

Virtual Mentoring in Higher Education: Teacher Education and Cyber-Connections

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This study explored the benefits and limitations of mentoring relationships between pre-service and practicing K-12 teachers. Thirteen pre-service education students at a university in the southeastern United States and 17 practicing teachers from four states participated. The student participants were in their senior year in a teacher education program, during the semester just previous to their student teaching experience. Pre- and post-surveys, email exchanges and student email reflections were utilized to gather data concerning the effectiveness of the project. Results indicated that online mentoring was overall a highly positive experience that provided the student participants unique and practical insight into the field of teaching. The experience was not without problems however, as student participants voiced concern with the procedure for obtaining mentors, timely responses from some mentors and the degree to which their questions were addressed in some cases.

The possibilities associated with electronic mentoring programs in higher education are exciting and unprecedented. Electronic mentoring allows for the establishment of a mentor/mentee relationship that is time and place independent. The benefits of electronic mentoring can be experienced by every higher education student, regardless of subject area or career field. Although this study focuses on the benefits of electronic mentoring to students in teacher education programs, the model is easily modified to accommodate college students in a variety of subject areas.

Education students often complain that their professors are out of touch with what is happening in K-12 (kindergarten through 12th grade) schools and yearn for more practical advice about what teaching and a teacher's typical day is really like as well as information from practicing teachers concerning specific content area issues to include pedagogy (Clowes, 1997). Many education students have only sporadic contact during their teacher education programs with veteran teachers until student teaching. This project arose out of a need expressed by senior level education students at one southeastern United States University for more contact with practicing K-12 teachers in order to establish a firmer connection between educational theory and practice.

Mentoring New Teachers

Although schools are busy places, filled with students, educators, administrators and activity, teachers often spend their days surrounded primarily by students and isolated from colleagues. Many teachers describe early professional time as lonely. This isolation has been a causal factor in many teacher identified professional struggles (Achilles & Gaines, 1991; Martin & McGrevin, 1990; Moran, 1990; Smith & Scott, 1990). In fact, national (United States) surveys

have revealed that the lack of a collaborative school climate is one of the major reasons many teachers choose to leave the teaching profession within their first five years of employment (Southeast Center for Teaching Quality, 2004). Cookson (2005) likens the organization of schools to an egg-crate; the compartmentalization of classrooms and subjects often make professional collaborations difficult. The issue of isolation is particularly problematic for beginning/novice teachers as it is during the early stages of one's teaching career that support systems are most critical. If beginning teachers do not receive support from colleagues, mentors, and administrators, many opt to leave the profession (Schlichte, Yssel, & Merbler, 2005). One solution to the problematic scenario of the isolated beginning teacher is the establishment of a mentor/mentoree relationship between the novice and veteran teacher (for purposes of this study, a veteran teacher is one with at least two years of teaching experience) (Schlichte, Yssel, & Merbler, 2005). According to Seabrooks, Kenney, and LaMontagne (2000) "mentoring is a nurturing process in which an experienced teacher, usually skilled in a specific area, serves as a role model to teach, encourage, counsel, and/or befriend a novice or less-skilled teacher" (p. 222). Research indicates that the mentor not only aids the beginning teacher with instructional challenges and paperwork hurdles, but he or she also often provides emotional support in the form of encouragement, empathy and compassion (Delgado, 1999; Rowley, 1999). According to Ganser (1999) and Anderson and Shannon (1988), an effective mentor in the educational setting provides the novice teacher with counseling, sponsoring, friendship, encouragement, and teaching advice. Ultimately, the presence or absence of a professional tutor/mentor/friend can make a powerful impact on the success or failure of a beginning teacher.

Numerous studies espouse the positive benefits of mentor/mentee relationships among first-year and practicing teachers (Chubbuck, Clift, Allard, & Quinlan, 2001; Council for Exceptional Children, 1997; Meyer, 1999; Reiman, Bostick, Lassiter, & Cooper, 1995). A mentor can observe a new teacher's teaching, and provide feedback and friendship, which are essential for professional growth (Cookson, 2005). Not only are mentored beginning teachers more confident, they are also supported in "exploring, sharing, reflecting and refining their knowledge and skills about teaching" (Seabrooks, et al, 2000, p. 222). Furthermore, Deshler, Ellis and Lenz (1996) maintain that collaborative teachers are more effective educators than those who are practicing from more segregated perspectives (from perspectives in which teaching is for the most part a solitary profession, with little or no interaction/collaboration with other teachers). Certainly the literature provides a plethora of evidence to support the merit of pursuing such beneficial new teacher/veteran teacher professional relationships.

