by my mentor and my own management and planning abilities. I really wanted help with planning and managing the science experiences in my class. After the winter break, I had accepted the relationship I had with my mentor and I was more confident with my own planning and management. But then I became frustrated with my own abilities as a teacher. I was frustrated that my students were not learning the concepts of science.”

The teachers who participated in Luft’s study came from four distinct areas: general induction programs offered by school districts, science-specific e-mentoring programs offered by an institution of higher education, science-specific induction programs offered by an institution of higher education, and alternative certification programs that allow teachers to earn their teaching credentials while they complete their first year of teaching. A description of each of the induction programs is highlighted below in Figure 1 (Luft, 2009). Notice that these programs are general in nature (apply to all content area teachers) but also science specific. Induction programs can be general for all content areas, but a track for a content specialty is crucial for the success of beginning science teachers.

<table>
<thead>
<tr>
<th>General</th>
<th>e-Mentoring</th>
<th>Science specific</th>
<th>Alternative certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal</td>
<td>To assist all beginning teachers in classroom management, planning and instruction.</td>
<td>To assist beginning science teachers in classroom management, planning and instruction.</td>
<td>To assist beginning science teachers in creating reform-based classrooms.</td>
</tr>
<tr>
<td>Focus</td>
<td>Planning, classroom management, discipline in the classroom and school policies</td>
<td>Classroom management, discipline and assistance in teaching science.</td>
<td>Classroom management, discipline, planning and general assistance in teaching science.</td>
</tr>
<tr>
<td>Assumptions</td>
<td>Beginning teachers have similar needs during their first years; support programmes help beginning teachers experience and survive the reality of the classroom; school district staff are familiar with the needs of their beginning teachers and can offer such support.</td>
<td>Beginning teachers can get assistance quickly and regularly through an online mentoring system; support programmes help beginning science teachers experience and survive the reality of the classroom; mentors who are in the same field can easily help the teacher.</td>
<td>Beginning secondary science teachers need specialised support; science-specific programmes create seamless transitions from preservice programmes to the first years of teaching; university and school district staff should participate in support programmes.</td>
</tr>
<tr>
<td>Support staff</td>
<td>School district personnel and assigned mentor — often a classroom teacher.</td>
<td>University and school district personnel.</td>
<td>Regional and school district personnel and teachers.</td>
</tr>
<tr>
<td>Activities</td>
<td>One or two meetings a month in a large group or with a mentor, periodic classroom visits.</td>
<td>Regular online communications.</td>
<td>One or two meetings a month in a large group or with a mentor, monthly classroom visits.</td>
</tr>
</tbody>
</table>

Figure 1: Description of four types of induction programs (Luft, 2009, p. 2364).
When choosing a program type to adapt for The College at Brockport it would be in the school’s interest to select a program that would be most effective. Luft used a liker scale from 0-4 (0 = didn’t utilize the program, 4 = used the program throughout the year) and the science-specific (2.9) and e-mentoring (2.4) had more use than the other two programs. The teachers in the science-specific and e-mentoring programs better prepared science teachers for national reform efforts in science (National Science Education Standards, student-centered teaching, and inquiry) as opposed to the other teachers in the other two programs. If Brockport is to create a science teacher induction program it should be one tailored to them, not a generic one.

ASIST

Alternative support for induction science teaching program (ASIST) is also an induction program designed for specifically for science teachers. Luft, Lee, Fletcher, & Roehrig, 2007, focused on six biology teachers who were immersed in an induction program. Pre and post assessments were created to gauge any paradigm shifts that had occurred. The interview questions consisted of questions pertaining to (p. 342):

- How do you know learning is occurring in your classroom?
- How do you decide to move on in your lesson plan
- How would you describe your role as a teacher?
- Their views of inquiry and how it can be used in the science classroom

The results of emerging these teachers in the ASIST program were positive. For teachers who entered the program with a teacher-centered belief a paradigm shift occurred. As the beginning teachers tried the instruction suggested by the ASIST staff, they experienced what could be accomplished through student-centered learning. In turn, this gave them confidence to use this teaching strategy more common in their classroom. This program fostered their
development. This study reinforces the importance of creating induction programs specifically for beginning science teachers (Roehrig & Luft, 2006). The need is not only there for beginning science teachers, but also teachers in other fields including social studies, mathematics, and physical education (Patterson & Luft, 2004, Bianchini & Brenner, 2009, & Banville & Rikard, 2009).

