

Characteristics of an Effective Mentoring Process

Reference Manual

**PhysTEC TIR Gathering
Sheraton Greensboro Hotel
Thursday, July 26, 2007**

Developed by Mike Wolter, physicstir@bsu.edu

Mentoring Reference Manual

Characteristics of an Effective Mentoring Process

Reference Manual

Acknowledgements

Thanks to the following contributors to this manual.

Ben Buehler, Mentee, Blue River HS

Barb Deardorff, Mentee, LaCrosse HS

Lynne O'Connor, TIR Xavier University

Sharon R. Schultz, Director ITEAM

Articles from other sources are indicated
on the particular documents.

With special thanks for their
encouragement and support to:

Paul Hickman, PhysTEC Consultant

John Layman

Linda Wolter

Mentoring Reference Manual

Goals

To use the experiences of the current TIR's and their mentees to help the new TIR's and the PPI faculty

to be able to provide effective mentoring support to novice teachers:

- by understanding the changes that a first year teacher experiences,
- by understanding how to establish a supportive relationship of trust,
- by understanding how to do collaborative coaching,
- by understanding how to experience and solicit professional growth by reflective journaling,
- by understanding how to use video technology to support classroom observation and personal improvement strategies, and
- by understanding how to assess the effectiveness of a mentoring relationship.

Mentoring Reference Manual

Stages of a Teacher's First Year

As identified by Ellen Moir, Santa Cruz

1. Anticipation (August- September)

- Starts in the student teaching phase
- There is anticipation for the first teaching position
- Enter the first year with the idea they can make a big difference.
- This phase continues through the first few weeks of school.

2. Survival (September- November)

- The first month becomes overwhelming with unanticipated problems and situations to handle.
- Become consumed by routine and sometimes spend up to “70 hours a week on school work,” leaving little time to reflect.
- Has to build a new curriculum for their classroom
- Still keep up their energy level and remain positive that they will get through this phase.

3. Disillusion (November-December)

- Begins after six to eight weeks and it will vary among new teachers
- Begin to question themselves and their abilities creating a lower self-esteem
- More teachers fall ill during this phase than any other phase
- This phase falls during a time when other school events are taking place (parent conferences, evaluations, etc.)
- Classroom management becomes a major focus
- This is the toughest phase for any new teacher

4. Rejuvenation (January-April)

- The winter break provides hope for the teacher who was losing it before the break
- Return rested and they have had a time to reflect
- Classroom management has improved by this point
- Focus on developing their curriculum, their long term planning, and the strategies they use in their classroom.
- By the end of this phase, teachers will begin questioning if they can finish the curriculum and how well their students will do on end of the year testing

5. Reflection (April-May)

- During the last six weeks of school, the new teacher will reflect on the successes and failures of the school year
- They will begin exploring changes in their curriculum and plans for the following year
- This phase sends them into a new phase of anticipation

6. Anticipation (May-June- through summer)

- There is anticipation for the next year of teaching and the new class the teacher will have
- Looking to the new year and brainstorming over the summer what the anticipated changes could be.
- Enter the new year with the idea they can make a big difference.
- This phase continues through the first few weeks of school.

Source: Scherer, Marge. *A Better Beginning: Supporting and Mentoring New Teachers*. ASCD, 1999

Mentoring Reference Manual

Stages of a TIR's First Year

1. Anticipation (January?- August)

- Unexpected invitation from the University and current TIR to join the project.
- Excited to "escape" current teaching position and for the opportunity to be a "university" faculty member.
- Enthusiasm provides the stamina to work through difficulties within the school corporation.
- Feeling of closure from cleaning and organizing classroom and equipment for replacement.
- Willingness to risk loss of responsibilities and status upon return.
- Thrilled by the novelty of being fully funded to the national convention.
- Cannot harness the wonder of "what" is it that I will be doing?
- Expectation of enlightenment and definition of tasks at the summer meeting.
- This phase continues into the first few weeks on campus.

2. Survival (September)

- Introductions to the university, physics department, and PhysTEC faculties.
- Establishment of a "professional worksite" (Phone, computer, office, desk, file storage, business cards, university ID, e-mail account, parking pass, etc.),
- Review of PhysTEC documents (EOY, MOU, TIR Handbook, I/M plan, TIR Job description, university course structures and content, course revisions in progress, previous TIR's initiatives, lab manuals, etc.).
- Establish initial contacts with Science Ed and General Education faculty.
- Begin working with replacement teacher as a mentee.
- Initial meeting and exposure to TAG group (unless already a member).
- Define and begin to implement TIR role(s) on campus.
- Extended time spent in this phase significantly limits TIR's ability to become part of the university community.

3. Disillusion (October-December)

- May begin as early as August, will vary among new TIR's, and flairs up again with the preparations for the Spring meeting, end of year reports, and on-site visitations.
- Uncomfortable with the lack of a regimented daily schedule and routine.
- Replacement teacher is having unexpected problems with "your" students.
- Teachers and students in your school think you are retired and wonder why you are there.
- Difficulty in describing in "hallway" bites exactly what it is that you do.
- Discover hidden limitations of the TIR role. (no keys, no long-distance authorization, inability to initiate activities at the university, stifling chain of command protocols, no real co-teaching, etc.).
- Regularly confronted with the "you are not a PhD" attitude from university faculty and students.
- Begin to question themselves and their abilities to actually have an impact on the university community creating a lower self-esteem.
- Reduced student exposure reduces the tendency to fall ill during this time of the year (not a bad thing).
- This is the toughest phase for any new TIR, failure to recover produces a feeling of surrender, withdrawal from the challenge, and the choice to take on "safe" role(s).

Mentoring Reference Manual

Stages of a TIR's First Year-continued

4. Rejuvenation (January-March)

- The longer university winter break provides rejuvenation for the TIR that was losing it before the break.
- Returns rested from winter break after having no obligations to grade papers and after not needing to prepare for the end of the high school semester.
- Becomes comfortable with their role(s) and knows what to do during the second semester on campus.
- Presentations at state, national, and PhysTEC conventions provide reinforcement of the importance of the TIR's role in the project.
- Focuses on developing co-teaching strategies, on adapting lab activities, on identifying potential mentees, on recruitment of the new TIR, on long term planning, and begins to demonstrate a reflective attitude about the position.
- Good working relationship with specific university faculty members.
- Students spontaneously seek out the TIR for help.
- Replacement teacher is the "teacher" in your classroom and you are the "visitor".
- By the end of this phase, TIR's will begin questioning if they can finish the tasks they have begun.

5. Reflection (April-May)

- During the last two months, the TIR will reflect on the successes and failures of the year.
- Participation in the collection and development of exhibits for EOY report and on-site visits adds a formal evaluative nature to the reflection process of the TIR.
- The TIR will begin exploring changes that will be carried into their high school curriculum and plans for the following year.
- The end of the second semester represents a "final" closure to the TIR's activities.
- Decisions about the "importance" of being at the summer meeting are made.
- A new sense of self-examination through the reflective process promises that the TIR will return to their classroom changed.
- The reflective role of the TIR actually began in August and was exhibited all year through journal postings on the list-serve and exchanges with mentees.
- This phase sends the TIR into a new phase of anticipation.