Mentoring Pre-Service Teachers

Because the benefits of mentoring relationships to beginning teachers have been firmly established in the literature (Chubbuck, Clift, Allard, & Quinlan, 2001; Council for Exceptional Children, 1997; Meyer, 1999; Reiman, Bostick, Lassiter, & Cooper, 1995), we could then surmise that the establishment of a mentoring relationship prior to the initial hiring of the beginning teacher would also prove to be highly beneficial to the pre-service teacher and would lay the foundation for the desire to continue such a relationship into the first year of teaching and beyond. The literature however, is deficient in studies that explore the value of establishing mentor/mentee relationships between pre-service and practicing teachers. Perhaps this is because the pre-service teacher not yet student teaching does not have the consistent contact with a school necessary to allow the establishment of such a relationship. Pre-service education students often have only sporadic contact with practicing teachers as they fulfill brief practicum and observation requirements as components of their teacher education programs (prior to student teaching) and many education professors have been out of the K-12 arena for a number of years. Since the benefits of instituting mentor/mentee relationships between beginning and practicing teachers have been fully documented in the literature (Chubbuck, Clift, Allard, & Quinlan, 2001; Meyer, 1999; Reiman, Bostick, Lassiter, & Cooper, 1995), such relationships might also prove beneficial for our teacher education students. Electronic mentoring is one method by which this might be accomplished.

Electronic Mentoring in Higher Education

The move toward electronic mentoring in higher education has not been rapid, but promising examples of such initiatives have been reported in the literature (Freedman, 1992; Muller, 1997; Single & Muller, 2001). Since 1997, according to Single and Muller (2001), over 1700 women students of engineering and science have positively benefited from a structured e-mentoring program known as MentorNet in place at 36 U.S. colleges and universities. These women are electronically paired with individuals who are industry professionals in the students' desired technical or scientific career areas. Summative evaluation of the MentorNet program indicates that as a result of being mentored, women participants have increased their awareness of career opportunities and knowledge of their fields (Single and Muller, 2001). Waycross College in Georgia, has implemented an electronic mentoring program (hosted by Valdosta State University) for matriculating minority students. Computers are provided for the student participants, who are linked with faculty for various mentoring activities. In addition, according to Harris (1995), undergraduate geology students at the University of Illinois (Urbana- Champaign) electronically mentor pre-college teachers and students as a requirement for their History of Life course. Graduate music education students at Arizona State University are electronically linked with music professionals around the world. These music students and mentors discuss pertinent issues related to the music profession. These issues then become topics of discussion in the on-campus music education course (Bush, 1998).

Students are not the only individuals involved in higher education to benefit from electronic mentoring relationships. Mihkelson (1997), at the University of Tasmania in Australia, reports of a successful mentoring initiative at that institution designed to enhance the research skills of junior faculty. Junior and senior faculty pairs were designated and after an initial meeting, communicated via email, teleconferencing and videoconferencing. Junior faculty (mentees) were able to submit research proposals and manuscript drafts to senior faculty (mentors) for feedback, edits, and corrections. Another innovative virtual mentoring program is in place at Florida Community College in Jacksonville, Florida. This initiative allows for the virtual mentoring of adjunct faculty by full-time faculty. The mentors serve as liaisons between adjunct faculty and administrators; share resources, relevant professional information and opportunities; and answer questions concerning pedagogy (<http://www.distancelearning.org/>).

Electronic Mentoring of Pre-Service Teachers

Many practicing teachers would likely choose to participate in a traditional mentoring relationship with pre-service teachers but are so pressed for time that they are unable to do so. A traditional face-to-face mentoring relationship is place dependent. This would be particularly problematic for pre-service teachers because it would require them to drive to the mentor teachers' schools numerous times, thus making the experience very time-consuming. In fact, according to Noe (1988), time and space constraints are the most often cited reasons for mentoring relationship failures. Because electronic mentoring is asynchronous, it allows much greater timing flexibility. It is also place independent, meaning that pre-service and practicing teachers could participate in a relationship regardless of geographical location. This would be especially beneficial to pre-service teachers in relatively rural or isolated areas who do not have access to a large pool of practicing teachers (Harrington, 1999). It could also expose pre-service teachers to a potentially larger number of practicing teachers with expertise in their grade levels/subject areas. Another advantage of electronic mentoring over traditional mentoring according to Single and Muller (1999) is that "communicating using email allows for the construction of thoughtfully written messages without the pressure of immediately responding, such as in communicating orally" (p. 237).