Luft and Patterson, 2002 (p. 271-276) details the components of the ASIST program. The program requires a group effort with the University of Arizona and area secondary schools in southern Arizona. The program is run by the science faculty members, at the University of Arizona. The ASIST program takes place over the course of a traditional 9-month school year (August-May). ASIST utilizes the expertise of local school and university educators, focuses on state and national science education standards, and provides numerous professional development opportunities for participating beginning science teachers. The program includes ongoing support to participants through monthly meetings, classroom observations, electronic dialogue, and travel to a state or national conference. The program is only open to those teachers in their first four years of teaching.

This program is not perfect though (Luft, Roehrig, & Patterson, 2002, Athanases, Abrams, Jack, Johnson, Kwock, McCurdy, Riley, & Totaro, 2008). Throughout the program staff had problems finding key administrators in the school districts who were or would be committed to the induction program. Some had more important things to tackle (in their eyes). Others were not around long enough to see the program through. Many of them moved onto new positions, which in turn started the initiative at square one due to the new administrators familiarizing themselves with a program they had never seen before. The program also found it difficult to recruit new members. Administrators in schools were not helpful in identifying the new teachers within their
district, even after many correspondences between the University of Arizona and the school districts. Ideologies were also clashing. Participants attended induction programs hosted by their school on top of the ASIST program. The programs at various schools emphasized effective teaching in order to achieve success on high stakes tests. That is the polar opposite of what the ASIST program strives to help beginning teachers with: teaching science through inquiry, not practice test questions. This brings up two important points. One: You MUST have buy-in from all members in the school district when engulfing your new teachers in a program like this. Two: You CANNOT have clashing ideologies. You cannot teach new teachers a set of ideals through ASIST and then have the school district just pull the rug out from underneath them. You need to support what they are learning through the ASIST induction program. Other school/university partnerships (Davis & Higdon, 2005 & Smith, 2011) have also proven successful.

**Other early induction programs**

All should strive to be lifelong learners. Many people equate learning with sitting at a desk in a classroom either in the secondary school setting or in higher education. The truth is learning is a cycle that never stops. Induction programs are a crucial element to cultivating lifelong learning. It also holds true for supporting young teachers in the classroom. Induction programs for teachers take many forms (Wong, 2002). A popular technique is pairing a master teacher with new teachers. It equates to a mentor program. Research on induction and new teacher learning strongly supports the importance of mentoring for beginning teachers (Smith & Evans, 2008). There are many exercises that master teachers and new teachers can take part in. Flowing Wells School District in Tucson, AZ uses a special professional assistance (SPA) day to foster the mentor-mentee relationship. SPA days allow for master teachers to observe their mentor assignments and vice versa. Lafourche Parish Public Schools in Thibodaux, LA facilitates a
curriculum tools for all teachers to use called curriculum facilitators. “In addition to mentors, both new and veteran teachers have daily access to on-site curriculum facilitators. These master teachers provide ongoing support, teach demonstration lesson, conduct informal teacher observations, and offer constructive suggestions for improvements,” (Wong, 2002, p.55).

Effective induction programs can reduce high attrition rates among beginning teachers (Ganser, 2002) thus increasing retention rates. Creating an induction program similar to the mentor-mentee technique could be an early induction program that college and university alumni programs can adapt to address support for beginner teachers. There are many excellent examples including the Mentoring and Induction of New Teachers (MINT) program done between Chicago Public Schools and local colleges and universities. Ganser, 2002 describes in detail the keys to building an effective program. These will be taken into consideration when creating a program proposal for The College at Brockport’s efforts to create an early induction program. Do not confuse an induction program with a mentoring program. The two terms are not synonymous, yet they are often used incorrectly (Wong, 2004). Induction is a process while mentoring is an action.