6. Anticipation (May-June- through summer)

- There is anticipation for the next year of teaching and the new classes the TIR will have.
- There is uneasiness about what has been "lost" by not being in school for a year.
- Reduction in compensation due to loss of leadership roles is common for returning TIR's.
- Brainstorming occurs over the summer about what the anticipated changes could be.
- Enter the new year with the idea that they can make a big difference.
- Summer meeting feels like the final opportunity for being with TIR comrades.
- Celebrative and "in crowd" attitude of former TIR's contrasts with the "rookie" TIR's lack of confidence.
- Decisions on the level of mentoring activities for the coming year are being made.
- This phase continues through the first few weeks of school as the cycle begins again.

Mentoring Reference Manual

Stages of a Returning TIR's First Year Back

1. Anticipation (April - September)

- Starts as end of the second semester nears.
- There is anticipation/concern for returning to a teaching position.
- Excited about implementing new ideas in their own classroom.
- Looking forward to continuing work with the PhysTEC project and mentees.
- Distracted by shifting emphasis to a new TIR, EOY reports, and summer meeting
- Strong desire to continue unfinished work at the university.
- Unsure enthusiasm about returning to the headaches of the classroom.
- Enter the returning year with the idea they can make a big difference.
- This phase immediately terminates with the beginning of school.

2. Survival (September- November)

- The first month feels overwhelming with unanticipated problems and situations to handle even with many prior years of teaching experience.
- Immediately fall behind in grading papers, where are the TA's?
- Files and equipment are not where they were one year ago.
- What are these new procedures and rules?
- Questions from the new TIR feel like interruptions now.
- Become consumed by routine and sometimes spend up to "70 hours a week on school work," leaving little time to mentor, reflect, or to stay in contact with the project.
- May have to build a new curriculum (missed textbook adoption) for their classrooms
- Still keep up their energy level and remain positive that they will get through this phase.

3. Disillusion (November-December)

- Begins after six to eight weeks and it will vary among returning TIR's.
- Begin to question themselves and their reasoning ability creating a lower self-esteem
- More teachers fall ill during this phase than any other phase.
- Strong desire to return to the "tranquility" of the university.
- Retirement seems more attractive than it did one year ago.
- This phase falls during a time when other school events are taking place (parent conferences, evaluations, etc.)
- Classroom management skills are not a major issue, but now seem like distractions from the tasks of teaching.
- Introducing new materials and ideas seems stifled and difficult to fit in.
- Previous year on campus has no recognition of importance from the administration, students, or other faculty members--considered to be vacation time.
- This is the toughest phase for any returning TIR.
- The new TIR does not call or visit anymore.
- Difficulty answering emails and staying in contact with mentees and the project.
- Continued changes in the project leadership contribute to disconnect.
- Brief renewal by attendance and participation in the fall conference.
- Cannot find time to participate in on-campus activities when invited.
- Personal journal and postings to the list-serve are no longer a priority.

Mentoring Reference Manual

Stages of a Returning TIR's First Year Back (continued)

4. Rejuvenation (January-April)

- The winter break provides hope for the returning TIR who was losing it before the break.
- School breaks and university breaks differ and do not facilitate renewed contacts.
- Return to school rested and have had time to reflect.
- End of first semester and new faces in the classroom provide new challenges.
- Classroom routines have returned to instinctive levels.
- Focused on developing curriculum, long term planning, and strategies to use in the classroom.
- Planning for attendance and presentations at regional and state professional meetings.
- What happened to the spring PhysTEC meeting?
- Questions from mentees have all but stopped.
- Planning vacation trip for spring break just like the students.
- By the end of this phase, teachers will begin questioning if they can finish the curriculum and how well their students will do on end of the year testing

5. Reflection (April-May)

- During the last six weeks of school, the new teacher will reflect on the successes and failures of the school year
- Assessing the level of project participation and mentee support becomes a project priority.
- Wonder about the value of continued participation in the project.
- University finishes a month before school is out, this is a new frustration that was not evident prior to becoming a TIR.
- Employment changes for mentees suggest concern for the level or lack of mentoring support.
- Begin exploring changes in their curriculum and plans for the following year
- This phase sends them into a new phase of anticipation

6. Anticipation (May-June- through summer)

- There is anticipation for the next year of teaching and the new classes the teacher will have.
- End of semester exams, retirement parties, and packing up room for summer signal clear termination of activities for the year.
- Excited about the summer meetings and seeing other TIR's again.
- Looking forward to doing professional presentations at the summer meetings.
- Some interactions with the new TIR planned.
- Closing party for the current TIR.
- Looking to the new year and brainstorming over the summer what the anticipated changes could be.
- Enter the new year with the same old idea that they can make difference at least one more time.
- This phase continues through the first few weeks of school.
- What is this network of mentors and mentees about?

Mentoring Reference Manual

Mentoring Reference Manual

Identifying and Establishing a Mentoring Relationship

Find Potential Mentees (Identification of candidates):

- Student teaching (intern) lists from general education
- Graduation lists with license and majors indicated from university
- New teacher hires from professional development schools network
- Referrals from faculty, TIR, and other sources

Contact Potential Mentees (Information/invitation to participate):

- E-mails using university system to recent graduates and student teachers
- Personal letters to home addresses
- Personal phone calls
- Letters and/or e-mails to new science teachers in surrounding school districts
- On-campus meeting prior to graduation of physics teaching majors

Establishing Professional Mentor/Mentee Relationship:

- Send formal introduction with invitation to new teacher.
- Send formal introduction with request for a meeting with the new teacher's principal.
- Schedule initial meeting with the mentee to discuss the project commitments.
- Confirm participation in project to mentee and principal in writing (e-mail is okay).
- Schedule the first classroom visit/observation and debriefing.
- Provide orientation to communication channels through the university and project.
- Identify and provide immediate need "new teacher" materials not provided by school.
- Hold an "away from school" meeting early.
- Recognize that you are asking permission to be a "disturbance" in the new teacher's classroom. It's their space, their students, and their responsibility.

Mentoring Reference Manual

Identifying and Establishing a TIR Relationship

Finding Potential TIR's (Identification of candidates):

- Begin this process prior to mid-terms during the first semester.
- Consider the members of the TAG committee or candidates they recommend.
- Identify local master "physics" teachers with active relationships with the physics department.
- Check-out regional/state/national physics teacher "leaders" and/or award winners.
- Use referrals from the university faculty, the current TIR, and other sources.
- Create a list of candidates with contact information, recommend multiple candidates.

Contacting Potential TIR's (Information and invitation to participate):

- Begin this process prior to the end of the first semester.
- E-mails or letters to TIR candidates introducing program and requesting a time for a personal visit by university faculty and current TIR.
- Request current resume (vita) from each candidate.
- Telephone conversations can be used for logistical arrangements.
- Classroom visits and observations need to be included.
- Determine interests and potential contribution(s) of individual candidates.
- Eliminate candidates that are not interested ASAP.
- Involve the current TIR as much as possible to develop sustainable relationships that will support transition training.