In the fall (August-December) semester of 2005, an electronic mentoring project was initiated between pre-service education students in their senior year of the teacher education program and practicing K-12 teachers across the country. This mentoring relationship was established at the previously mentioned university in the southeastern United States. The goals of this project included the following:

- The pairing of a pre-service teacher with an experienced, practicing teacher in his/her desired subject/grade level.
- The provision of a support source (mentor) for the pre-service teacher (mentee).
- The provision of opportunities for pre-service teachers to engage in conversation about pedagogical issues in his/her content area with a practicing teacher in that same content area.
- To aid in the development of reflective practice on the part of pre-service teachers.

Methodology

Participants

Student participants in this pilot study included 12 pre-service teachers enrolled in an upper level education course in a metropolitan university in the southeastern United States. Of the 12 pre-service teachers participating, eight were seeking secondary school licensure and four were seeking K-12 licensure in either art, music, or physical education. Four of the pre-service teacher participants were female, eight were male, and all were seniors in the teacher education program.

Mentor participants included 17 (some student participants had more than one mentor) experienced teachers located in ten different school systems in Tennessee, Kentucky, Georgia, and Florida. Eight of the mentors were female and nine were male. Years of teaching experience reported among mentor teachers ranged from two to thirty years with an average of fourteen years. Four mentor teachers held Bachelor's Degrees in Education, ten held Master's Degrees in Education, and three held Educational Specialist Degrees. All mentor teachers held current certification in the areas in which they were teaching at the time of this study and all mentors were teaching in the same subject area and/or grade level in which their mentees were hoping to eventually teach.

Procedure

Once the project description, expectations and goals were provided to the student participants, they were asked to respond to a pre-reflection survey. This survey elicited their feelings about the project in general, what they expected to learn as a result of participating in the project, and their speculations concerning possible problems during the project.

Student participants were then given the task of locating their mentors using Education World's database of US schools, a list of pre-selected teachers known to the instructor, or teachers known to the students who indicated their willingness to participate in the study. Selected mentors must have met the following criteria: (a) be in the same subject and/or grade level areas as the pre-service teacher, (b) hold valid certification in that area, and (c) have at least two years of teaching experience.

Students were provided a sample letter of introduction to use as a guide when making initial contacts with prospective teachers. In the initial contact letter they were instructed to introduce themselves and

their career goals, explain the reason for the contact (goals of the activity), obtain biographical information of the mentors and ask if the teachers would be willing to participate in an electronic mentoring relationship that would last for six weeks and would entail twice weekly conversational exchanges. The biographical information requested of potential teacher participants included their names, job titles, subjects taught, grade levels taught, school names and locations, number of years teaching, and degree(s) held. Each student then presented this information to the instructor for official approval and following a brief seminar on email etiquette students were given permission to begin.

Although students were provided a list of possible discussion topics to guide their conversations/interviews with their mentors, they were not required to adhere to only those topics, making the interview semi-structured in nature. Possible discussion topics provided to students included socialization issues (e.g., overt and covert school routines, extra duties such as bus and lunch duty, student and faculty conduct, interaction with other teachers), assessment and reporting concerns (e.g., developing assessment practices, parental and student feedback, paperwork organization, parent conferences), classroom management and discipline issues (e.g., behavior management strategies, handling student violence, bomb threats and lockdowns, special needs students), curriculum and resource materials (e.g., attending conferences, locating resources and support materials), time management (e.g., dealing with grading, lesson plans, meetings), teaching strategies, certification and legal issues (e.g., teacher contract concerns, certification), and issues surrounding special needs students (e.g., inclusive classrooms, IEP, modification). Students were advised to prioritize their list of discussion topics according to what areas were most important to them, as the six-weeks duration of the project was limited and would likely not allow for the discussion of every issue.