A two-year mentoring program (Luft, Firestone, Wong, Ortega, Adams, & Bang, 2011) proved to be quite successful and university science educators played a crucial role in the development of the program. Teachers involved in the study had three different mentors. They included a science educator from a university, a graduate student in science education, and an experienced science teacher. All four stakeholders would meet once a month. The meetings/program stressed the importance of building the understandings about teaching science as inquiry and incorporating the National Science Education Standards in their classroom. The science educator monitored the beginning teacher’s progress through bi-weekly classroom
observations. This mentoring format proved to be successful in building and fostering a student-centered, inquiry-based science learning environment.

New York State already has a mentor-mentee program setup in schools called the Mentor Teacher-Internship Program (MTIP) that was established in 1986 (Bullough, 2012). The purpose of the program is to provide peer guidance to first and second year teachers through a school support network of veteran teachers. This program is mandated for all first and second year teachers. The mentor-mentee relationship is not a new concept for most teachers in New York State. University alumni supported mentor-mentee program was created to pair veteran science teachers with new science teachers could prove to be successful since many are familiar with the concept.

There is fear that this program could eventually be an unfunded mandate as funding has decreased since the program’s inception. Mentoring can have also its pitfalls too. New teachers can be assigned veteran teachers as mentors and have very little, if any, interaction with them. Jackie is the veteran teacher in the following quote and Corey is the beginning teacher. “Jackie did not check in on her regularly, and because she was at the other end of the building, Corey sought advice from teachers she saw more regularly,” (Smith & Evans, 2008, p. 258). If a veteran teacher volunteers to mentor a beginning teacher they should take the time to make the experience memorable and beneficial. Howe, 2006 has a technique that could lessen these horror stories regarding bad mentoring experiences: require mentor teachers to hold a mentor license. North Carolina has already adapted this program and Howe states that others should join in.

Early induction programs have proven to be successful in the eyes of beginner teachers (Algozzine, Gretes, Queen, & Cowan-Hathcock, 2007). Schools in North Carolina have adapted
induction programs to support their new teachers in schools in an effort to decrease attrition rates. There were areas in which the schools succeeded to support beginner teachers, but there were also areas that needed work. Table 2 gives a snapshot of areas that the induction program succeeded in, but also areas needed for improvement (Algozzine, Gretes, et al., 2007). Take note again that this program was general in nature for beginning teachers. It was not content area specific.

<table>
<thead>
<tr>
<th>Area</th>
<th>More favorable ratings (&gt; 80 percent)</th>
<th>Less favorable ratings (&lt; 60 percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities (19 items)</td>
<td>Focused, Individual, Specific Opportunities</td>
<td>Collective, Group, Diverse Opportunities</td>
</tr>
<tr>
<td>Assignment in licensure area</td>
<td></td>
<td></td>
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<tr>
<td>Assignment of no extracurricular duties</td>
<td></td>
<td></td>
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<tr>
<td>Assignment of a mentor</td>
<td></td>
<td></td>
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<tr>
<td>Opportunity to engage in cooperative planning</td>
<td></td>
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<tr>
<td>Formal evaluations by administrators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formal and informal evaluations and observations by mentor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Release time to observe mentor’s classroom</td>
<td></td>
<td></td>
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<tr>
<td>Same or fewer preparations</td>
<td></td>
<td></td>
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<tr>
<td>Same or fewer special needs students</td>
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<td></td>
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<tr>
<td>Instructional Aspects of Teaching</td>
<td></td>
<td></td>
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<tr>
<td>Understanding of school policies and rules</td>
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<tr>
<td>Planning for instruction</td>
<td></td>
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<tr>
<td>Organizing classroom and class work</td>
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<tr>
<td>Assistance with time management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locating materials, supplies, equipment, or books</td>
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<td></td>
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<tr>
<td>Effective use of different teaching methods</td>
<td></td>
<td></td>
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<tr>
<td>Determining the learning level/styles of students</td>
<td></td>
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<tr>
<td>Assessing student work</td>
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<tr>
<td>Dealing with student issues related or unrelated to instruction</td>
<td></td>
<td></td>
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<tr>
<td>Motivating students</td>
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<td></td>
</tr>
<tr>
<td>Incorporating state standards and performance objectives into lessons</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2: Successes and failures of induction program (Algozzine, Gretes, et al., 2007, p. 139).