Mentoring Reference Manual

Establishing New TIR Relationship:

- Select the most qualified, that is available and interested, TIR candidate.
- Send a formal invitation to participate to the selected TIR.
- Send a formal introduction with request for a meeting with the TIR and their principal to describe the project, the TIR role and commitments.
- Establish the method of communication to be used with the TIR candidate's school district administrators.
- Determine the appropriate administrators to facilitate the requests for leave and to enter into and approve the financial contracts.
- Schedule initial meetings with the current TIR and the PPI to discuss the project commitments.
- Recognize that PhysTEC calendars, university calendars, and public school calendars do not necessarily align. Do not mess up each other's deadlines. Know and anticipate potential delays caused by vacations and term breaks.
- Recognize that the TIR is professionally "at risk" and is usually "very worried" about losing fringe benefits and about being able to return to the same position that they are leaving.
- Recognize that school districts do not like to lend-out their best master physics teachers. You must be able to produce tangible benefits and services to the school district.
- Provide the TIR candidate with official project documents as soon as possible, usually after the formal agreement is established with the TIR and school district.
- Provide orientation to communication channels through the university and project.
- Invite the TIR candidate to participate in as many spring activities as their schedule allows.
- Provide a structure and planned TIR training at the PPI site.
- Plan for and attend the summer PhysTEC meeting with the mentees, former TIR, new TIR, and PPI representative.
- Develop the new MOU, I/M plan, and TIR Job Description and Expectations together with the former and new TIR's.
- Provide funding support for the former and new TIR for on-campus collaboration and orientation prior to the summer meeting.

Mentoring Reference Manual

Suggestions for Building Trust

- **Avoid Biases**
 - “be like me syndrome”
 - The new teacher needs to implement ideas and strategies that are commensurate with his/her individual style.
- **Avoid domination**
 - The assistance provided to a teacher should be interactive.
 - The mentor should be a supporter and guide for the new teacher, rather than a prescriber.
 - The mentor is not a supervisor, but a colleague.
- **Be a listener**
 - Listening is a key to communicating.
- **Keep things confidential**
 - A breach of confidence will destroy any trust that has been established between the mentor and the new teacher.
- **Be sincere**
 - The mentor should be sincere when providing assistance and should be aware of nonverbal gestures and actions that might communicate insincerity (lack of eye contact, arriving late for appointments etc.)

Mentoring Reference Manual

Consulting to Coaching Rubric

Adapted from *Mentoring Matters: A practical guide to learning-focused relationships* by Lipton and Wellman

	Consulting	Collaborating	Coaching
Initiator	<ul style="list-style-type: none"> • Beginning teacher asking for assistance • Mentor observing need for assistance 	<ul style="list-style-type: none"> • Either or both the beginning teacher and mentor 	<ul style="list-style-type: none"> • Beginning teacher • As relationship builds; could be mentor
Purpose	<ul style="list-style-type: none"> • Provide information and/or technical assistance 	<ul style="list-style-type: none"> • Share ideas • Problem-solve 	<ul style="list-style-type: none"> • Improve instructional decision-making • Increase reflective practice
Focus	<ul style="list-style-type: none"> • Specific issue that initiated the request • Logistical information about district, school, policies and procedures • Pedagogical knowledge 	<ul style="list-style-type: none"> • Support growth and improvement of practice • Reciprocal 	<ul style="list-style-type: none"> • Nonjudgmental support • Planning • Reflecting • Problem-solving
Direction of the focus	<ul style="list-style-type: none"> • Mentor assisting beginning teacher 	<ul style="list-style-type: none"> • Reciprocal 	<ul style="list-style-type: none"> • Mentor coaching beginning teacher • As relationship builds; roles can change depending on need
Actions	<ul style="list-style-type: none"> • Providing resources • Offering information and directions • Giving suggestions 	<ul style="list-style-type: none"> • Brain-storming • Co-planning • Co-teaching • Exchanging resources • Engaging in action research 	<ul style="list-style-type: none"> • Learner-focused conversations • Searching for insights into professional practice
Language	<p>Telling, guiding another</p> <ul style="list-style-type: none"> • Pay attention to... • You should... • It is important that... • Keep in mind... 	<p>Exploring together</p> <ul style="list-style-type: none"> • We might... • Let's look at... • How might this affect... 	<p>Extending thought, reflection</p> <ul style="list-style-type: none"> • What might be some ways to... • What are some additional possibilities... • What are some connections between...

Mentoring Reference Manual

Guidelines for a Coaching Conversation

<p>Plan</p>	<p>I. Preparation <i>Mentor teacher sets the stage for a productive interview process by employing active listening and paraphrasing.</i></p> <ul style="list-style-type: none"> • Mentee identifies the standard, principle, practice, or strategy for observation. • Goals of the session are clarified. • Indicators of success are identified and agreed upon.
<p>Debrief (mentee)</p>	<p>II. Mentee's initial reflections on lesson, event, or portfolio activity <i>To support reflective practice of the mentee it is important for the mentee to begin the session, rather than for the mentor to begin with a report of the observations.</i></p> <ul style="list-style-type: none"> • Mentor withholds judgment during this activity. • Mentor encourages mentee to state things, items, and events that are positive and that meet the indicators of success. • Mentor uses active listening, paraphrasing, and direct questioning to encourage elaboration and presentation of data to support the mentee's opinions relative to the positive statements. • Mentor encourages the mentee to state things, items, and event that are in need of more attention to meet the indicators of success. • Mentor uses active listening, paraphrasing, and direct questioning to encourage elaboration and presentation of data to support the mentee's opinions relative to the need statements.
<p>Debrief (mentor)</p>	<p>III. Mentor responds to the mentee's initial reflections <i>To positively support professional growth of the mentee focus on the data objectively.</i></p> <ul style="list-style-type: none"> • Validate accurate points in the mentee's initial reflection. • Present observable data (observation of the lesson presentation, a written document created by the mentee, the mentee's portfolio, a specific journal entry, etc.). • Check for understanding of offered information. • Observe body language and ask for and encourage questions. • Clarify comments as needed.
<p>Reflect (mentee and mentor)</p>	<p>IV. Analysis of lesson, event, or portfolio activity <i>To support in-depth analysis of the selected activity, collaborative work with the mentee will facilitate growth in the reflective process.</i></p> <ul style="list-style-type: none"> • Summarize impressions. • Recall data and supporting information. • Compare planned results (meeting a standard, movement on a rubric) with the achieved results. • Analyze, infer, and determine cause and effect relationships. • Draw conclusions. <p>V. Application of new knowledge</p> <ul style="list-style-type: none"> • Design new goals or readopt current goals. • Determine action steps to reach goals.
<p>Reflect (mentee and mentor)</p>	<p>VI. Mentoring process feedback and reflection <i>To strengthen the mentoring relationship using collaborative reflection.</i></p> <ul style="list-style-type: none"> • Set aside the work discussed during the process. • Address the following questions Did we practice active listening? Did we practice effective questioning techniques? What part of the process was most comfortable and most uncomfortable? On what part of the process do we need to focus to work together more effectively? Incorporate aspects of the process needing attention in planning the next observation.

Mentoring Reference Manual

Consulting, Collaborating, and Coaching Role-playing Prompts

I. PPI to the PhysTEC management team

1. We cannot find a TIR, what do you want us to do?
2. How can we know what course revisions will be enough?
3. If inquiry can be described as a continuum from totally teacher directed to totally student directed, what constitutes PhysTEC inquiry?
4. The Teachers college is not interested in the impact of content revisions in the physics courses; do they really need to be involved?
5. How can we continue to keep former TIR's active and support more mentees without increasing the budget?
6. How in the world can we assess teacher retention in a six-year grant?
7. The university has increased the sizes of the sections of the PhysTEC courses so that our original initiatives and improvements are all but eliminated, what can you do to help us?
8. How can I ask faculty members to become involved in field experiences of pre-service and in-service teachers without buying out part of their time?

