How To Teach Effectively

The Teaching Center of
The Department of Pediatrics
University of North Carolina School of Medicine

www.theteachingcenter.org

"For Doctors Who Teach"

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Preface

Teaching medical students, residents and faculty is a difficult task, and one for which most physicians have not been formally trained. Physicians are taught how to be clinicians and how to be researchers, but too often are expected to know inherently how to teach. The faculty of the UNC Teaching Center has written this monograph, has developed its website (*www.theteachingcenter.org)*, and has created its curriculum in order to improve the quality and efficiency of physicians' teaching. Our faculty believes that teaching well is not only fun, but essential to the success of individual learners, faculty, and academic programs.

Although successful teachers vary in their individual styles, they often utilize similar teaching strategies. They establish a positive learning environment, are concise, clear and well-organized when describing content and goals and objectives to their learners, are enthusiastic about their subject matter, promote interactivity, and welcome individual thought and discussion. Good teachers also summarize and repeat key points during and at the end of each session. The most effective teachers are those who involve their learners and encourage them to ask and answer their own questions; in so doing, they promote active learning.

It is difficult for teachers to find time to prioritize teaching. For the academician, the current focus on clinical and grant income is a clear-cut barrier, as is the resident 80-hour work week; for the practicing pediatrician, finding time to teach in the midst of office hours can be challenging. Using this monograph as a focused guide should help physicians overcome such barriers and teach more effectively.

Introduction:
Adult Learning Theory

It is stated throughout this monograph that teaching of adults must take into account adult learning theory. There are many theories of adult learning (1, 2), but those of Knowles (3), Vygotsky (4) and Schon (5) are particularly relevant to medical learning.

Knowles described seven principles of "andragogy," which he defines as "the art and science of helping adults learn" (3). He stated that effective teaching consists of establishing an effective learning climate, involving learners in mutual planning of relevant methods and curricular content, involving learners in diagnosing their own needs, encouraging learners to form their own learning objectives, supporting learners in carrying out their learning plans, and involving learners in evaluating their own learning (3). In other words, the best learning occurs when learners ask their own questions, and then find out ways to answer them. Teachers need to be the guides who facilitate the transfer of knowledge to learners; they need to remember that "teaching is not telling."

Social interaction and self-reflection are key components of adult learning. Vygotsky (4) stated that social interactivity is necessary to obtain full cognitive development, and that adults learn best in interactive "communities of learners." Schon (5) described two types of reflective practice. In medical practice, the first type of reflection, reflection-in-action, occurs when seeing a patient; resources utilized then include those immediately available such as textbooks, or asking a colleague to see the patient at the time of the visit so that a diagnosis can be reached. The second type, reflection-on-action, occurs later when the physician reflects about the patient interaction. Often colleagues are consulted, as are evidence-based resources such as doing a literature review or referring to educational websites. At the conclusion of this process, physicians then determine whether they will alter their practice in the future.

Teachers will be most effective if they understand that teaching must be practical and relevant, that learning needs to be personalized and self-directed, and that social interaction and self-reflection are key ingredients to adult learning.

Resources:

1. Kaufman, DM. *ABC of learning and teaching in medicine: Applying Educational Theory in Practice*. BMJ 2003;326:213-216.

2. Theory into Practice Database: tip.psychology.org/theories.html

3. Knowles MS et al. *Andragogy in action: applying modern principles of adult learning*. San Francisco: Jossey-Bass, 1984.

4. *Vygotsky, LS.* Mind in Society. Cambridge, MA: Harvard University Press. 1978.

5. Schon DA. *Educating the reflective practitioner: toward a new design for teaching and learning in the professions*. San Francisco: Jossey-Bass, 1987.

Section I:
How to Teach in Different Settings

Chapter 1: Clinical Teaching (Bedside or Office Teaching)

Clinical teaching refers to 1:1 teaching either at the bedside or in the office. Expectations need to be clarified on the first day. There are some general guidelines for all teachers to follow in clinical teaching, but teachers can choose from a number of potential strategies.