Algozzine, Gretes, et al., 2007 also bring up an important point in developing early induction programs. Although new teachers do need support, forcing them to participate in too many learning actives can have negative influences on their teaching. The experiences gained from an induction program need to be meaningful, but they also need to be convenient.
Abbott, Moran, & Clarke, 2009 and Griffiths, 2011 provide accounts from teachers involved in early induction programs. They describe the current state of induction programs in the United Kingdom, specifically England, Wales, Northern Ireland, and Scotland. The group conducted a three-year study that showed highly contrasting experiences of the induction year between graduates in permanent and one-year temporary positions, and those who were short-term temporary and supply teachers (a substitute teacher). The permanent and one-year positions took part in a meaningful induction whereas the latter, because of sporadic, fragmented employment, did not. This brings a question to the forefront: who has access to these induction programs? There is a clear advantage to being a contact teacher versus a substitute teacher. An early induction program facilitated by a college or university will address this disadvantage that substitute teachers suffer. As long as a relief/substitute teacher is an alumnus of a college, they will have access to that college’s induction program.

Griffiths, 2011 examines the Graduate Teacher Programme (GTP) as successful example of an early induction program. This is used a means to transition new teachers who are transitioning from a career change and (example: engineer to science teacher). It’s a rigorous one-year program that balances a school and university setting over a five-day period. It can be equated to pre-service teaching for mature/non-traditional student. The participants already have a degree in a field other than teaching. Tricia, a student in the program, shows her support, “I learned well on the GTP – four days in school, one day for the theory at university – it was all so perfect for me … I felt like a proper member of staff last year … The school never treated me like a student and I never felt like a student,” (Griffiths, 2001, p. 25). A similar model can be adapted for beginning science teachers with tweaking. College and universities in conjunction with secondary schools can offer professional development days over a weekend, and extended school
holiday, or even during the summer months.

The role of technology in early induction programs

The use of technology is a useful tool to support an early induction program. Professional learning communities where teachers form groups to collaborate on new teaching concepts and strategies promote positive learning environments (Taranto, 2011). The stakeholders in this proposed online learning community is quite extensive and is portrayed in Figure 3 below. Notice the community is composed of three main groups (p. 7):

• New in-service teachers
  o Personal learning network: The teacher’s network where he or she accesses job-related information
  o Local colleagues: The teacher’s colleagues with whom he or she interacts on a regular basis
  o Students: The teacher’s students with whom the teacher interacts on a regular basis

• District contributors
  o Personal learning network: The school district contributor’s network where he or she accesses job-related information
  o Local colleagues: The school district contributor’s colleagues with whom he or she interacts on a regular basis
  o District colleagues: The school district contributor’s colleagues who work outside his or her building but within the school district.

• University contributors
  o Personal learning network: The university professor’s network where he or she accesses job-related information
  o Local colleagues: The university professor’s colleagues with whom he or she interacts with on a regular basis
  o Preservice teachers: The university professor’s students with whom he or she interacts with on a regular basis
This setup would require buy-in and coordination between many stakeholders. This does provide a common meeting place for all parties to communicate, collaborate, share ideas, and support one another. The College at Brockport could easily develop and manage an online community for beginning science teachers. However, the medium chosen needs to be highly interactive. All members should have administrative rights to post discussions and ideas with a small number of individuals responsible for approving posts. Smith & Israel, 2010 used a form of an online community to support beginning special education teachers in the classroom called e-mentoring. Induction and mentoring are not synonymous, yet they are often used incorrectly (Wong, 2004). Induction is a process while mentoring is an action. E-mentoring is defined as, “the use of computer-mediated communications such as e-mail, discussion boards, chat rooms, blogs, web conferencing, and growing internet-based solutions that are changing the way mentors and mentees interact,” (Smith & Israel, 2010, p. 30).