II. TIR to the PPI

1. Who are the teachers that you want me to mentor?
Is everything set-up with their instructors/schools?
How will I be able to mentor teachers from my classroom?
2. How can I provide content mentoring in physics to elementary teachers?
3. I'm not a high school physics teacher, how am I supposed to mentor pre-service or novice physics teachers?

Mentoring Reference Manual

4. When would you like for me to begin doing observations of faculty members to help them improve their teaching?
5. I am going to need to stay in my classroom to teach part time while I am a TIR. Will that be a problem?
6. Which courses do you want me to teach at the university this semester?
7. I have never presented at a professional meeting, why do I have to do it now?
8. The science methods teacher does not seem to be interested in my interacting with the students. Should I call her department head or the dean of the college?

III. Novice Teacher to the TIR

1. I really don't have any time to meet with you or to go to meetings. I am spending all my spare time getting ready for classes. Why are these meetings so important to you?
2. My science department head told me to just do the worksheets and tests that come with the adopted textbook. Should I go to the teacher's association representative?
3. What am I supposed to do about these state standards that don't make any sense?
4. How much time should I spend on kinematics?
5. Could I have a copy of your course outline, worksheets, and tests?
6. Why do I need to send you things from my journal, those are my personal thoughts?
7. Will you be teaching my class when you come to visit?
8. The superintendent's kid is in my class and has been complaining to my principal, what should I do?
9. I heard that the professional meetings were just sales pitches for someone's books and/or lab equipment, how can that help me?
10. After this year I need my vacation, why do you need me to attend the summer PhysTEC meeting?

Mentoring Reference Manual

IV. New TIR to Former TIR

1. If we are supposed to improve the retention of physics teachers, why did they revise a course that physics teachers never take?
2. Did you teach a full load of classes at the university? That doesn't seem like much to do. What did you do with all your free time?
3. If the physics TA's teach the labs and none of them ever intend to become teachers, how can they model inquiry instruction?
4. Which faculty member took you around to meet the science ed faculty and the college of ed faculty that you worked with?
5. You don't really believe that it is important to write a monthly journal entry to the list-serve, do you? Where are yours?
6. I can't figure out who is in charge. Who is my "supervisor"? How will I be evaluated? When will that happen? What time do I have to be in the physics building? When can I leave? Where do I sign-out?
7. What is going to happen at the summer meeting? Why do we need to go all that way to figure out what I am going to do on campus next year.

V. Former TIR to Returned/Retired TIR

1. Why can't I stay on campus for another year, I like this job?
2. Should I retire, I'm not sure that I can face those kids again?
3. I don't know where I will be teaching next fall, what am I supposed to do now?
4. Were your superintendent and principal glad that you returned?
5. What kinds of presentations about your TIR experience were you asked to make to the faculty at your school?
6. What new activities and strategies did you introduce as a result of your campus experiences? Can I have a copy of them?
7. How do I choose which teacher(s) to mentor?

Disclaimer: The preceding three pages of prompts are intended to support the following role playing activity. The specific questions and/or their answers are a mechanism for stimulating thought and personal reflection and are not an assessment or editorial comment about any person, component, or institution involved in the PhysTEC project.

Mentoring Reference Manual

Reflective Thinking, Writing, and Coaching

Level of reflection	Content of reflection	Purpose of reflection	Sample questions to focus thinking and writing	Desired outcome of reflection process
Technical Reflection	Reference the experience	<p>To describe the experience in terms of</p> <ul style="list-style-type: none"> • Who • What • Where • When 	<p><u>Who</u> were the students/colleagues involved in this experience? <u>What</u>...behaviors occurred? standards are addressed? evidence of skills do I have? <u>Where</u> did this take place? classroom; coaching conference, staff development, etc. <u>When</u> did this occur? time of year, in relation to unit of study, in relation to current context, etc.</p>	To factually capture the artifacts and evidence of the experience with a focus on behavior, content, and skills
Contextual Reflection	Analyze the experience	<p>To view the factual accounting of the data by looking at the context of the actions involved; thinking focuses on the</p> <ul style="list-style-type: none"> • Why • How 	<p><u>Why</u> did this occur as it did? Why did I choose to do and say these particular things? <u>How</u> did what I know from experience influence this event? How does what I know about the developmental level of these students drive my behavior? How does what I know about content and standards (student, teacher, mentor standards) drive my behavior?</p>	To look at present practice and alternative choices and reasons for particular choices
Dialectical Reflection	Apply analysis to future practice	To think deeply about practice and to develop strategies for personal/professional change	<p>How will I utilize this information/data and apply it to my teaching/mentoring practice? What new understandings do I have of myself as an education professional? What new goals will I set for myself? What strategies will I develop and use based on the data and analysis?</p>	To improve and transform practice; to make choices based on data analysis, standards of teaching and learning, and research conducted

Mentoring Reference Manual

Reflection Analysis Rubric

Level of Reflection	Comments / Notes
<p>Technical:</p> <ul style="list-style-type: none">-Reference to experience-Objective description-Who, what, where, when	
<p>Contextual:</p> <ul style="list-style-type: none">-Analysis<ul style="list-style-type: none">-Why did things occur as they did-How was this event influenced by experiences-Evidence of immediate change	
<p>Dialectical:</p> <ul style="list-style-type: none">-Transformation-How to improve practice-Evidence of implications for the future	

Mentoring Reference Manual

PHYSTEC COMPONENTS CHECKLISTS

<p>BRIDGES</p> <ul style="list-style-type: none"> ○ Pursue multiple linkages between Schools of Education, Physics Departments, and practicing teachers in the field and their school districts <ul style="list-style-type: none"> • <i>Collaborative activities with Department of Education</i> • <i>TAG activities</i> • <i>Connections to school districts</i> <p>CONTINUUM</p> <ul style="list-style-type: none"> ○ Develop and promote programs to recognize that a continuum of efforts, including recruitment, coursework, practical experience, and mentoring are necessary to successfully empower students to become engaging physics and physical science teachers <ul style="list-style-type: none"> • <i>Recruiting activities</i> ○ Provide experiences for future teachers that enable them to become successful advocates for physics and physical science education¹ <ul style="list-style-type: none"> • <i>Mentoring activities</i> 	<p>TIR recruitment and engagement</p> <ul style="list-style-type: none"> ○ Utilize the expertise of K-12 teachers to inform educational directions with realities of the classroom and to connect physics departments with K-12 classrooms <p>ENGAGEMENT</p> <ul style="list-style-type: none"> ○ Involve physics and education department faculty in transforming courses and curriculum to reflect active learning strategies used in successful K-12 classrooms <ul style="list-style-type: none"> • <i>Introductory PhysTEC course to apply content assessment instruments</i> • <i>PhysTEC education course to apply attitude instruments</i> • <i>RTOP of a minimum of one Physics course (this year) and one Education course (this or next year)</i> • <i>Not every PhysTEC course needs to be assessed (choose a selection of courses that will best improve and document the project and help influence local attitudes), but every assessment should be reported, and fed back to instructor, department (or departmental group), and project</i> • <i>Describe courses where new or continuing reform efforts will be mounted and how these will be assessed</i> • <i>IRB paperwork</i> • <i>Faculty travel to National meetings</i>
<p style="text-align: center;">PhysTEC components addressed</p> <ul style="list-style-type: none"> <input type="checkbox"/> #1: Collaboration <input type="checkbox"/> #2: Teacher in Residence <input type="checkbox"/> #3: Physics Course Revision <input type="checkbox"/> #4: Science Methods Revision <input type="checkbox"/> #5: Mentoring <input type="checkbox"/> #6: Field Experiences 	<p style="text-align: center;">INTASC Principles addressed</p> <ul style="list-style-type: none"> <input type="checkbox"/> #1: structures of the discipline(s) <input type="checkbox"/> #2: student development <input type="checkbox"/> #3: diverse learners <input type="checkbox"/> #4: instructional strategies <input type="checkbox"/> #5: motivation and behavior <input type="checkbox"/> #6: communication techniques <input type="checkbox"/> #7: plans instruction <input type="checkbox"/> #8: assessment strategies <input type="checkbox"/> #9: reflective practitioner <input type="checkbox"/> #10: relationships