When replying to mentor responses, student participants were asked not to start a new document, but rather to click on the reply button so that a running document might be maintained. This was required so that both mentors and student participants could easily scroll back to previously asked and answered questions and comments. This was especially beneficial when student participants wished to pursue a previously discussed topic further or wanted to clear up an ambiguous issue.

Following each email conversational/interview exchange, student participants were required to complete a reflection journal entry in which they were to respond to the following questions:

1. Did the mentor adequately respond to your questions? Elaborate.
2. What surprised you, if anything, about his/her responses?
3. What information, suggestions, ideas, etc. did your mentor provide that were particularly helpful to you?
4. Based on your questions and your mentor's responses in this particular exchange, where would you like to see the discussion go in the next interaction? What follow-up questions do you intend to pose?

During the course of the project, student participants submitted copies of each email conversation electronically to the professor as they occurred thus allowing the professor to monitor the conversations for professionalism. Students also printed out hard copies of the email exchanges and inserted them into their electronic mentoring journals along with their subsequent reflective pieces. At the culmination of the project, students completed a post-reflection piece similar to the pre-reflection and submitted their journals for grading.

Data Analysis

The first phase of data collection involved its organization. Each time students and mentors completed a conversational exchange, student participants emailed a copy of the exchange to the researcher (during the six-week project, the 29 participants exchanged 293 e-mail messages). The researcher then read and re-read the data, made some notes pertaining to the information, and performed minor editing as suggested by Marshall and Rossman (1999). The next phase of data analysis involved the generation of categories, themes and patterns. Guba (1978) states, "as categories of meanings emerge, the researcher searches for those that have internal convergence and external divergence" (as cited in Marshall & Rossman, 1999, p. 154). Included in this analysis phase, was a period in which the data were reduced. Cohen, Kahn, and Steeves (2000) state,

This step in data analysis involves some decision making on the part of the researcher concerning what is relevant and what is not....The researcher can reorganize the interviews to place together discussions of the same topic, eliminate digressions that are clearly off track, and simplify the spoken language of the informants without changing the unique character of it. (p. 76)

Once the work of generating categories, themes and patterns from the collected data was initially complete, the researcher then began to code those categories, themes and patterns for key words (Marshall & Rossman, 1999). A color-coding process was used to mark passages in the identified categories and themes that emerged from the email exchanges and pre and post reflection pieces.

Themes Across Student Participants' Pre-Reflections

What follows is a synopsis of the themes identified across the responses for each question within the pre-reflective component of the project.

How do you feel about this project? Nine respondents indicated positive feelings about the project while four participants indicated that they were nervous or hesitant about the project.

What do you expect to learn from this interaction? Ten respondents indicated the desire to learn teaching tips concerning classroom management issues, being an effective teacher, varying instructional strategies, connecting units and preparing lesson plans. Five participants hoped to learn about what being a teacher is "really like." (How much time is spent grading papers at home, how many extra duties teachers are expected to perform, how long a typical day lasts, what a typical day entails.) Eight participants were hoping to learn specific advice that would be useful to them as new/beginning teachers. And, three were seeking specific information pertaining to teaching their particular subjects such as how to manage an art budget, how to put music theory into practice, and how much work is involved in coaching football.

What possible problems could arise? Nine participants voiced the concern that their mentor teachers might not respond to emails in a timely fashion, thus delaying the completion of the project. Three indicated concerns about finding mentor teachers willing to participate. Two student participants indicated apprehension about finding mentors who meted the criteria necessary to participate in the project. Four voiced concerns that mentor teachers might not sufficiently answer questions posed to them. Two indicated apprehension that technical problems could interfere with the completion of the project. And finally single participants indicated the following concerns: mentor bailing out, mentor not liking student, lack of time to prepare for emails and possibly significant philosophical differences between student and mentor.

Prioritization of Pre-Service Teachers' Concerns and Emerging Discussion Topics

One of the directives given to student participants at the outset of the project was to prioritize their

concerns so that the issues of greatest concern to them would be addressed earliest in the email exchanges. The possible discussion topics provided to the students were generally adhered to although other more content specific issues were also consistently identified across conversations. Appendix A is a summation of identified concerns discussed during the project and an analysis of the priority levels of these concerns as reported by the pre-service teacher participants. Some teachers listed more than one concern at a particular ranking level. Because the length of exchanges varied among participants, some students were able to address numerous issues while others could only address a few during the course of the project. Qualitative data analysis revealed eleven general categories of issues (themes) discussed within the email exchanges and forty-five subcategory issues. The total numbers of pre-service teacher participants indicating each major category and subcategory issue as a concern is provided in Appendix A.