Taranto, 2011 completed a very interesting concept for an online community that could possibly be used at other higher education institutions. The researcher, who serves as the middle
school principal and new induction coordinator for the school district, was the online community coordinator. First, the researcher created an online learning community model based on the results of a comprehensive review of literature and a previous year’s pilot study. Next, the researcher implemented an online learning community in the form of a wiki. The study evaluated the implementation of the model through the perspectives of all the participants: new teachers and contributors (veteran teachers, principals, central office administrators, and professors from schools of education). The data (pre and post surveys, questionnaires, and focus-group sessions) revealed positive results for the new-induction online learning community format. The groundbreaking component of this program was the addition of the web 2.0 technology. Without using the ideologies of the web 2.0 philosophy an online community such as this would not thrive. This type of technology allows for interactions and discussions among many groups of people. Think of it as a discussion board on steroids. In Taranto’s study they school district utilized a wiki through Wikispaces to serve as their online community. This platform is very convenient for all involved in the community. First and foremost, a wiki is relatively easy to use and attractive to teachers to upload documents, video, podcasts, etc., on the page. Second, Wikispaces provides free wikis to K–12 educators in the field. Third, a Wikispaces account provides two gigabits of storage space with an option to pay for additional storage space. Finally, a Wikispaces wiki has the option of password protection; therefore, the online community can be limited to only those invited to maintain a private learning community environment. Another possible medium to use for an online community is Tumblr, although research was not found on using that medium for an interactive online community. As stated before a plethora of individuals had access and editing capabilities including new teachers entering as full-time
employees, administrators, and veteran teachers from the school district, and professors in schools of education from three area universities.

The proposed role: How can The College at Brockport can take part in the induction movement

Early induction programs within colleges and universities are currently in place across public and private higher education institutions, and The College at Brockport can be a part of this movement (Ganser, 2002). A program would ideally be supported by the Brockport’s alumni office in conjunction with the department of education. Science teacher educators need to be involved with their newly graduated teachers as well. In doing so, science teacher educators must work with district to create and sustain science induction programs (Luft, Firestone, et. al., 2011). This particular project will focus on science education alumni with the hopes of opening the program to all education alumni. In order for alumni to have stake in this program they must feel of sense of pride for their alma mater. This should be built and cultivated as soon as alumni set foot on campus as a student (Singer & Hughey, 2002). This way awareness will be raised in regards to services (including the proposed induction program for science education program alumni) that the alumni office can offer to alumni once they leave Brockport. Think of the possibilities available to new science teachers. No one understands the struggles associated with being a new teacher than your experienced/seasoned teachers. They know from their experiences the transition from the pre-service realm having your own classroom. Experienced science teachers who shared the “Brockport Experience” will be at their disposal.

An interesting avenue to pursue for the Brockport community would be an early induction program for science program alumni supported by an online community (Toranto, 2011 & Luft, 2009). As stated before, it is to the benefit of the alumni of the science program that Brockport creates a program tailored to their needs. Engaging higher education in the induction process is
also beneficial to both the host institution and their science program alumni (Davis & Higdon, 2005, Ganser, 2002, & Smith, 2011). The benefits of using an online community include:

- A free medium to support the online community (if Wikispaces is used)
- Editing capabilities for all alumni of the science program at Brockport
- A wide array of stakeholders interacting with the community (administration all the way down to pre-service teachers)
- Wikispace’s ease of use

There could be disadvantages to this program as well:

- Updates: a few selected people need to keep the interactions current and reciprocating…This takes time.
- Technology turn-off: Not all may be keen on the medium
- The amount of touches: Alumni do not always keep their contact information up-to-date. A marketing strategy must be developed to spread the word about the new service offered to alumni of the science education program.

With the effectiveness of the online community through Taranto’s research the groundwork has been laid for a similar program here at Brockport. With the support and buy-in from the alumni office, the education department, and area schools, this online community (along with a mentor-mentee program) in conjunction with a possible summer institute offered on the Brockport campus to science program alumni can prove to be a beneficial program to both alumni and the institution.
Chapter three: Application - The College at Brockport’s early induction program

With the completion of the literature review an early induction program was created for alumni of the science education program at The College at Brockport. In order to make the program a success a few items had to be addressed:

- A database of science education program alumni was attained.
- Communications and correspondence was sent to this database to promote the program.
- An appropriate medium was selected to serve as the platform of the early induction program.

Coordination between various offices and departments at Brockport took place. They included the office of alumni relations and development and the department of education and human development.