Mentoring Reference Manual

Reflection Analysis PROMPT 1:

"Well, I am finishing up the chapter on the states of matter and I am getting ready to start waves and was hoping you could come down and help me get going on this next unit. However, I have never taught waves (outside of the lab in your class) and could use some ideas for labs, activities and basic strategy for how to present the material and tie it together and what you emphasize."

RESPONSE:

Not a problem. Glad to help. I don't think it will be necessary to visit. I already gave you a copy of my course curriculum map which included the unit on waves. That curriculum map is already integrated with the text book that we both use. If you follow the curriculum map and the teacher's guide for the chapter on waves, you should be fine.

Here are the key items, in case you lost your copy:

- Identify how waves transfer energy without transferring matter.
- Contrast transverse and longitudinal waves.
- Relate wave speed, wavelength, and frequency.
- Relate a wave's speed to the medium in which the wave travels.
- Describe how waves are reflected and refracted at boundaries between media and explain how waves diffract.
- Apply the principle of superposition to the phenomenon of interference.

You already know that I do not use the labs that came with the textbook. I will send you a copy of the labs that I use with that chapter. Be sure to do the ripple tank labs after demonstrating the slinky. That's the only way surface waves should be introduced. Make as many copies as you need for your students. If you have any questions about what the results should look like or need answers to the lab questions, just let me know.

Be sure to make all your students draw and label pictures of transverse and longitudinal waves. The only problems that are important are numbers 5, 6, & 7 on page 335. The rest of them will be too hard for your students. Let me know if you need a test for that chapter as well. You can use mine.

If you still think that I need to come down, I will bring my springs and slinkies and teach your physics class that day. That will give you time to prepare for the rest of the chapter.

This should be enough help. Thanks for asking.

Yours in physics,
Mike Wolter

Mentoring Reference Manual

Reflection Analysis PROMPT 2:

"Well, I am finishing up the chapter on the states of matter and I am getting ready to start waves and was hoping you could come down and help me get going on this next unit. However, I have never taught waves (outside of the lab in your class) and could use some ideas for labs, activities and basic strategy for how to present the material and tie it together and what you emphasize."

RESPONSE:

I'm glad to hear from you. I too am getting ready to start the chapter on waves. Why don't we get together after school on Monday? Bring the materials that you have developed and any ideas you have for the wave chapter. I will bring my folders of stuff with me and we can work our way through the chapter and decide what we are going to cover and what labs we are going to do. Since we have already exchanged course outlines, we should be able to recognize where problems with some of our objectives for this chapter will arise for our students by looking at what happened in the chapter on the states of matter.

I saw something at the state convention about waves that we might like to look at. I will try to bring that as well. How many students do you have now? We should plan how they are organized in lab groups. Last chapter I had to use groups of four because of an equipment shortage. At least one student in each group had nothing to do. It will be better to use smaller groups, even if we need to plan for more than one lab going on at the same time.

My personal experience with this chapter is that it takes students about three days of my doing presentations and demonstrations before they can tell the difference between transverse and longitudinal waves. I have always wondered about when I should do the demonstration with the slinky and when I should use the ripple tank. What do you think?

As a final item, I would like to go over the solutions to the problems on page 335. Let's take these up as homework and compare how our students do on the chapter test with how they did on this problem set. We should be able to determine how valuable the problem practice is after that.

See you on Monday. I hope you have some new ideas.

Yours in physics,
Mike Wolter

Mentoring Reference Manual

Reflection Analysis PROMPT 3:

"Well, I am finishing up the chapter on the states of matter and I am getting ready to start waves and was hoping you could come down and help me get going on this next unit. However, I have never taught waves (outside of the lab in your class) and could use some ideas for labs, activities and basic strategy for how to present the material and tie it together and what you emphasize."

RESPONSE:

Thanks for asking. Why don't we schedule some time together to talk about your ideas for the chapter on waves? It would be helpful to review your curriculum map and how it aligns with the state standards. You should pick out the specific standards that you will address in this chapter and suggest what types of teaching strategies you think would work best for each. The rubric you will use for evaluating those standards would also be helpful.

What did that speaker at the state convention say about wave motion? I remember that she talked about why students should work in lab groups of three and what the role of each student should be in the group. What did you think about her suggestions? One of the findings from PER (physics education research) is related to the value in using JITT (just-in-time) teaching strategies to assess the prior knowledge level of students at the beginning of a topic or even a class. Think about how you might ask students about waves before beginning the chapter.

When I observed you last year in student teaching with this unit, you were just following my lesson plan. It has become evident to me this year that you have moved way beyond that. Your ability to plan lessons that motivate and involve your students has been great to watch this year. As you plan for this chapter, I would like for you to include activities that support the diversity of learning styles exemplified by your students.

In your journal about the "states of matter" test, you were concerned about how important this chapter was in the end of course exam from the state department of education. We can look at the state wide results from last year and determine both the relative importance and the critical concepts. I am looking forward to seeing how you develop materials for this chapter. Most of the "old" physics teachers I know like to demonstrate waves on a large slinky. Didn't you say last year that you were working on a computer interactive on wave motion? Maybe that would be an alternative to the demonstration. Do you think that having all the students interacting on the computer simulations would be an improvement for replacing the usual teacher demonstrations?

Yours in physics,
Mike Wolter

Mentoring Reference Manual

Reflection Analysis PROMPT 4:

I have noticed that in nearly all your classes you regularly have students read passages aloud and then ask them to interpret what they have read. Why have you chosen to use this form of reading aloud? In what way(s) do you think this is beneficial to your students? Do you have a sense that they would not read the text materials otherwise? Tell me anything else that you want to in this regard.

RESPONSE:

It is so interesting that you bring up the reading because this is an issue that I have really thought a lot about in my teaching. As a student, when I was told to read a passage for homework, I never read it. If asked to do it in class, I could never concentrate enough to get anything out of the reading. The textbooks also used such technical language that I couldn't interpret what they were saying. I would attempt to read in class but would end up staring at the page until it seemed like enough time had passed that it would appear as though I'd read the text.

