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AUTHOR Upson, Leslie; Koballa, Thomas; Gerber, Brian
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ABSTRACT

The state of Georgia has developed the Teacher Support Specialist Program to assist prospective mentors as they begin the process of preparing to provide support and guidance to those new to the profession. Successful completion of this program for either staff development units or college credit enables Georgia teachers to add the teacher support specialist endorsement to their teaching license. The program is unique in that through the use of technology, teachers from three geographically separate areas of the state were able to work as a cohort to earn their teacher support specialist endorsement. The objectives of the program are to develop mentors who are able: (1) to demonstrate and discuss the critical attributes of effective science teaching practice; (2) to demonstrate skills in collecting and analyzing classroom observation data and in providing feedback; (3) to develop effective interpersonal skills in conferencing situations; (4) to discuss and demonstrate principles of adult learning and reflective teaching; and (5) to develop a calendar of activities to facilitate the professional development of a protege. (Contains 13 references.) (MVL)

Preparing Science Specific Mentors: A Look at One Successful Georgia Program

Leslie Upson
Thomas Koballa
Brian Gerber

PREPARING SCIENCE SPECIFIC MENTORS: A LOOK AT ONE SUCCESSFUL GEORGIA PROGRAM

Leslie Upson, University of Georgia
Thomas Koballa, University of Georgia
Brian Gerber, Valdosta State University

The transition from pre-service college intern to practicing classroom teacher is challenging. Studies show that as many as forty to fifty percent of new teachers will leave the profession within the first seven years (Gordon & Maxey, 2000). While there are a myriad of reasons that beginning teachers leave the profession, reasons often cited include the isolation and lack of support they receive in the school setting (Boreen, Johnson, Niday, & Potts, 2000). New teachers may need information about the school and school system, about the instructional and resource materials available and how to obtain them, as well as advice on organizing, planning, and managing the classroom environment. However, novice teachers may be unwilling to ask for help because they see the need for assistance as an admission of failure or an indication of their incompetence (Gordon & Maxey, 2000). These new teachers need support and guidance as they become acculturated into their new profession.

The projected shortage of teachers has prompted many school districts to enact programs to reduce the number of beginning teachers leaving the profession and to strengthen their competence in the classroom. One of the strategies being implemented is the development of mentoring programs, which can reduce attrition rate by one half or more (Odell, 1992). These programs can be win-win situations as the new teachers receive the support they need to feel confident in their development as professionals and mentor teachers experience rejuvenation as they reexamine their practices and beliefs and refine their own teaching strategies (Brooks, 1999).

Mentors need guidance and training as they develop the skills necessary to become effective mentors. For mentor training programs to be successful, several elements are necessary. Mentors need knowledge about teacher induction and the problems that new teachers face; training in observational skills, strategies for classroom management, and effective teaching; and knowledge of adult learners and the stages of teacher professional development (Gordon & Maxey, 2000). In addition to these areas, mentors may need information about strategies for helping new teachers develop pedagogical skills that are unique to the discipline of science teaching. With knowledge of these topics along with effective interpersonal skills, mentors are equipped with tools to help ease the transition for new teachers from student to practicing professional.

The state of Georgia has developed the Teacher Support Specialist Program to assist prospective mentors as they begin the process of preparing to provide support and guidance to those new to the profession. Successful completion of this program for either staff development units (SDU) or college credit enables Georgia teachers to add the teacher support specialist endorsement to their teaching license. Professors from three Georgia universities along with practicing classroom teachers worked together to create a program, Teacher Support Specialist in Science (TS^3), that would address the unique needs of science teacher mentors. Participants from the Valdosta area in the southern region of Georgia, the Athens area in the northeastern region of Georgia, and the Dahlonega area in the far northern part of the state collaborated in the 2000 session of the TS^3 program. The program is unique in that through the use of technology, teachers from three geographically separate areas of the state were able to work as a cohort to earn their teacher support specialist endorsement. In this TS^3 cohort, there were six participants

from the Athens area, three participants from the North Georgia Area, and four participants from the Valdosta area. Of the thirteen participants, six were middle school teachers and seven were high school teachers.