Data analysis revealed the major issues student participants most wanted to discuss with their mentors included assessment, organization/paperwork concerns, and time management. Specifically, students were most concerned with issues pertaining to specific content areas (e.g., mathematics, art and music), how to obtain necessary classroom materials and resources, and the establishment of classroom rules and procedures. Students also repeatedly asked their mentors questions such as what a typical day is like for them as teachers, and how much work they take home each night.

Themes Across Student Participants' Post-Reflections

What follows is a synopsis of the themes identified across the responses for each question within the post-reflective component of the project. Two students did not respond to the first question and several students had more than one response for questions two through four.

Did this project meet your expectations? Why or why not? Most student participants (ten out of twelve) were pleased with the project and stated that they believed the project either met or exceeded their expectations. Specific comments included the following: "This experience has not only provided me with answers to my questions, but also with invaluable communication tools that will come in handy to me when I start teaching;" "It was really good to get a sense of what teaching is like and all the issues that exist in the profession. I feel like I got to address several questions I have had about teaching music and this has been a really good forum in which to do that;" "My mentor was honest about what she has found has and has not worked in her classroom and gave me several good tips for teaching and classroom management."

Two students indicated that the problems associated with finding and keeping a reliable mentor meant that their expectations for the project were not met. One student stated, "I had a very difficult time locating a mentor and then that person just stopped writing...with this project I felt a bit helpless."

What did you learn from your mentor that was particularly beneficial to you? All participants indicated that they learned information pertaining to the education profession that was beneficial to them. Beneficial information learned included advice provided concerning classroom management/behavior, suggestions provided to them concerning teaching in their specific content areas, and assessment advice provided by their mentors. One participant stated, "I learned how to deal with school violence and insubordination." Another stated, "I learned a lot about what teaching is really like." Some mentors provided their mentees with useful documents such as course syllabi, concept maps, lesson plans and units. Other mentors were most helpful in that they reduced their mentees' apprehensiveness about teaching.

What was problematic, if anything, about the project? While not all student participants identified problems with the assignment, difficulty locating mentors, the untimely and shallow responses of some mentors, and the length of time involved in the completion of the project were issues identified by some student participants as problematic. One student stated, "It was hard because sometimes my mentor wouldn't write back for a week or so and you don't want to send another one and be rude, but you kind of need her to respond."

What suggestions could you offer to improve this project? Suggestions for improvement included the suggestion that email exchanges be changed from two per week to one per week and that the professor compile a list of individuals ahead of time who would be willing to serve as mentors. Student comments regarding suggested improvements included the following: "The biggest improvement I think that could be made is locating teachers who are willing to participate. One suggestion would be either to get a system down where you have a pool of teachers for students to choose from, or let the students choose teachers they already know," and "The only suggestion I would make for this project is to require only one email exchange per week."

Discussion

Significant selections of conversational content for each major area of discussion (e.g., assessment, organization/paperwork concerns, and time management) are included in the following section, as well as dialogues regarding how to obtain necessary

classroom materials and resources and the establishment of classroom rules and procedures.

Assessment Issues

Beginning with the issue of assessment, many pre-service teachers indicated concern about how to assess inclusion students in the regular education classroom. Several themes emerged in the responses the mentor teachers provided in regard to assessment of special education students. These responses included modifications during testing for special education students such as reading the test aloud, providing extra time for test completion, redirecting questions, shortening assignments, and breaking down larger assessments into smaller, more manageable parts. Other suggestions included collaborative group work, individualized attention, the use of summarizers and graphic organizers.

Other pre-service teachers voiced concerns about assessment in general in their particular content areas. Again, these identified concerns also appeared to be a major source of anxiety for new teachers across the world, as Meister and Melnick (2003) has identified assessment as one of the top four primary concerns. Themes that emerged from the responses of mentor teachers on assessment included the use of rubrics for assignments so that grading is fair and consistent and students learn up front what they will be graded on. Mentors also stressed the importance of providing students with a multitude of assessment opportunities so that students have ample opportunities to demonstrate what they have learned and improve their grades. Another theme that emerged was the significance of giving prompt feedback on all student assessments.