When I came to this school, I did not get to choose my textbooks. I came the year following adoption. As I read through the textbook myself, I found myself having trouble comprehending what they were saying. I felt it would do me no good to ask the kids to read and assume they'd understood the text. I also felt like my students were not adept at reading textbooks. They, like me at that age (and sometimes now), would read pages of text, finish, and have no idea what they had read. I decided that it would sometimes be important for us to read aloud and to stop after each paragraph or sometimes mid-paragraph and to review, discuss, interpret, and apply what they had just read. We also do this when I have them read individually in class (like when class is getting started and I have them read a page or two of introduction to a topic). We never read without immediately discussing it. I think it is important not only for their comprehension but also in teaching them how they should be reading textbooks: read a little, pause, reflect, associate, then continue.

I guess that's all I have to say about science reading right now. If I remember anything else I've thought about related to that topic, I'll let you know.

Yours in physics.
Mike Wolter

Mentoring Reference Manual

Reflection Analysis PROMPT #5:

Reflection Upon my First Year Teaching

I could have never been prepared for the challenges and victories that waited for me when I took this job. I started this job 9 months ago in the beginning of August. After 9 months of teaching, coaching, planning, grading, supervising, cheering, testing and retesting, the kids are about ready to go home and I am about ready to make it one year down (thirty or so to go). The move from student teaching to a permanent teaching position was a very eye-opening transition. No one was able to tell me what to expect, I had to find out for myself. What waited for me at my new school was an empty teaching position ready to be filled by someone with answers. On the first day of school I made up answers, I defined myself as a teacher and I documented that snap shot in a syllabus and in my daily activities. Now that the blur called the 2003-04 school year has gone by, I can rethink and rework some of the answers that I thought of during the first week of school. I would like to focus this reflection on a few of the big questions that surprised me during the first week of school.

1. Setting Classroom Rules and acceptable behavior.

August 13, 2003 is a very easy day for me to remember. It is the day that teaching changed from being something that I wanted to be into something that I was. On that day in August, 10 brave second year chemistry students marched into my classroom. They quietly sat down. The bell rang, and then it was my turn. No one told me what to do here. No one had critiqued these lesson plans. I was not simply mimicking what the kids had already been doing. This was new. This was my class.

In hindsight, I feel like I had about 15 important minutes to set classroom rules and acceptable behavior for the class. The students expected me to know exactly what I was going to do about late work, about tardies, about lab safety, about finals and about class participation. The class looked at me for answers to all of those questions. They wondered about how much they could get away with. I was of the opinion that it was my first day and I had time to establish rules later. I think I was wrong.

2. For what audience do I gear each class?

Over the first two days that I had students I saw about 90 students and I set out upon the task of learning names. As I was learning faces and names, I realized that each student was very different. Some were tall, some short. Some students had taken the class before, some hadn't. The bottom line is that my students were all going to learn/retain/comprehend at different rates, and now it was now my job as the teacher to decide what is normal. I saw physics classes of 20 students. Some of those students were incapable of reading a ruler, but others were taking a pre-calculus class. Some students needed numbers to make the physics make sense, and other students would run and hide whenever I took a calculator out. In an age of reality television, I had to decide who teach to and who just needed to get left behind.

Mentoring Reference Manual

This decision was a hard one because it seems very uncaring to leave anyone behind (G. Bush has also made this illegal). However, it is easy to realize that waiting for every student in my class to comprehend a certain subject was not the most beneficial plan. Deciding how much depth and how much repetition to use while trying to teach conceptual depth affected my lesson plans every day. Having a book and a set of standards is not very complete. A good course needs to have comprehension goals set into the planning so that the teacher, in this case me, knows when to move on and when to re-teach.

3. Designing the curriculum and personality for a course.

Since my school is a small school, I had four preps. This did not seem like a big deal, however I realized that I was the only teacher in that building who would ever teach physics or chemistry. I was by myself. It was my department. About two weeks before school started, I realized that I had to plan a course. There were no expectations placed on the course. There was very little of “this is how it has always been done”. There was just material to be taught, and I had to figure out the best way to teach. I planned for hours and hours. I used the State Academic Standards. I looked at the national standards. I looked at the Benchmarks and the ATLAS for a little help. But I kept coming back to the fact that I had complete control. I could teach what ever I wanted to whenever I wanted to teach it. I decided which labs were important and which ones were not. I had the freedom to teach the material in any order that I pleased. This freedom is refreshing for me now, but at the time it was overwhelming. Where do I start? What do I teach next? I can’t teach this because I skipped over that. I had to design curriculum for 4 different courses, and then I had to steer those courses so that I had ownership over them.

4. How can I fit into the school culture?

Of course all schools are different. All schools have long-standing traditions, and when the first 6-weeks was coming to a close at my school, I realized that I didn’t know the traditions. I had two advanced classes full of the best and brightest seniors that school had to offer. When it was time to put grades on the computers, most of these students had B’s and C’s. This had to be wrong. The students in my classes got A’s. They were the best. They had always gotten A’s. What came next was a tightrope walk between me doing what I believe was necessary to keep the integrity of the course, and acting upon the advice of colleagues who had been at that school for a long time.

I attended a mid-sized suburban school. I student taught in another mid-sized urban school. Now I was teaching in a school that graduated about 60 per year. Things were different. People knew me before I even walked into the school for my first interview. There was a hog barn on the premises. There were cows loose in the school lawn. The transition between teaching at a large school to teaching at a small rural school was an easy one. I am a strong believer that kids are kids everywhere. Teaching isn’t universal, but it’s close.

5. How to be Flexible.

Being a teacher means being flexible. Teenagers change their minds like little emotional metronomes. I enjoy and have built being flexible into my teaching style. However, this year at

Mentoring Reference Manual

my high school a whole new level of flexibility was necessary. Because of construction projects, I was to be kicked out of my room for about 6 weeks. During that six weeks I would teach from a cart and travel from room to room during other teacher's preps. I knew this and I planned on this. I rearranged the usual ordered curriculum in my classes to take into account the 6 weeks that I would be out of my room. I stuck parts of the curriculum that did not need a science lab in those weeks – everything would be fine. It is now been nearly 15 weeks since I have been in my room. This is being flexible.

Teaching has been rewarding for me. I saw three students grow very strongly academically and take AP tests. I have seen some students give up, and others sign up for more classes. I have seen good lessons and awful lessons. I have literally written hundreds of worksheets and activities on the computer, many of them will never be used because I was able to think of something better. I have put lots of energy into this year, and now I am tired. I am ready to start over. I will never forget what I have learned this year, but I have also learned that being a good teacher means not getting enough rest keeping a mental plan book operating in your brain at all times. I have woken up with lesson ideas. I have also ruined entire Sundays because I could not think about what to teach on Monday.

My evaluations have all been positive. The school system is very supportive of me. I am ready to build the science department here. There is no one here to push me however. It is me and the students. No one is telling me to improve. I am thankful for the PhysTEC program because it is a reason for other people to come into my classroom and help me improve.

Yours in physics.
Mike Wolter

Mentoring Reference Manual

Reflection Analysis PROMPT #6

Here comes an actual observation debrief.