Day One Expectations

Goals and objectives of the rotation – either in written or verbal form – should be reviewed by both learner and teacher on the first day. The teacher should explain schedules, discuss any anticipated absences, review how teaching will occur and which patients will be involved, and clarify expectations about the timing of write-ups and presentations. Also, the scheduling of feedback sessions should be discussed at this time. Taking time to set expectations for both learner and teacher on the first day can be critical to ensuring a positive experience for both.

General Approach to Clinical Teaching

Teachers should teach in small bits – there will be many teachable moments during the day but not all need to be acted on immediately.

Restricting teaching to a few points allows the teacher to focus on specific points of interest and still see patients efficiently. Inherent in effective clinical teaching is the teacher's asking the "right" kind of question. Asking open-ended questions allows the teacher to be able to determine the learner's knowledge base, to test factual recall, and to determine the approach needed for each learner. Open-ended questions prompt the learners to go into detail in their answers; closed-ended questions can be answered with a one word response. Also, whenever teaching occurs it should be labeled: "Let me tell you what I have learned about this subject."

Teaching Strategies to be used in Clinical Teaching (1)

A number of teaching strategies can be used in clinical teaching. One of the most efficient is the one minute preceptor model, which contains five steps (2). The first step, after a brief history is given, is for the learner to make a commitment about what is wrong with the patient. The second step is to probe for supporting evidence for that diagnosis from the learner; this allows the teacher to understand the depth of the learner's knowledge. Third, the teacher tells the presenter what has been done right, and, fourth, corrects any errors that may have been made. The fifth step is to teach one general rule that has been raised by the patient.

Another effective teaching technique is to have learners make three-minute presentations (mini-presentations) on topics of their interest.

Another teaching strategy is to summarize what has been learned at the end of each day. The teacher might say: "I tried to teach you a lot of things today – what do you remember most about the things you learned?" This summary of the medical information shared need take no longer than five minutes, but will stimulate the learner's memory and interest.

Many other teaching strategies are used in clinical teaching, such as asking learners to write down on a note card every item about which they are unclear, doing a role play with patient check-outs restricted to three minute summaries, and having scavenger hunts for abnormal physical findings. The teacher can have a list of physical findings to give the learners at the beginning of the rotation and ask learners to confirm positive findings with an upper level resident or attending. It is not critical that one specific strategy be used; it is critical that the teacher be aware of the strategies that fit best for both teacher and learner.

Summary:

- Day One Expectations are critical to establish the proper learning environment:
  - Share goals and objectives; go over schedules for the rotation.
  - Explain the specifics of when and where clinical teaching will occur.
  - Schedule feedback sessions at this time.
- General Approaches to Clinical Teaching:
  - Teach in small bits.
  - Ask open-ended questions to stimulate discussion.
  - Label teaching when it occurs.
- Teaching Strategies for Clinical Teaching that could be used:
  - One minute preceptor.
  - Three minute "mini-presentations."
  - Review and summarize frequently and at the end of each day.

Resources:

1. Pediatrics in Practice: Teaching Strategies; www.pediatricsinpractice.org

2. Neher JO, Gordon KC, Meyer B, Stevens N. *A five-step "microskills" model of clinical teaching*. J Am Board Fam Pract. 1992 Jul-Aug;5(4):419-24.

Section I:
How to Teach in Different Settings

Chapter 2: Small Group Teaching

Examples of small group teaching include inpatient rounds, pre-clinic talks before continuity clinic, and sessions in introduction to clinical medicine. Effective small group teaching involves preplanning, day one orientation, a standardized general approach to the group, and choosing appropriate teaching strategies.

Preplanning and Day One Orientation

Just as in clinical teaching, it is important to be aware of existing goals and objectives of the educational session when leading small groups. If none exist, then they should be created as part of the preplanning process.