The stated objectives of the TS^3 program based on the requirements of the state are to develop mentors who are able: (1) to demonstrate and discuss the critical attributes of effective science teaching practice, (2) to demonstrate skills in collecting and analyzing classroom observational data and in providing feedback, (3) to develop effective interpersonal skills in conferencing situations, (4) to discuss and demonstrate principles of adult learning and reflective teaching, and (5) to develop a calendar of activities to facilitate the professional development of a protégé (Northeast Georgia RESA, undated). To facilitate attainment of these competencies, mentors complete a 50 hour program of course work, followed by a 50 hour internship during which time they work with a protégé in a teaching situation.

To complete the 50 hours of required course work, participants engaged in various activities over the course of a summer. Using interactive television technology, the participants met in the early part of the summer to discuss the course syllabus and expectations, and to learn to use electronic bulletin board technology. After this initial meeting, participants were expected to read the textbook for the course and post reflective responses to the class bulletin board based on their readings. Later in the summer, the participants from all three parts of the state came together for a week of intense work on the University of Georgia campus. Following the week-long session, participants continued to submit reflective journals and postings to the class bulletin board.

When school resumed in the fall, each participant worked closely with a protégé who was either a student teacher, a new teacher, or an experienced teacher who was new to the school. Completion of the second portion of the course required that the mentors document 50 contact hours of interaction with their protégés. In addition, the participants met via interactive television four times during the course of the semester and continued posting to the class bulletin board.

Summer Course

Because the TS^3 program was designed specifically to prepare science teacher mentors, activities during the week-long course addressed both general skills needed by a mentor and skills unique to the science classroom. To promote development of these attributes, each day of the week-long session was divided into different activities facilitated by the instructors of the course. The sessions were designed specifically to meet the five stated objectives of the TS^3 program.

To demonstrate and discuss the critical attributes of effective science teaching practice was the first objective of the program. To meet this goal, instructors conducted sessions on science curriculum issues, classroom climate and managing the science learning environment, and effective science teaching using conceptual change and inquiry. Participants were given hands-on experience with an effective inquiry-based lab, followed by a discussion of traditional versus inquiry labs and how inquiry labs could be used effectively in the science classroom. Other discussions centered around aspects of the science learning environment and how to effectively manage them (Chiapetta, Koballa, & Collete, 1998).

Further objectives for the program included developing the skills needed to collect and analyze classroom observational data, as well as developing the interpersonal skills needed to foster effective interpersonal communication. To meet these goals, one session focused on

mentoring skills and the clinical supervision cycle. Each supervision cycle consists of a pre-conference, observation, analysis and interpretation, post-conference, and critique of the previous four steps (Glickman, Gordon, & Ross-Gordon, 1995). Participants learned what should occur in these steps and why each is crucial to the process. Directive, collaborative, and non-directive approaches to working with protégés were addressed (Glickman, Gordon, & Ross-Gordon, 1995). Class discussions focused on effective approaches that could be used during conferences with protégés (Koballa, et al., 1992). Another session was devoted to different techniques that could be used to collect data in a science classroom. Participants learned strategies to collect data that focused on teacher questioning, teacher movement, student movement, and student behavior among others (Acheson & Gall, 1987; Glickman, Gordon, & Ross-Gordon, 1995). Tapes of student teachers were shown to allow participants to practice the strategies they had learned. Ways to analyze these data and share the information with protégés were discussed.

The fourth objective was to discuss and demonstrate principles of adult learning and reflective teaching. To address these needs there were two sessions, one focusing on the characteristics of adult learners and the needs of new teachers, and a second session devoted to promoting professional growth by reflective practice. In order to assist protégés, mentors need a clear understanding of the concerns of new teachers. To attain this goal, there was class discussion regarding the needs of new teachers and how to address them (Adams & Krockover, 1997). Participants learned about the phases of new teacher growth and how those phases corresponded with the school calendar (Moir, 1992). Participants worked to define reflective teaching and to develop strategies to help their protégés develop the skills and attitudes needed to be reflective practitioners (Sparks-Langer & Colton, 1991).

The final objective was the development of a calendar of activities to facilitate the professional growth of a protégé (see Table 1). To accomplish this objective, participants worked throughout the week to develop their own action plans to guide their work with their protégés. These action plans are unique to each school and situation but have some common attributes. Action plans are outlines that guide what the mentor and protégé need to accomplish during each month of the school year. They provide a framework to guide the work of the mentor and protégé and to ensure that all needs are covered. The action plans usually prescribe more intense amounts of interaction during the beginning of the school year that gradually diminishes as the year progresses. They are useful because there is a specific plan in place; coverage of topics is not left to chance. Mentors developed action plans to guide their work that were different depending on whether they would be working with a student teacher, a new teacher, or a teacher new to the school.