Paperwork Concerns

Another high-priority issue of concern for the student participants was the need to develop effective strategies to address the large volume of paperwork they will be faced with as teachers. This is also an international concern of beginning teachers and ranks in the top six areas of concern for new teachers (Meister & Melnick, 2003). A wide variety of strategies for dealing with the paperwork/organizational issues were shared by the participating practicing teachers. The themes that emerged from the mentor teacher participants concerning paperwork and organizational issues included: determining a routine in which students distribute materials or pass in papers to eliminate confusion and chaos, dealing with paperwork daily (not allowing it to pile up), using clearly labeled folders to store lesson plans in a coherent filing

system, and using a file box or cabinet and filing system to keep track of paperwork.

Time Management/Typical Day

Time management issues also rated highly on student participants' concern lists. They were particularly concerned with the amount of time required to adequately plan for lessons, how much work is typically taken home each day, and what a typical day is like for teachers. Descriptions of typical days teaching from participating mentors ranged from particularly negative and stressful to extremely positive. One high school math teacher, with 15 years of experience, reflected upon the time required to meet teaching requirements:

A typical day in education is ALWAYS a rat race. From the time the school day starts until you leave you are flat out getting it. Sometimes it is difficult to find time to do basic things such as go to the bathroom, eat lunch without working, and make a simple phone call. I get to school 45 minutes before school starts and stay usually an hour to 2 hours everyday after school. I seldom ever take any work home with me anymore. You pick what is most important and do that first and keep repeating the process. But a lot of the time you can't do all you are responsible for doing. You do the best you can in the time you have.

On a more positive note, an elementary physical education teacher with 5 years of teaching experience shared her typical day:

I just want to start off by saying, I love my job! I get to school at 7:15 in the morning wearing gym shorts and tennis shoes. I'm the envy of every teacher wearing dress clothes and dress shoes every day. I assist in the car loop every morning from 7:40-8:00, making sure to greet the students as they are dropped off. From 8:00-8:40 I have my planning time. My first class starts at 8:40...lunch from 11:35-12:05. My final class ends at 2:15 and I then go back to the car loop and assist with dismissal until all the children are picked up. I then go back to my office and answer emails, phone calls, or whatever else needs to happen. Our day ends at 3:15. I normally don't take much work home with me. It really depends on what I am working on. Sometimes, I would rather take some work home and be able to visit with my family, fix dinner, or do some laundry while I am working on school "stuff."

A high school literature teacher with 21 years of experience described her typical day:

A typical day is very busy; I hate to say it but it is also very stressful. This week I have morning duty, which means that I have to be here at 7:00 am to stand in the Student Center and greet students...I teach three classes of American Literature, then I have Journalism I, planning, and Journalism II. Yesterday we had a faculty meeting after school. Then I stayed and worked until 7:00 pm. I have more of those kinds of days than I don't. In fact, last week I got home about 5:30 and my husband said, "Gee honey, you're home early today."

The issue of time management was also a major concern (ranking second to classroom management) in a study conducted by Meister and Jenks (2000). The student participants in this study were particularly curious about what a typical day as a teacher is like and were very pleased with the candid responses shared by the mentor teachers. All of the students felt that they had a much better insight into the practical daily life of a teacher as a result of this project.

Obtaining Necessary Classroom Materials

A subcategory issue repeatedly voiced as a concern by student participants was that of the locating and obtaining the necessary materials needed to effectively teach a particular content area. The problematic issue of insufficient teaching supplies and materials was one of the top eight issues of concern to all teachers, internationally, according to Mesiter and Melnick (2003). Mentors participating in this study reiterated budgetary constraints as deterrents from adequate preparation as far as the ability to obtain needed supplies and equipment. No teacher mentioned being allowed more than \$100.00 per year to spend on needed classroom equipment and supplies and many admitted that they regularly dip into their own funds to supplement the instructional needs of their classrooms and taking the amount spent as a tax deduction.