On the first day of the rotation, the teacher should explain schedules, discuss any anticipated absences, review how teaching will occur and clarify expectations about the timing of write-ups and presentations. Also, the scheduling of feedback sessions should be discussed at this time.

General Approach to Small Group Teaching

Creating an atmosphere for learning requires the teacher to ask questions in an open-ended, relaxed fashion, and lead the discussions at the learners' levels. Closed-ended questions (yes or no answers) can be used to follow up and are helpful in assessing learner knowledge levels. The major emphasis of small group teaching should be to promote interactivity and a positive learning environment. Throughout the session, the teacher should review and summarize content; at the conclusion of each session the learners can be asked to summarize the points they have learned.

Teaching Strategies that Can Be Used in Small Group Teaching.

Teaching strategies can include starting each session with an "icebreaker," such as having learners identify a picture of a rash, syndrome, or a blood cell, having learners share an interesting aspect of a case with the group, or having the teacher take a few minutes to discuss a specific topic.

As in clinical teaching, mini-presentations and case discussion can be used effectively in small group teaching. Cases can be real or contrived, but the most effective teaching occurs when a learner has seen the patient. Other small group teaching techniques include role-playing, brainstorming and buzz groups. Learners can play the role of faculty, parent, child, or resident; phone call role-plays can be quite effective. Also, asking learners to brainstorm about a topic as a group stimulates interactivity. Buzz Groups, in which learners divide into smaller groups and are asked to come up with a verbal report on a topic, also stimulate participation and group learning.

Other teaching techniques could include sign-out exercises in which learners are given cases to summarize to others in a time-limited fashion, or scavenger hunts for physical findings. Teachers can also use a "theme for the day" approach to teaching; for example, one day could be "developmental day," another day "immunization day," etc. Whatever teaching strategies are chosen, promoting interactivity and learner-driven questions will result in effective, efficient teaching experiences.

Summary of Small Group Teaching:

- Small Group Teaching is made more effective by:
  - Preplanning (with goals and objectives identified).
  - Clarifying expectations of learner on first day of rotation.
  - Setting a positive learning environment by encouraging interactivity.
  - Reviewing and summarizing frequently, particularly at the end of sessions.
- Teaching Strategies that promote interactivity in Small Group Teaching:
  - Use an "icebreaker" at beginning of session.
  - Consider Using: mini-presentations, case presentations, role playing, brainstorming and buzz groups, sign-out exercise, scavenger hunt for physical exam findings or diagnoses, and/or a "theme for the day" approach.

Section I:
How to Teach in Different Settings

Chapter 3: Large Group Teaching

Preparing an effective large group teaching session is difficult but often required of physicians – particularly those in academic medicine. A well-prepared and presented large group session (i.e., lecture, workshop, or directed discussion) can reflect one's teaching expertise.

Preparing a Large Group Activity

Planning a presentation usually needs to go through three phases: an initial planning phase, a presentation-development phase, and a final preparation phase. Initially, clarifying the level of the learners and establishing educational goals and objectives need to occur. Only then can effective teaching strategies be chosen and evaluation tools developed.

The presentation-development phase includes choosing an effective opening, which should highlight the relevance of the topic; the opening should also list the goals and objectives of the activity. Large group presentations often open with a case that exemplifies the topic. As part of this phase, the teacher should consider writing a draft outline of the body of the talk to ensure that the teaching strategies chosen for this activity fit the educational goals.

The final preparation phase is planning a strong summary and conclusion, which should refer back to the introduction, review the key teaching points, and suggest the avenues by which the audience can further pursue the learning objectives. Another element of the final preparation phase is a rehearsed presentation in front of peers.

Throughout the three phases of preparation of a large group activity, teaching strategies that promote active learning should be adopted.

General Approach to Large Group Teaching

In large group activities, the overall goal for the teacher is to be conversational, enthusiastic and explicit. Particularly in large group teaching, the audience's attention span can be very short. Consequently, the teacher should change pace at least every 15 minutes through using transition points, such as summarizing and reviewing material, showing pictures, graphs or charts, or returning to the case presented during the introduction. If possible, the lecturer should move around to show energy and enthusiasm, and should engage the audience with eye contact.