The science education alumni database

With the help of Diane Maurer, Shelly Smith, and Peter Veronesi in the department of education and human development, email address and mailing addresses were attained. Screen shots are shown below of the email correspondence (figure 4 and 5).

Figure 4: Email correspondence with Shelly Smith regarding the contact information of science education program alumni.
Unfortunately the database in the department only included alumni from 1992 to present day. This was a clear disadvantage as it omitted many alumni of the program prior to 1992. In order to reach alumni prior to that year, Walter Brautigan, professor emeritus, was asked to promote the group to his former students. A screen shot of the completed database created is shown below (figure 7). Excel was used to record the various fields. Please note that when the original file was received from Shelly Smith, further work and research needed to be done to complete this database (figure 6). The raw Excel file only included first name, last name, and certification. Please note for confidentiality reasons last names were omitted in the screen shot of the raw Excel file. The completed Excel file included the following fields: banner ID number, first name, last name, mailing address, email address, certification(s), and graduation year(s).

In order to attain the address and email information of each alumnus a program called BANNER was used. This is a program used by The College at Brockport’s alumni office. It stores information regarding alumni, students, faculty, staff, and friends of the college. A screen shot of the software is shown in figure 8, 9, and 10. Figure 8 shows the address contact
information of the author, William Sachman. Figure 9 shows the email addresses of William Sachman. Figure 10 shows the degree information for William Sachman.

Figure 6: Raw Excel file of alumni of the science education program.

Figure 7: Completed Excel file of alumni of the science education program.
Figure 8: BANNER software used to collect address information.

Figure 9: BANNER software used to collect email information.
For confidentiality reasons a few fields have been omitted from the screen shot of the completed Excel file. Those fields include last name, address, and email addresses. This list also includes current students in a science certification program. A total of 256 people have been enrolled in a science certification program at Brockport since 1992. The red field denotes an alumni record where no address or email could be found. This database will be updated and shared with the office of alumni relations and development and the department of education and human development as returned correspondences (examples include returned mail and bounce back email) are collected.

**Correspondence with science education program alumni**

Various methods were used to correspond with alumni. With the use of the alumni database mailing addresses and email addresses were collected. Of the 256 alumni, there were a total of 253 with recorded mail addresses and 103 with recorded email addresses.
With this information a letter and an email were drafted to send to alumni informing them of the induction program and asking for their involvement. Kerry Gotham, staff member of the office of alumni relations, and Diane Maurer and Peter Veronesi, faculty in the department of education and human development, approved the drafts. The office of alumni relations covered the cost of the mailing. A copy of the letter/email is shown in Appendix A.

Various social media sites were also used to promote the induction program. It was promoted on various sites including the Brockport Alumni Association’s Facebook page, the Brockport Alumni Association’s Twitter feed, and the Department of Education and Human Development’s Facebook page. The post that was broadcasted on the Department of Education and Human Development’s Facebook page is shown below in figure 11 (it’s located in the left column of the webpage).

![Figure 11: Screen shot of post on the Department of Education and Human Development’s Facebook page regarding the induction program.](image-url)
With these various touch points, alumni were aware of the program and became members of the community. Before the various correspondence pieces were sent however, an effective medium needed to be chosen to act as the digital medium of the induction program. After much consideration, the social media platform LinkedIn served the needs the program.

**Choosing a digital medium**

During the literature review phase of this project, the platform Wikispaces was used by Taranto, 2011. During the study Wikispaces was a free resource for institutions of K-12 education and institutions of higher education. That is no longer the case. K-12 education still has access to free use of Wikispaces for free, but institutions of higher education (Brockport falls into this category) can no longer receive the use of Wikispaces for free. They can only receive a free 30-day trial period. After that time a fee of at least $1,000 would needed to be. Due to this unforeseen dilemma, a new medium needed to be used to house the digital early induction program.

LinkedIn is a social media site that is used by its users to professionally develop. It is different from other popular sites such as Facebook and Twitter. Facebook and Twitter are mainly used for socialization, entertainment, and blogging. LinkedIn does not fall into those categories. The platform allows users to create a professional profile highlighting their education, skills, proficiencies, and employment history.