Classroom Rules and Procedures

Another issue of concern for students was classroom management, the desire to understand how to create an effective set of classroom rules and procedures. This is not surprising international teachers ranked classroom discipline as the number one issue of concern (Meister & Melnick, 2003). Mentor teachers provided a multiplicity of information regarding this topic. Themes that emerged included the necessity of developing and posting a set of classroom rules that is succinct and the importance of implementing and consistently enforcing those rules right away and not

deviating from them throughout the school year. Other themes that emerged included the caution to only be a teacher to students, not a friend and to document every discipline event. A great deal of additional guidance was provided concerning the significant subcategory issues identified by the student participants.

Conclusion

Problems and Questions

Since electronic mentoring is in its infancy there is little assessment in the literature that has identified best practices associated with it. During the course of the project, numerous issues arose that were problematic. These issues primarily revolved around mentor recruitment and retention and pair matching concerns.

Recruiting electronic mentors needs to be modified and increased as one of the primary difficulties with this project was the attainment of mentors willing to participate in the endeavor. Developing a website for the program could strengthen the recruitment efforts. A website could allow for the attainment, completion and submission of online applications and prospective student participants' relevant demographic information, including the students' academic programs and career goals, could be posted for potential mentors.

Difficulties also arose with getting some mentors to see the project through to its completion. Perhaps a more focused outline of project requirements for electronic mentors would be beneficial in addressing this problem. An investigation into the motivation of volunteer mentors could also be helpful (Single, Jaffe, & Schwartz, 1999) as well as the formation of an incentive program for mentor participants.

How the matching process possibly influences the mentoring outcomes is another area of needed exploration. Do age and gender differences among student and mentor participants influence conversations? Do less experienced teacher mentors, with 2-5 years of experience, provide similar quality of responses as more experienced teachers? These are research questions that need to be addressed to allow for more effective recruitment and pairing procedures (Single, Jaffe, & Schwartz, 1999). Formative data collection could also help provide some answers. For example, one could examine how pairs bonded via self-reflections and short surveys "thus establishing predictors of good mentoring and good mentors" (Single, Jaffe, and Schwartz, 1999, p. 245).

In this study, no allowance was made for the training or coaching of mentors as incentives and stipends were not available. Therefore, the project's success depended greatly on the conscientious levels of the volunteer mentors. Although the student participants were pleased with the overall performance

of the mentors, the project itself could only benefit from a more structured venture in which mentors are brought together for or receive training electronically prior to the inception of the endeavor. Training could include information on successfully assessing and responding to the needs of the student participants (Single, Jaffe, & Schwartz, 1999). Coaching would entail ongoing training that occurs throughout the project and could include discussion board and email communication. In either case, an incentive for the mentor participants would ensure a greater commitment to the completion of the project.

And finally, as with any course required assignment or project, there is always a danger that the student participants saw this project as just another component of one course's requirements that had to be completed for success (extrinsic) instead of focusing on the art of teaching/pedagogy in a significant, authentic fashion (intrinsic). Indeed, that did seem to be the case at the outset of the project, but at the culmination of the study, the student participants seemed genuinely enthused about what had transpired.

Positive Implications for Teacher Education

Because the project was embedded within an electronic format, it provided student participants with a rich "field experience" without the usual barriers of transportation, illness and schedule complications that might prevent college students from participating fully if this project had entailed traditional face-to-face mentoring. Because email is asynchronous, student and mentor participants were able to participate in the project whenever time permitted them to do so.

Despite some mechanical issues pertaining to the process itself, the student participants indicated that online professional mentoring relationships between pre and in-service teachers were an effective means of providing support to education students in issues pertaining to socialization, learning environments, assessment/evaluation and paperwork, classroom management/discipline, curriculum/resource materials, time management, teaching strategies, certification and legal concerns, special needs students, new teachers, and specific content areas. Many of these areas of concern have been identified in the literature as problematic for new teachers, sometimes directly resulting in their exodus from the profession (Single, Jaffe, & Schwartz, 1999). Therefore, it could be very significant that these pre-service teachers have been provided the opportunity to receive valuable information regarding these complex issues before obtaining their first teaching positions. As previously mentioned, it has already been established that virtual mentoring has been successful in other educational contexts. Therefore, it is not surprising that this proves

to also be a positive experience when an online mentoring relationship is established between pre- and in-service teachers.