Teaching Strategies to Consider for Large Groups

During the introduction, case presentations or narrative vignettes can focus the topic. If PowerPoint slides are to be used, the number of slides should be limited to no more than one per minute; the slides should be simple and follow the rule of sevens (no more than seven words per bullet and no

more than seven bullets per slide); elaborate slides with unusual fonts or alarming colors should be avoided.

Directed discussion with learner interaction is more typically utilized in workshops but can also be effective during lectures. Opinion polls can be taken, a formal audience response system can be used and the audience can be asked to write a "one minute paper" about a topic during the talk. Problem-solving exercises for higher level cognitive topics can also be used. The audience needs to feel that the subject being discussed is meaningful to them – utilizing some of these teaching strategies will focus the discussion and promote self-reflection.

Summary:

- The three phases of Preparing a Large Group Teaching Exercise include:
  - An initial Planning Phase in which learners are defined, educational goals are established, presentation methods are selected and evaluation tools chosen.
  - A Presentation Development Phase includes an effective opening and choosing appropriate teaching strategies. Consider making a Draft outline.
  - A Final Preparation Phase in which a narrative script is developed and rehearsed and a strong summary and conclusion written.
- General Approach: Be as interactive if possible, show energy and enthusiasm; and review and summarize often.
- Teaching Strategies: Use case presentations, follow the "rule of sevens" if using PowerPoint, and use interactive techniques to promote active learning.

Section II:
Feedback and Evaluation

Chapter 1: Giving Feedback

Giving feedback is an essential component of effective teaching. Adult learning theory contends that, in order to gain new knowledge, a learner must act, reflect on that action, and then receive feedback. Feedback informs learners of others' perceptions of their performance. Feedback can occur in an informal way throughout the course of the day, but also should be done in a formal scheduled way at regular intervals.

General Approach to Giving Feedback

Each session should be labeled: "Now we are going to have a feedback session," and be characterized by attentive listening**.** Sessions should not conflict with other activities; should there be emergencies, or if the learner is post-call, the meetings should be rescheduled. At the beginning of the first session, it should be made clear that feedback is not evaluation (grading) but a way for self-reflection to occur. Often the teacher only needs to ask: "So, how are things going for you on this rotation?" Since learners often can be harsh on themselves, it is important to share with each learner an area in which they have excelled and be as specific as possible: "In your presentation today, I liked it when you……" Avoid comments like: "You are really doing well. Keep up the good work," because they lack specificity. At the conclusion of the session, you might ask: "Is there anything you would like to work on between now and the next feedback session?"

Giving "Constructive" Feedback

Unfortunately, at times it is necessary to give mixed or constructive feedback. This experience is difficult for both learners and teachers. Some useful verbiage might be: "Let me share with you what I have perceived" or "Here is some feedback that others have given me about you." Once an issue has been identified and discussed, an extra session in a few days may need to be scheduled. If improvement has been made, you need to say: "Your performance has been much better because……" Only one or two remediable topics should be addressed at any one constructive feedback session. At the end of such a session, the teacher should summarize the issues and ask the learner to develop a plan for growth and improvement.

Barriers to Giving Feedback

It is difficult to schedule time to give feedback. Another barrier is that some faculty are reluctant to give constructive feedback feeling that they don't know the learner well enough. Ironically, it is the feedback sessions that often allow teachers and learners to get to know each other better. All barriers need to be overcome if feedback is to be effective.

Summary:

- Giving feedback is an essential element of effective teaching and needs to be scheduled on day one of the rotation.
- Feedback needs to be labeled: "Now we are going to have a feedback session."
- Each session can start with the question: "So, how are things going for you on this rotation?" or "What do you see as your strengths……your weaknesses?"
- Teachers need to be specific, supportive, and attentive listeners.
- Sessions should be re-scheduled if the learner is exhausted, or if other emergencies compete with the teacher's time.
- Constructive feedback should be focused on one to two remediable areas.
- The goals of feedback should be to improve the learner's self-awareness and to provide specific ways that learners can change behavior.
- Whether giving positive or constructive feedback, consider ending each session with: "What things do you think you need to work on between now and our next session?