During the course of this week long session, activities included speakers, class discussions, and hands-on activities that helped the prospective mentors prepare for their roles of helping new teachers as they begin the first phase of their development as professional educators. Along with the acquisition of new knowledge, during the course of this time together, the bonds were formed that would allow these new mentors to mentor one another.

Fall Internship

During the fall semester following the summer course, the responsibilities of the mentors continued through a second 50 hour internship course. Participants worked in their own school settings with a protégé. They were required to log 50 hours of contact with their protégés. These hours could be comprised of both formal observations and informal interactions. A

portion of the time requirement was met through the three required observation cycles that the mentors

Late July Obtain TS[3] Assignment Info Prepare General Info packet Get BT's floating assignment/keys Get small gift for BT's cart Set up own room to free up time Find a desk/headquarters for BT Meet BT at new teacher's session Tour the school and provide map	**Fifth Month (December)** Discuss holiday traditions Invite BT to faculty party Discuss leave time/pay Discuss "holiday fever" Do something special for BT Discuss semester grading/scan tron machine/exporting grades
Preplanning Introduce BT to others in school Introduce BT to subject area teachers Get BT's gradebook/teaching books/supplies Help with desk and cart (if wanted) Discuss handbook after advisory groups Discuss general info folder Go over school schedule/discipline procedures Go over equipment/supplies/book assignments Organize a departmental luncheon Discuss Open House preparation Discuss 1st day activities/ rules/class procedures Discuss lesson plan/copy room procedures Help develop seating charts for rooms Discuss role as advisor Discuss PAGE and NSTA dues Train BT on Osiris and Integrade Provide BT with sample syllabus Give pep talk on last day	**Sixth Month (January)** Discuss schedule changes Write a welcome-back note Discuss BT's concerns Invite BT to GSTA conference Offer to observe again, if needed
First Week of School Celebrate getting through the 1st day! Review attendance policies Go over discipline issues and techniques Check each day to see if BT needs help Remind BT to prepare next week's lesson and papers Discuss special education modifications (if needed) Model reflection of the week's success/failures Show BT permanent record files	**Seventh Month (February)** Discuss GHSGT reviewing Discuss BT's concerns Encourage BT to reflect on year Discuss pacing of curriculum
First Month (August) Invite BT to observe class and conference Sit with BT at pep rally Invite BT to a home game Discuss any concerns of BT's Discuss club dates and rosters Discuss pep rally rotation Discuss picture day/get BT's Review GTEP process Discuss progress reports Discuss time management	**Eighth Month (March)** Discuss budget request/needs Discuss GHSGT testing weeks Offer to observe class if needed Discuss BT's concerns

Discuss pacing of curriculum **Pre-observation 1** **BT observation 1** **Post-observation conference 1**	
Second Month (September) Discuss parent conferences Discuss concerns of BT's Encourage BT to observe others Discuss 9-wk failure meetings **Pre-observation 2** **BT observation 2** **Post-observation conference 2**	**Ninth Month (April)** Discuss advisory registration Discuss prom and holidays Discuss BT's concerns Send an "almost there" note Discuss curriculum wind-up Encourage BT to check books Discuss Honor's Night and voting
Third Month (October) Give encouraging note to BT Check with BT about concerns Discuss 1st GTEP evaluation Suggest motivation techniques Discuss EXPO chaos and holiday Discuss homecoming activities **Pre-observation 3** **BT observation 3** **Post-observation conference 3**	**EOY/Post-planning (MAY)** Discuss end of year tasks Discuss finals/exemptions Discuss yearbook signing Invite BT to graduation Assist BT with purchase orders Help return books/media/keys Double-check EOY lists together Celebrate!
Fourth Month (November) Discuss holidays/lesson planning Plan a lesson with BT if possible Discuss BT's concerns Remind BT to prepare after-holiday lessons early	

Table 1: Sample Action Plan By Michelle Smith

completed with the protégés. The remaining hours were fulfilled by informal discussions that occurred between the mentor and protégé. These interactions depended on the nature of the relationship between the mentor and protégé and the concerns that the protégé had about his/her own teaching.