Physics class activities:

Anecdotal notes: Demonstration of "pig mirror", Collection of signed grade sheets, Review of series and parallel circuit work from previous labs, Sample problem solutions and explanations, Completion of previous study guide and introduction of new model for parallel circuit problems. Class ended with homework assignment to do parallel problem set. After class visited new classroom being remodeled.

General comments:

It is getting harder to watch other people teach this late in the year. I am ready to get back to work. My one night class was not enough. That's about me.

The few times that I have visited this year it seems that you usually introduce topics with lab work or with interactive demonstrations. In this lesson it was clear from what you described and tried to get your students to respond to, that they had constructed series and parallel circuits and taken measurements on them. Do you find this approach seems to work better than introducing the topic before doing an investigation or lab about it? Have you done it both ways? If you had to describe your teaching, what percentage of the time would you say that you introduce new topics with an investigation?

For most students a lab has nothing to do with real objects and how they work, the diagrams of circuits do not look like anything they have ever seen if they have looked at circuits in radios or CD players or cell phones, or whatever. In addition the lab has nothing to do with what the book says or with what the problems are like. The challenge for the physics teacher has always been to help students find the bridges that link all these together.

The "Crocodile Physics" circuit builder makes an attempt by showing circuit elements that look like actual objects instead of like the standard component symbols. Even with that kind of link the "battery and bulb" issue still appears. Students just do not understand how things work.

The current standards in physics that relate to your teaching today do not mention Ohm's law but do call for the use of ampere and volt. The formulas for power are also included. At this point in the year it is hard to balance the minimal approach of the standards, with trying to fill in what was left out of the standards, with the conceptual development of your textbook, and with trying to do "good" physics that gives an intuitive and practical understanding of how simple circuits work. How much do you need to do? How much can you leave out? If you take more time here, what do you have to leave out later? All questions we answer almost every day.

As I watched you work I remembered the word models for the reciprocal law for parallel

Mentoring Reference Manual

resistances. I like to talk "the math talk" from time to time and I almost always do it here. It really annoys physics students to hear phrases that sound like their math classes. "The equivalent resistance of a parallel circuit is the reciprocal of the sum of the reciprocals of the individual resistances." Try to get students to turn those words into an equation. The other thing that I do with solving parallel resistances is to show the students how to use the reciprocal key to enter each resistance, then equal, then reciprocal again for the final solution. I would recommend the glass demonstration calculator to you, but you already know their shelf life is barely two years. I have been using a document camera with my classes to demonstrate calculator moves.

I had a picture in my mind of holding a "battery" in front of the class and having different students stand around the battery and connect to the top with one hand and the bottom with another in a three dimensional ring around the battery. Then parallel makes sense. Everyone knows that they are individually connected to the battery. The transition to a circuit diagram is still difficult. Using a physical diagram first is used in McDermott's work. Then individual circuit symbols are gradually introduced.

I was telling one of the physics faculty here how it was difficult for many of your students to use the lab links to help with the circuit diagrams and problems. He wanted me to be sure to tell you, that he remembers you doing the same lab and having the same trouble. I think he is starting to get PhysTEC silly.

Your use of the water in the pipes and the grocery store lines are typical models that physics teachers use. What I am trying to work on with my students in understanding current, resistance, and voltage in simple circuits is to not make currents look like they start in the battery where all the charges are found and proceed sequentially around the circuit until they encounter a branch. This is very hard to do with the way we usually teach simple circuits. To say that the charges are already distributed throughout the circuit and the battery causes them to move like a chain of bowling balls is not easy to understand. We already spent time describing matter as neutral so where did this chain of charges suddenly come from. These are some of the "misconceptions" that we unintentionally create. Let me know if you venture down this path in the next few days, especially if you have a neat way to help students make the transition.

One of the physics faculty members here had a toy that I wanted to bring to you, but he ran out last Saturday. It was a set of six "magic" marbles arranged in a triangle. Each marble has a magnet inside. It is virtually impossible to get the poles aligned again to sit and stay in the little dents in the triangular plate that comes with them. The magnetic poles keep attracting or repelling the other marbles. I was thinking about this toy in trying to show how a shift of one charge pushes on the next and so on with repulsive forces. The attractive forces tend to hold the loose charge in its place in the structure. This could even help with the "nano" speak that goes on here and is so hard to visualize what their "dots" could possibly be.

Even though you didn't think you were ready for today. The lessons moved well. You had materials and sample problems ready. The informal yet respectful nature of your classroom

Mentoring Reference Manual

reflects your success in working with your students this year. In addition, the young man who was trying to pass off his own signature as his parents never really was offended or challenged your recognition that he had signed it himself. Keep coming up with new ideas. Be sure to scrounge as many loose and discarded building materials as you can. You will need them for the lean years that always come.

The state education web network commission is as disappointed as I am in the lack of success with the web cameras. Hopefully when the renovation is done you can get back to trying to get yours to connect to the university. You might want to take it home for the summer and use it there, if your connection is fast enough. I am looking forward to receiving your evaluation and reflections. Drop by this summer when you get a chance. Also let me know about your plans for the summer meeting. Are you going to run a summer tennis camp?

Sorry that your second year enrollment dropped. If you "give away" grades, discourage the rigor of AP by switching your second year students to a non-AP course then you can improve enrollments a little as long as the other teachers don't suspect it. Of course I would never do that, unless I was looking at a year with four physical science classes and one very small physics class. I remember that year very well.

Yours in physics,
Mike Wolter

Mentoring Reference Manual

Reflection Analysis PROMPT #7:

What has it been like to be a mentor now that you are back in your classroom?

I remember from the summer meeting that we talked about several components of an effective mentoring approach. I thought that I understood the material and even found my manual when I began to work with one of my mentees. I am concerned about the end of the year reports and assessment of the mentoring experiences. One of my mentees has not contacted me once this year for help and has not attended any of the activities and meetings that were sponsored by the project. He usually does not respond to my emails either. My principal would not approve my requests for release time to visit my mentee even though the project was going to reimburse the school district for the substitute. I know that any attempt to collect data using that mentee survey form will just look like what I have been doing is a failure. There is even a rumor that this particular mentee is looking to leave teaching or at least to leave the school district.

Former TIR

Mentoring Reference Manual

Reflection Analysis PROMPT #8:

What did you bring back from your experiences as a TIR at the university that directly impacted your students?

Because of my experiences last year on campus, my principal decided that it would be a good time to introduce a new AP physics course in our school. When I found out about this at the end of the second semester of my year of residence as a TIR I thought that this would be a great opportunity to put into practice some of the things that we were trying to implement at the university. I took my copies of the revised lab manuals and the university physics textbook home and began to think about what I would be doing next year.

When I arrived at school in the fall I was quite surprised to find out that the school had purchased books for the new AP physics course that I had not seen before. When I talked to the principal he indicated that the sales rep had shown the listing of how the state standards were met by the textbook. In addition for the purchase of those books the school received a video projector for the teacher of the course to use. There was not much that I could do about that now, and I was glad to get the new projector.

As I developed my syllabus for the opening of school I went on the internet and downloaded the AP course description from the College Board. Then I checked the new textbook teacher materials for which chapters aligned with the AP course description. I also aligned the labs from the university lab manual with those same chapters. I felt like I was ready to go.