Resources:

1. Ende, J. *Feedback in Clinical Medical Education*. JAMA. 1983 Aug 12;250(6):777-81.

2. Pangaro, L. *A new vocabulary and other innovations for improving descriptive in-training evaluations*. Acad Med. 1999 Nov;74(11):1203-7.

Section II:
Feedback and Assessment

Chapter 2: Assessing Learners

Skillfully assessing learners presents a number of challenges for the medical educator. One challenge is to match learning goals and objectives with the assessment strategies used for each learner. A second challenge is that, based on instructions by accreditation bodies, the medical educator must also assess medical learners' achievement of levels of competency in six different areas: medical knowledge, patient care, communication skills, practice-based learning and improvement, systems-based practice, and professionalism.

A third challenge for the medical educator is that assessment tools need to be valid, reliable and feasible. Validity of assessment strategies means that learners can demonstrate improved performance after learning takes place (e.g., pre and post testing). Assessment tools are considered reliable if they reflect similar results among different observers for the same learner. Tools also need to be feasible – not all aspects of assessment can occur with a single assessment method.

Types of Assessment Methods

Direct Observation

Direct observation of student performance is an effective assessment strategy, but can be limited by subjectivity. Forms used to document observational assessments should be guided by behavioral anchors to minimize subjectivity. For example, observational evaluation forms should not simply include adjectives that describe performance (such as assessment of professionalism labeled as "outstanding, average, or below average"), but should specify behaviors that define outstanding, average, or below average (such as "maintains a professional appearance, maintains patient confidentiality," etc.). Educators should be familiar with how the goals and objectives are defined behaviorally and shape their observations and feedback for learners to match those terms.

Multiple Choice and Other Written Testing

Written tests are often a good way to test medical knowledge, but typically a poor way to assess communication skills or professionalism. They are feasible, inexpensive, and frequently used because of their objective measures of performance, but when used alone are incomplete.

Oral Examination

Oral exams can test medical knowledge and allow more opportunity to assess practice-based learning, systems-based practice, patient care and professionalism. Communication skills with families need to be assessed independently. At times, assessment of performance on an oral exam also can be subjective, limiting reliability.

Chart Review

This method allows for assessment of patient care, practice-based learning, systems-based practice, and some aspects of professionalism. Chart review can be used to evaluate written communication about patients, but cannot assure accuracy or effective communication with patients.

Procedure Logs, Case Logs, Portfolio Development

These methods allow for documentation of patient care and practice-based learning, but do not demonstrate quality of patient care or communication skills. They may or may not demonstrate aspects of medical knowledge or professionalism.

Standardized Patient Encounters, Objective Structured Clinical Exams (OSCEs), and Simulations

Depending on their level of sophistication in design, these robust assessment methods allow for demonstration of competence in any of the areas of competency that need to be assessed. What limits their use is feasibility, given the time and cost needed to accomplish them for each medical learner.

Summary and Conclusions:

Goals and objectives and the level of competency in six different areas need to be assessed for each learner in a valid, reliable and feasible way. No one method can do this; a combination of different methods of assessment needs to be used for each learner.