Positive Implications for Higher Education

The advantages of electronic mentoring for higher education students and faculty are multifaceted. Many colleges and universities have extremely large enrollments, making it difficult for faculty to manage face-to-face relationships with a large number of students. With the removal of time and place constraints, electronic mentoring could allow faculty and students increased opportunities to connect with one another. As indicated previously, new and inexperienced faculty electronically paired with senior faculty, have an immediate forum in which to engage in dialogue and receive professional guidance on issues ranging from pedagogy to service to research. In addition, students paired with employed professionals in their career areas via an electronic initiative can obtain valuable professional information and guidance, regardless of geographical location of the students and professionals. Junior and senior students could also be paired with freshmen to aid with high-school to college transitional issues; students needing help in a particular subject area could be tutored by other students identified as proficient in that area; students nearing the end of their programs of study could mentor those just beginning (in the same area); experienced graduate assistants could be paired with those considering assistantships; student researchers could be paired with faculty conducting similar research, etc. In summary, electronic mentoring is a relatively unexplored phenomenon but one which promises to add new dimension and opportunity to both faculty and students in higher education.

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Appendix A
Identified Concerns: Categories, Subcategories, and Rankings (n=12)

MAJOR ISSUE CATEGORIES	ISSUE SUBCATEGORIES	RANKINGS															Total	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15+		
SOCIALIZATION	Overt and covert school routines					1											1	
	Handling assemblies, fire drills, etc.	1					1										2	
	Extra duties	3						2	1								6	
	High risk students		2	1					1								4	
	Interaction with other teachers		2			1											3	
	Support for new teachers			1	1												2	
	Student inappropriate male/female contact	1		1													2	
	TOTAL SOCIALIZATION																	20
POSITIVE LEARNING ENVIRONMENT	Necessary conditions				2												2	
	Cooperative Learning							1		1	1						3	
TOTAL POSITIVE LEARNING ENVIRONMENT																	5	
ASSESSMENT / EVALUATION and PAPERWORK ISSUES	Used to inform next steps																2	2
	Developing range of practices						1	1					1				2	5
	Grading policies, etc.					3	1											4
	Student and parental feedback							1									1	2
	Parent conferences				1		2		1					1			1	6
	Handling paperwork	1					1	1		1								4
	Report Cards										1							1
TOTAL ASSESSMENT / EVALUATION and PAPERWORK ISSUES																	24	
CLASSROOM MANAGEMENT / DISCIPLINE	Classroom rules and procedures		2	1			2				2	1		1				9
	Behavioral strategies		1														1	2
	Student violence							1									1	2
	Reward systems			1													1	2
	Student disrespect/insubordination	1		1		1		1					1			1		6
	Lockdowns, bomb threats, etc.																1	1
TOTAL CLASSROOM MANAGEMENT/DISC.																	22	
CURRICULUM / RESOURCE MATERIALS	Obtaining needed materials			1	1	1		1		1		1			1	2	9	
	Access to literature and professional materials															3	3	
	Attending conferences															3	3	
	Writing grants			1												1	1	
TOTAL CURRICULAR / RESOURCES																	16	

TIME MANAGEMENT	Typical day		1	1	1		1		1		1				1	7
	Amount of work taken home				3	2		1	1			1			1	9
	Types of daily lesson plans required					1	1		1		1				1	5
	Length and structure of daily lesson plan						1			1			1		1	4
TOTAL TIME MANAGEMENT																25
TEACHING STRATEGIES	Recognizing learner differences					2										2
	Repertoire of teaching strategies				1							1		1		4
	Student motivation														1	1
TOTAL TEACHING STRATEGIES																7
CERTIFICATION AND LEGAL ISSUES	Maintaining current certification						2	1							1	4
	Summers								1						1	2
	Teacher contract issues									1					1	2
	Teacher professional insurance										1				2	2
	Professional organizations										1	1	1		3	6
	Teacher observations								1							1
TOTAL CERT / LEGAL																17
SPECIAL NEEDS STUDENTS	Inclusive classroom issues									1			1	1	1	4
	Special education meetings and documentation						1							1		2
	Accommodations/Modifications							1			1		1		1	4
TOTAL SPECIAL NEEDS																10
ISSUES PERTAINING TO NEW TEACHERS	Challenges faced	1														1
	Interview issues												1			1
	Teacher created materials				1											1
TOTAL NEW TEACHER																3
ISSUES PERTAINING TO SPECIFIC CONTENT AREAS		4	3	2	2	2					1	1	2	1		18