Several issues came up very rapidly. The number of chapters that I had to cover was almost twice what I usually covered in a normal school year. In addition the labs from the university lab manual used computers. My classroom has no computing facilities. The students that had been placed in the AP course had not had a physics course previously and had difficulty in their algebra and geometry classes. This was quite a challenge.

My only hope for covering the material was to do formal classroom lectures over each chapter then rewrite the labs with very specific directions and procedures so that the students could complete them in one class period. It was very helpful to have the lecture notes from the courses that I observed at the university. I was able to put those on the overhead for my students to copy.

Because most of the university labs had to use computers to do spread sheets I just talked about those experiments that I had observed at the university. That did help in giving more class time for covering all the material that we needed to cover.

In addition, I also used the FCI test with my AP class. The results were not so good. The results of the AP exam are not due back until the middle of the summer so I cannot tell you how well my students did yet.

As you can see, there were several useful things that I brought back with me from my experiences at the university, but they did not always fit as well as I would have liked them to do.

If you have any other labs that I could use, please send them to me to use for next year. I will probably have the same courses in the fall.

See you this summer at the PhysTEC meeting, maybe we can get in a round of golf one morning.

Yours in physics,
Mike Wolter

Mentoring Reference Manual

Videotape Analysis and Reflection

(Example Analysis Questions)

Adapted from: S.V. Drake, "Teacher Self-Evaluation Report," unpublished instrument, BSU.

- What "standards" did you plan to demonstrate with this video?
- Describe the degree to which you accomplished your goal:
- What are some of your personal idiosyncrasies?
- What can you do about them?
- What happens to your voice in different situations?
- What did you do to set the mood or climate for learning?
- Would you do anything differently?
- Analyze your questions. What do you notice in terms of quality, levels, wait time, your response to students?
- How well did you involve all students in responding and participating?
- Were there any equity issues?
- With what progress are you the most pleased?
- What areas do you believe you still need improvement?
- If this is not the first video, describe the differences that you are seeing in yourself as a teacher?

Mentoring Reference Manual

INTERSTATE NEW TEACHER ASSESSMENT AND SUPPORT CONSORTIUM

(INTASC)

Principle #1: The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students.

Principle #2: The teacher understands how children learn and develop, and can provide learning opportunities that support their intellectual, social and personal development.

Principle #3: The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to diverse learners.

Principle #4: The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills.

Principle #5: The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation.

Principle #6: The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom.

Principle #7: The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.

Principle #8: The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social and physical development of the learner.

Principle #9: The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.

Principle #10: The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

Mentoring Reference Manual

Standards For Mentors of Beginning Teachers--IPSB

KNOWLEDGE OF A MENTOR

The mentor:

1. Knows and understands exemplary standards-based practice in the classroom.
2. Knows and applies constructive collegial behavior such as appropriate roles of peers, active listening techniques, and modeling professional attributes.
3. Knows own learning and teaching styles, approaches, strengths and weaknesses and how to reflect on own teaching and learning.
4. Recognizes the linkage of P-12 student academic standards with the corresponding teaching standards for each content and developmental area.
5. Knows the INTASC core standards from the *Model Standards for Beginning Teacher Licensing and Development: A Resource for State Dialogue* (see reference statement).
6. Knows strategies for being a constructive observer such as asking appropriate questions for data collection, how to access data to foster self analysis within beginning teachers, and for improved instructional techniques in the beginning teachers' practices.
7. Knows how to support a beginning teacher in the construction of an induction portfolio which demonstrates standards-based practices.
8. Knows how to recommend and contact resources within the school, the community, the state and nation (e.g., colleges or universities, professional organizations, human service agencies, educational resource centers, Internet sites, consulting consortiums).
9. Knows major areas of research on teaching and of resources available for professional learning (e.g., professional literature, colleagues, professional associations, professional development activities, higher education).
10. Knows the stages of teacher development and possible affective needs of beginning teachers as they progress through the initial years of teaching.

Mentoring Reference Manual

DISPOSITIONS OF A MENTOR

The mentor:

1. Is committed to allotting time for personal and collegial reflection on practice.
2. Is enthusiastic about being a positive role model, coach, and mentor for beginning teachers.
3. Values the enrichment of learning that comes from the diverse backgrounds, values, skills, talents, and interests and from taking risks.
4. Has the personal attributes of being empathetic, caring, adaptable, and enthusiastic about teaching and learning.
5. Believes that all students can learn and perform at high levels.
6. Values the roles that open communication and trust play in building strong, productive collegial relationships and incorporates confidentiality, nonjudgmental dialogue and professional integrity into collegial relations.
7. Believes in education as a profession.
8. Is a positive influence on good morale within a school.
9. Values the opportunities that technology and new methodologies can provide for teaching and student learning.

Mentoring Reference Manual

PERFORMANCES OF A MENTOR

The mentor:

1. Draws upon colleagues within the school and other professional arenas to support his/her professional development.
2. Pursues professional development opportunities to access new content knowledge and instructional methods and to incorporate them into relevant learning situations for students.
3. Creates a supportive and reflective environment for addressing issues facing a beginning teacher and for analyzing teaching and learning.
4. Exemplifies standards-based teaching in the classroom.
5. Supports the beginning teacher in interactions with teachers, administrators, and parents.
6. Displays a sense of humor, hope and optimism, high expectations, and an ability to act as a catalyst for the learning of others.

Mentoring Reference Manual

Program Component: MENTORING	The establishment of a <i>mentoring</i> program conducted by TIR's and other master teachers to provide a valuable induction experience for novice science teachers.
NON- PERFORMING	<ul style="list-style-type: none"> • No mentoring program or activities are occurring.
POOR	<ul style="list-style-type: none"> • Mentoring is focused only on the TIR's replacement teacher. • Mentoring activities are limited to routine classroom management issues. • No direct classroom observation of the mentee occurs. • TIR had no training supporting mentoring activities.
MARGINAL	<ul style="list-style-type: none"> • One or two mentees are identified and supported by the TIR. • Some content mentoring is provided. • Contacts are maintained by e-mail and telephone. • Attendance at local and state professional meetings may occur. • TIR received minimal mentor training at the national meeting.
SATISFACTORY	<ul style="list-style-type: none"> • Three mentees are identified and supported by the TIR. • Classroom visitations occur and are supported. • Anecdotal evidence of content mentoring is provided. • Contacts may include planning for observations. • Attendance at local and state professional meetings occurs. • TIR received additional mentor training as part of the PPI orientation process.
GOOD	<ul style="list-style-type: none"> • A minimum of three mentees are supported by the TIR and other master teachers. • Classroom visitations are planned, focused on a topic, and provide follow-up feedback. • Qualitative evidence indicates that content mentoring is being provided. • Journaling may be a component of the mentoring activities. • Training for mentoring, classroom observation, and assessment is provided.
EXCELLENT	<ul style="list-style-type: none"> • Comprehensive mentoring support is provided to K-12 science teachers by the TIR and other master teachers. • Externally recognized professional mentor training is provided to the TIR. • Qualitative and quantitative evidence indicates that professional growth is a direct result of mentoring activities. • Attendance at local, state, and national professional meetings occurs. • Reflective journaling is an essential component of the mentoring process.