Resources:

1. ACGME Outcome Project, Key Considerations for Selecting Assessment Instruments and Implementing Assessment Systems. (Strengths and Weaknesses are outlined)

2. ACGME Outcome Project, Toolbox of Assessment Methods.

3. Vaughn, LM, Baker, RC, DeWitt, T. The Problem Learner. *Teaching and Learning in Medicine*. 1998;10(4): 217-22.

4. Toolbox for Assessing and Improving Teaching, Resources for Improving Teaching, Office of Educational Development, School of Medicine, UNC-Chapel Hill. (Actual forms that can be used for evaluating peers and faculty in different kinds of teaching.) www.med.unc.edu/oed/toolbox

Section III:
General Approach to Educational Scholarship

UNC SCHOOL OF MEDICINE

Chapter 1: Curriculum Development

Faculty members who plan educational activities need to be well versed in the basic principles of curriculum development. A curriculum for a course of instruction is the framework that directs the entire activity and helps to insure its success. Curriculum development, like any other creative endeavor, starts with planning and organization so that educational goals and objectives can be achieved.

Planning and Organization

Accreditation requirements for medical student and residency training programs now require that each curricular component (i.e., clinical rotation, lecture series, required experience, etc.) within a training program must have a competency-based curriculum so that faculty and learners know what is expected. In that light, faculty need to know the steps involved in planning instructional experiences. A competency-based curriculum is one in which competencies are stated as specific learning objectives, each of which is linked with a plan that describes how it will be acquired and how it will be measured.

Five-Step Process of Planning a Curriculum

The process of planning a competency-based curriculum starts with a ***needs assessment*** to determine why the instruction is important and to establish its priority among competing needs. Needs assessment also defines the level of the learners, and it articulates the desired outcomes and how they will be measured. The second step is the ***development of goals and objectives*** for the course of instruction, which are the educational steps that provide an organizational framework for the content to give clarity to learner expectations. In developing goals and objectives for a course, it is important to define first the overall educational goal and then develop specific learning objectives. Each objective should consist of a concise statement, and be limited to those which can be comfortably accomplished within the time-frame of the course. Each objective also needs to be linked to specific outcome measures.

The next step is the ***development of teaching strategies*** that fit the overall educational objectives. For example, a course which teaches higher level cognitive functions, such as acid/base concepts, may require several different approaches to reach each learner, whereas a curriculum on surgical procedures may best be taught with a precise simulation. The number of potential configurations of teaching methods, strategies, styles, and tools is extensive and includes: large group lectures; small group seminars; topic-based rounds; prepared study materials; computer-based learning; assigned readings; etc.

The fourth step, ***implementation of the curriculum***, involves determining the specifics of what must be done to make this course of instruction happen, such as the time line for the course, the required fiscal, administrative, and faculty resources, the physical space/facility requirements, and the technologic and equipment needs.

Evaluation is the fifth and final step and involves linking learner outcomes to evaluation techniques such as: (1) written and oral exams, (2) use of standardized patients for physical diagnosis (3), proficiency tests for skills acquisition (4), observed learner performance (i.e., procedures, exams, communication skills), (5) attitudinal ratings, (6) learner self-assessment interviews, and (7) evaluation of learner presentations. In addition, evaluation also includes establishing assessment techniques to evaluate the efficacy of the course of instruction. Examples can include learner feedback and a critique of the implementation process.

Summary:

In summary, it is important to develop a specific curriculum for any course of instruction. The use of five basic steps in the development of a curriculum helps insure its effectiveness:

- Needs assessment.
- Development of an overall Education Goal with supporting Learning Objectives.
- Selection of appropriate teaching methods.
- A careful implementation plan.
- Development of evaluation techniques to include learner achievement and program effectiveness.

Resources:

1. Harden RM. *Ten questions to ask when planning a course or curriculum*. Med Educ. 1986 Jul;20(4): 356-65.

2. Snyder S. *A program to teach curriculum development to junior faculty*. Fam Med. 2001 May;33(5): 382-7.

3. Workbook for Educational Program Planning. Excellence in Teaching Series, University of North Carolina at Chapel Hill School of Medicine. Chapel Hill,NC, 2003.

Section III:
General Approach to Educational Scholarship

Chapter 2: How to Create a Teaching Portfolio

Teaching Portfolios consist of three components: a reflective statement, a documentation of teaching activities, and an evaluation of teaching by peers and learners. It is recommended that anyone pursuing an academic career keep at least a "working" teaching portfolio which contains all evaluations by all levels of learners. This allows the faculty member to document teaching activities, and, after review of the evaluations, to promote self-reflection. If prepared for promotion, the formal "summative" Teaching Portfolio should not exceed 20 pages in length.