In addition to the work with the protégés, participants were required to make weekly entries in a reflective journal that was read by the course instructors. Postings to the class bulletin board were required at least twice monthly, however, many participants posted more frequently. Participants used the bulletin board to solicit advice and offer support. When

participants struggled with a particular dilemma with their protégé, they posted their concerns to the bulletin board and other class members or instructors provided feedback and ideas for ways to solve the problem. Class members also posted words of support and encouragement as other participants shared their struggles.

Four times over the course of the fall semester, participants met via interactive television. During these sessions members of the group discussed successes and concerns in their experiences with their protégés. They often elaborated on ideas that they had previously posted to the bulletin board. Discussion between group members and instructors provided the opportunity to generate ideas for dealing with individual situations. Participants also shared positive experiences and strategies that had proved productive with their protégés. In addition, this time was used to provide clarification on course assignments and completion of required paperwork.

The final required assignment for the participants was the development of a case that chronicled some dilemma in their work with their protégés (see Figure 1). In this context, a case is "a description of a real or realistic classroom situation that incorporates all the facts needed to clarify and solve target problems" (Kagan, 1993, p. 705). The participants then presented these cases to other teachers from around the state at the Georgia Science Teacher's Association conference in the spring. In this way, participants shared their experiences with other educators across the state.

During the fall, the mentors were intensely involved in their work with their own protégés. Each of these partnerships was unique. Because of individual differences, some partnerships proved more successful than others. Program participants used their fellow class

members and instructors as resources and sources of encouragement as they worked to help their protégés.

New Teacher in Town: Lisa A. Anderson

This is an open case where I as a mentor am struggling to find ways to help my protégé. My protégé Susan is new to both her profession and her environment. Because of these two factors, Susan feels very lonely and isolated. I fear the long-term effects of this situation will cause this very capable teacher to leave the teaching profession.

I have been working with Susan for almost four months. She is a bright young lady who worked with children throughout her college years. She is a single twenty-three year old who calls North Carolina home. She has no friends or family in the area, but chose to move here to begin her teaching career. She was excited about the potential for developing new relationships.

Our school district is located in a rural setting with the closest metropolitan area located roughly sixty miles to the west. Our middle school serves approximately four hundred and fifty students in the sixth, seventh, and eighth grades. We are one of two middle schools that serve our county. We have approximately 180,000 people who reside in Brainiac, Texas. Most of the income in Brainiac is generated from agriculture and farming.

Brainiac Middle School has forty-two faculty members, and all but two of them have at least five years of teaching experience. Most of the teachers are married and are from this community. In the past, the only new teachers hired were veteran teachers recruited from surrounding counties. Our science teaching staff is small and has almost no turnover. It seems that when a teacher starts here, they never leave. In most situations this is beneficial because it helps create a family-like environment, however, in Susan's situation it leads to feelings of loneliness.

In my day-to-day dealings with Susan, she seems to have it together. She is a little overwhelmed by the responsibilities of being a new teacher, but says she is becoming more comfortable with the daily routine. I have made two observations of her teaching, and both have been positive ones. Her management strategies are not perfect, but she is willing to analyze her teaching and learn from her mistakes. She works with other teachers on an academic team and they have all pitched in to help her with her lesson plans and content area needs. She feels most overwhelmed in dealing with her special needs students. We have tried to work through some different strategies to help her meet the challenges associated with teaching these students. Susan feels welcomed by the faculty here and senses that she has a strong network of support.

As the year has progressed, I have been able to develop a close relationship with Susan. It is a relationship based on trust and support, not judgment. I have tried to make her realize that I am there to help her, not to determine whether she does a good job or a bad job. Over time, this has led her to feel comfortable speaking to me about her concerns. One afternoon during a pre-observation interview, Susan shared with me how truly lonely she was here. She talked about how nice everyone had been and how she loves teaching, but she feels that she does not really connect with anyone here. Because Susan is young and single, she cannot really identify with anyone around here except her students. We also talked about how she feels a sense of hopelessness about a change in her current situation. She is looking for young single people to develop friendships with but feels these people are not here.

My fear is that over time her loneliness will cause Susan to leave Brainiac Middle School or possibly the teaching profession. After our discussion, I thought about her situation and I can see why she feels this way. She is a recent college graduate and was a member of a sorority there. She misses those connections with people more like herself.

Since that initial conversation, we have discussed it from time to time. I have invited her to my home and tried to help her make new friends. But when all is said and done, I still sense that she is sad and lonely inside. She puts on a great "teacher face," but I think that she feels alone in a crowded room. I can only imagine how tough this feeling is to conquer on a daily basis especially with no prospects for improvement.