LinkedIn also has another important and power function: Groups. Users can create groups of common interests. For example, there are groups for users for the young professionals of Rochester, NY. There are also groups for professionals in higher education, Rochester area lawyers, Rochester area relators, and many, many others. The list is endless. There is also a group for alumni of The College at Brockport entitled: Eagle Links – The College at Brockport
Alumni Group. The group has more than 2,000 members and is quite popular among the Brockport alumni base. The group has seen an increase of 800 members in the last six months and members regularly post comments and discussions to the group. A screen shot is shown below in figure 12.

![Figure 12: Screen shot of Eagle Links – The College at Brockport Alumni Group.](image)

Alumni regularly post job postings and professional discussions. It has proved to be an excellent way to find alumni volunteers, keep alumni connected and engaged, connect alumni to alumni, and to update alumni employment information.

A LinkedIn sub-group was created to serve as the digital early induction program for alumni of the science education program at Brockport. The sub-group was created off of Eagle Links – The College at Brockport Alumni Group and was named The College at Brockport: Science Education Alumni. The useful features of both the group and sub-group include the ability to keep the group closed to only Brockport alumni, the ability to search for members of the group using a keyword search, and the ability for members to message any member of the group or sub-group directly through email or LinkedIn messenger. All these tools are useful for group
members. For example, as a member of The College at Brockport: Science Education Alumni group, you can do a keyword search among the group members. A search term such as “curriculum specialist” could be entered into the search box. If a member of the sub-group has “curriculum specialist” listed in their skills and proficiencies their profile will appear in the search results. A message can then be sent to that individual to answer a curriculum question.

As a welcome to the group members, a YouTube was created as the first post in the sub-group’s discussion tab. The discussion panel of the LinkedIn sub-group is shown below in figure 13.

Figure 13: Screen shot of the discussion panel of The College at Brockport Science Education Alumni sub-group.
The video and post served as a way to introduce the author of this paper and discuss the author’s hopes for the group. Discussion included how members could use the group to build discussion on topics, why the group was created, who is involved with the group, and recommendations to the group members to begin the dialogue. Figure 14 below shows a screen shot of the YouTube video created for the welcome.

After two weeks the correspondence materials were sent out (letter and email), a large number of alumni had already joined the group. There are currently 19 members in the sub-group and more continue to request to join the group. A screen shot of the group members if shown below in figure 15. There are a few ideas and recommendations that will be discussed in chapter 4.
Chapter 4: Discussion and recommendations

The group is well on its way to providing an early induction program to alumni of the science education program at The College at Brockport. After the submission of this project and further promotion, it will continue to grow. Possible avenues for continued promotion include the Department of Education and Human Development website, the Office of Alumni Relations website, and various marketing materials produced by the alumni office (including the alumni e-newsletter).

Interactions with the group need to have a balance. The group cannot be messaged too often, but then again they need to be engaged with from time to time to create meaningful dialogue and resources to all group members. A semester message will be sent to the group. The content of the message could range from topics including education reform, putting theory-based practices to work in the classroom, and providing them continuing education opportunities. It’s also important that the group is canvassed (though discussions in the sub-group) for topics that they would like addressed by the group members.

There is already a continuing education opportunity that could be promote to alumni taking place in the fall 2013 semester. Vernier will be hosting a workshop for teachers and students at
Brockport. Faculty and administrators in the group can promote the workshop to the LinkedIn members as a professional development opportunity and as a perk of being a Brockport alumnus/alumna.

There is an untapped resource the group is currently not utilizing. The sub-group has potential to expand membership to graduates/alumni prior to 1992. Dr. Walter Brautigan, professor emeritus, has the potential to communicate to his cohort of teachers that went through the program when he was a member of the faculty. The alumni database used for this project ranged from graduates from 1992 to present day. Dr. Brautigan has the means to create a larger, more diverse pool of teachers for our beginner science teachers to utilize in the sub-group.