The Three Components of the Teaching Portfolio

The first component, a 1-3 paged reflective statement, can be a challenge to write. It should contain the faculty member's goals, teaching roles and responsibilities, self-assessment of success, and plans for improvement. The reflective statement should concentrate on the teaching philosophy of the teacher and be supported by examples of teaching strategies used; it should not be a summary of teaching strategies alone. The teaching philosophy might often incorporate different aspects of adult learning theory. In other words, faculty members should indicate how their teaching philosophy promotes self-learning and encourages learners to answer their own questions. Examples of teaching strategies might include buzz groups, case discussions, brainstorming, role play, mini-presentation and reflective exercises. A sample reflective statement is available on our website.

The second part of the Teaching Portfolio should be a chronological listing of the teaching activities of the faculty member, and should include, as much as possible, the number of students taught, types of content and amount of time spent in each activity. It should not include anything that would be listed in the *curriculum vitae*. This section should also discuss curriculum design and development, types of groups taught (small versus large groups), mentoring done, educational research done, and educational administrative roles.

The third part of the Teaching Portfolio is a summary of evaluations done by learners, peers and others over time. These can be qualitative or quantitative ratings, and should include evaluations of different aspects of teaching. For instance, evaluations of clinical teaching, small group and large group teaching should all be included. Self-assessments could accompany each of these external evaluations. In addition to listing educational evaluations, this third section of the Teaching Portfolio should also include, if possible, what has happened to the learners that one has taught. Have they become practitioners, academics, both? Even a listing of specific students and their current job titles could be entered in this part of the Teaching Portfolio.

The Teaching Portfolio should not include patient testimonials, PowerPoint presentations, email comments, newspaper articles, or copies of awards or certificates.

Summary:

- The Teaching Portfolio is a valuable way to document and an important tool for self-reflection; it should not exceed 20 pages in length.
- The Teaching Portfolio has three components:
  - The reflective statement should reflect the teacher's philosophy supported by examples of teaching strategies used. It should be 1-3 pages in length.
  - The listing of teaching activities should specify the type of teaching, mentoring, and any administrative educational tasks.
  - Evaluations by peers and learners should cover all types of teaching and include, if possible, what has happened to the learners taught.
- The Teaching Portfolio should not include emails, personal letters, PowerPoint presentations, copies of awards and certifications, nor should it include articles written by the teacher.

Section III:
General Approach to Educational Scholarship

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Chapter 3: Scholarship in Education

To define an educational work as scholarly, it must advance knowledge, be disseminated, and be open to review. Educational scholarship can involve products such as a new curriculum, new methods for information organization or delivery, educational interventions, and educational research. In order to be promoted in academic centers, faculty on the clinical educator track will need to demonstrate more than teaching effectiveness alone – they also must demonstrate works of educational scholarship.

Curriculum Development and Educational Interventions

When a curriculum is developed and an educational intervention planned, the faculty member's next steps should be to determine how it will be disseminated and which evaluation tools need to be developed. The effectiveness of any curriculum needs to show statistically significant improvement in outcomes.

The most persuasive outcome, though the most difficult to prove, is the improved health of patients as a result of an educational intervention. Other ways of showing the successes of educational interventions could be: change in physicians' behavior in their practices, improved self-efficacy on the topic, increased knowledge level (pre and post tests), or increased levels of participation (documentation of numbers of learners who attended educational intervention sessions).

Educational Research

Both choosing experimental design and specifying outcomes in educational research can be challenging and time-consuming. Just as in any other scholarly field, the way to provide a true-evidence basis to research will be to obtain professional statistical help. Research in educational effectiveness is growing in the medical field, and scholarly work in medical education is being appreciated and acknowledged more than it has been in the past.