Questions for Reflection and Discussion?
1. How much does our personal life affect our professional life?
2. How can Susan overcome her feelings of loneliness?
3. Will time help Susan overcome these feelings?
4. If things do not change. Will Susan leave Brainiac or teaching all together?
5. What recommendations would you give Susan?

Figure 1: Sample Case

Participant Reactions to the TS^3 Experience

The participants' reactions to their experiences with the TS^3 program were collected using several different methods. Both immediately prior to and immediately after the summer course, participants completed surveys and open-ended questionnaires about their expectations and their experiences. During the semester as participants worked with their protégés, they were interviewed and asked to reflect on their experiences in the TS^3 program. The interactive television sessions were videotaped and detailed field notes of the conversations were made. The course instructors also reviewed participants postings to the bulletin board.

Using coding of these data sources, several patterns emerged. The participants generally had positive feelings about their experiences with the TS^3 program. They remarked that their interactions with other teachers throughout the state in a variety of contexts was what made their experience such a positive one. One teacher indicated that "the support of other teachers that you had throughout the whole state, some of these teachers that we worked with...I would never have met and they're phenomenal." Another expressed a similar sentiment saying, "I just really liked the camaraderie between all the teachers that we had there and the support that was there for each other."

The electronic bulletin board was integral to the development of the statewide support network. As one participant noted, "Everybody needs mentors and so we've been each others mentors and it's been good." A second participant said, " the bulletin board postings I liked....It's helpful when I do have a problem and somebody has read mine and does respond to it."

The participants felt that the development of the action plans had been a positive aspect of their participation in the summer workshop. One participant said that the action plan was helpful because of its usefulness, " I thought that was so practical and I have used it. Every time I meet with my protégé or interact with her I always go back and look at it." A second participant with 24 years of teaching experience felt that the action plan was useful because with his extensive experience, "I just assume when people walk in they know everything...it made me stop and think what do I need to cover with this person?"

Instruction and practice with observation techniques were viewed by the participants as helpful. They were able to use the techniques to give specific feedback, rather than relying on vague generalizations about the quality of the protégé's instruction. According to one participant, "one of the best ideas that I thought that I got from this summer was some of the methods that they gave us on how to look for specific things...to look at that data and learn how to analyze it...now your data really told you about how well the teacher was doing. I've been able to share a lot with my protégé."

Data sources collected over the course of teachers' participation in the TS^3 program indicated that there were several strengths for this particular mentor training program. Participants felt that the interactions with various science teachers throughout the state was one of the most important results of their participation in the TS^3 program. Various types of electronic communication enabled the participants to maintain these relationships once they returned to their own schools. Participants felt that these communications provided them with the support that that they needed to successfully assist their protégés. In addition to the positive personal aspects of completing the program, participants indicated that some of the

sessions in the week-long workshop were particular useful in their work with protégés. Having the action plan that provided a concrete list of topics that mentors needed to work with protégés on guided the work of the mentors and provided a framework for them to use in their work. Training on specific data collection techniques helped mentors gain confidence with these techniques so that they could more effectively assist their protégés as they transitioned into their roles as science teachers.

Though the participants indicated that their experiences with the TS^3 program were positive, they did have suggestions for ways that the program could be improved to better meet their needs. While the participants felt this instruction in observation techniques was useful, they felt that more time should have been spent during the summer course learning observation techniques and practicing them.

Using the information generated from the interviews with program participants, changes were made to the subsequent session of TS^3 taught during the summer of 2001. More time was dedicated to the science specific skills of managing the laboratory aspect of the science classroom and converting traditional science labs to an inquiry based format. Practice with observation techniques and conferencing skills received more emphasis.

In summary, the teacher participants in the TS^3 program regarded the experience as useful to their growth as professionals. They developed positive relationships with other science teachers throughout the state and gained practical knowledge to assist them in their work with their protégés. While they enjoyed the experience, they did suggest possible strategies to improve the experience for the next cohort group.

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Organization/Address: Dr. Jon Pederson, AETS Exec. Secretary
College of Education, University of Oklahoma
820 Van Vleet Oval ECH114
Norman, OK 73019

Telephone: 814-863-3248

FAX: 814-865-3290

E-Mail Address: par4@psu.edu

Date: 6/24/02

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