Google Hangouts could also be a useful tool to evolve as a result of the sub-group in two ways: connecting alumni to alumni to engage in professional dialogue and connecting students/current teacher candidates to alumni to engage in professional dialogue. Connecting alumni to alumni would allow for science teachers to exchange dialogue on educational topics and how their particular schools are addressing those topics. A course at Brockport, such as EDI 623, proved to be useful for alumni of the program. With consistent engagement opportunities similar to the EDI 623 discussions, the amount of ideas and effective practices that emerged from the discussions will be plentiful and useful to alumni within the Google Hangouts. The same could occur with this LinkedIn group. The interactions between students/current teacher candidates and alumni will be a bit more difficult. In the classroom current teacher candidates will be learning theory. Theory is important to the development of a teacher, but theory is most likely not a priority for alumni/teachers in the schools today. The school’s initiatives and climate trump the theory the teachers learned in the classroom in college (Luft, Roehrig, et al., 2002). If alumni were to be welcomed into the current Brockport current teacher candidates’ classroom
through the use of Google Hangouts, alumni would have to be hand-picked to ensure they support the theories the current teacher candidates are discussing. Current teacher candidates would have the opportunity to join the LinkedIn group to cultivate a potential professional relationship.

Where should the group go from here at what is the potential? To begin, an email schedule should be arranged. These emails will be sent through the messaging capabilities in the LinkedIn group and will be sent out on a college semester basis. These emails could include information regarding science reform programs, how to become an SBTE, continuing educational opportunities through Brockport (like the Vernier program mentioned earlier), and generic college updates from the office of alumni relations and the department of education and human development.

Through the email correspondence, the Google Hangout sessions and details can be provided. With the help of various faculty members in the science education program, a Google Hangout schedule can be developed. During Google Hangouts, participants can share experiences and gain knowledge on various topics or issues. For example, an alumnus recently posted on the LinkedIn sub-group offering to help group members with the process of creating a Science Olympiad team. This could be one of many topics covered in a Google Hangout session.

As the membership continues to grow and interactions flourish within the sub-group, there is the potential to host the sub-group on the Brockport campus. This would be accomplished through the development of a Brockport science teacher summer institute. Interest will be gauged initially through discussions within the sub-group. If there is buy-in, members of the sub-group along with other science program alumni would volunteer their time to develop workshops. The
workshops along with other events would compose the summer institute; a medium which would be used to offer science program alumni a continuing education opportunity.

This sub-group on LinkedIn has potential to make an impact for alumni, current teacher candidates, the office of alumni relations, and the department of education and human development. It will take work for members and administrators of the community to create a useful tool for all, but in the long this LinkedIn group will serve as an excellent resource for all involved.
References


Appendix A: Letter/email to alumni

Dear (personalized greeting),

I hope this letter finds you well! Let me introduce myself. My name is Bill Sachman and I am in the process of concluding my graduate studies here at Brockport. I am currently enrolled in the adolescence science education program and I work full time in the college’s alumni office. I am writing you this letter in the hopes of having your involvement in my culminating project to receive my master’s degree.

I’m addressing a research topic that encompasses what I do daily in the alumni office but also relates to science educators. My hope is to create a medium where The College at Brockport alumni of the science education program can share ideas and issues that arise in their classrooms. I’ve concluded the literature review and my goal is to create an early induction program at Brockport. What I ask of you is share your knowledge and experiences with your peers through a digital medium.

I have created a community on LinkedIn, a social media site that is vastly different from that of Facebook and Twitter. It provides the means for you to develop professionally online. It’s free to join and takes no more than two minutes to create a profile. You can access the group by searching for “The College at Brockport: Science Education Alumni”. You can also find the group at this link: http://www.linkedin.com/groups?gid=4847852. Faculty member Dr. Peter Veronesi will be involved with this group as well as other faculty members. You will undoubtedly know many of the alumni from your particular cohort group as well!

Here are a few benefits to joining the group:

- Count towards your 175 hours of the professional development requirement.
- Share and find available teaching positions.
- Assist current Brockport teacher candidates.
- Q & A most effective teaching practices.
- Looking for a field trip location to go along with a lesson/unit? Ask the group.
- Stay connected with Brockport…and maybe even share a Brockport memory or two.

If you have any questions feel free to email me at wsachman@brockport.edu and feel free to share this information with any alumni members of the Brockport Science Education community.

Yours truly,
Bill Sachman