Scholarly Products in Education

Materials disseminated from educational scholarship have traditionally included publication of papers in journals, or chapters in textbooks. Some clinical medical journals will publish educational scholarship (see Resources), and there are several journals specifically focused on medical education. In addition, there are organizations that support medical education scholarship through websites or at national meetings. Some of these resources, such as MedEdPORTAL published by the AAMC, are intended for the dissemination of educational resources that have been peer reviewed, which allows educators to receive academic credit for their scholarly work.

Recently, the characterization of works defined as educational scholarship has expanded to include published lecture material, small group cases, interactive media, innovative student assignments, and evaluation tools for learner assessment.

Summary:

- Educational scholarship is demonstrated when knowledge is advanced through a product that can be disseminated.
- Curriculum evaluation that is disseminated is an example of scholarly work.
- While the goal of outcomes measurement for educational interventions should be focused toward improved health outcomes, it may be more practical to focus on changes in clinician behavior first.
- Educational scholarship can be distributed using a variety of means: journal publication, national meetings focused on medical education, or web-based methods.

Resources:

1. Web-based:
    a. MedEdPORTAL is a publishing venue through which faculty can disseminate their educational works; www.aamc.org/meded/mededportal
    b. The American Association of Medical Colleges; www.aamc.org
    c. The Accreditation Council for Graduate Medical Education (ACGME); www.acgme.org
    d. The Council on Medical Student Education in Pediatrics; www.comsep.org
    e. The Association of Pediatric Program Directors; www.appd.org

2. Harden RM , Grant J , Buckley G , Hart IR, *BEME Guide No. 1: Best Evidence Medical Education*. Med Teach. 1999 Nov; 21(6):553-62.

3. Fincher RM, Simpson DE, Mennin SP, Rosenfeld GC, Rothman A, McGrew MC, Hansen PA, Mazmanian PE, Turnbull JM. *Scholarship in teaching: an imperative for the 21st century*. Acad Med. 2000 Sep;75(9):887-94.

4. Glassick CE. *Boyer's expanded definitions of scholarship, the standards for assessing scholarship, and the elusiveness of the scholarship of teaching*. Acad Med. 2000 Sep;75(9): 877-80.

Conclusion

Whether in the office, at the bedside, in a small group, or in a lecture hall, teaching can be fun and very satisfying. While teachers may use different teaching strategies, good teachers should show enthusiasm, promote interactivity, and strive to promote active learning.

Preparation is necessary in all kinds of teaching. Clinical teaching and small group teaching should both include day one expectations and scheduling of feedback. Thoughtful preplanning is particularly important in both small group teaching and in large group teaching. However, each type of teaching has its own unique characteristics. In clinical teaching, for example, the one minute preceptor model can be used in order to maximize teachable moments. In small group teaching, the session should start with an icebreaker and utilize role play, buzz groups and other ideas to promote interactivity. In large group teaching, case presentations, brainstorming, and interactive directed discussion will increase active learning. Whatever form teaching takes, it must focus on adult learning theory: adults learn best when they are stimulated to be self-reflective and ask and answer their own questions.

In order for teaching to be most effective, teachers need to give formal feedback to all learners of clinical and small group teaching. Delivering feedback begins with scheduling time to do it, then labeling it as it occurs. Simply asking the learner how things are going usually provides an opportunity to work toward improvement through feedback.

Assessment of learners remains the biggest challenge for teachers, and a combination of assessment measures needs to be used to address all the competencies required in medical education. Assessment tools should be mapped to curricular goals and objectives that have been developed thoughtfully. In addition, academic physicians should document their teaching success by developing a teaching portfolio and disseminating their educational scholarship.

Medical education is a complex endeavor accomplished through the teachings of many different practitioners working with assorted groups of students at various stages in their training. The Teaching Center of the UNC Department of Pediatrics has written this brief monograph to assist educators in effectively managing the tasks of teaching in the challenging field of medicine.