DEMONSTRATING
EXCELLENCE IN PRACTICE-BASED TEACHING FOR PUBLIC HEALTH

ASPH Council of Public Health Practice Coordinators

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The intent of *Demonstrating Excellence in Practice-based Teaching for Public Health* is to build on the very valuable framework provided in *Demonstrating Excellence in Academic Public Health Practice* released in 1999 and to bridge the partnership gaps between schools of public health and the practice community within the shared enterprise of protecting the health of the public. Specifically, the document is directed toward helping schools of public health and all practice communities understand and undertake their joint responsibility for the learning needs of students and practitioners through the dynamic and scholarly means of "practice-based teaching."

Providing for lifelong learning through both formal education and professional training is fundamental to schools of public health collective mission of excellence in teaching, research and service. However, on the heel of concerns cited in the 1988 and 2002 IOM reports, more must be done to ensure that academically based programs of education and training be better informed by real life practice experience. This document attempts to capture the contemporary development of public health "practice-based teaching" and approaches and to help initiate: 1) strengthened academic-practice partnerships; 2) improved understanding of how practice is incorporated within academic public health; and, 3) improved professionally-focused education and training.

Demonstrating Excellence in Practice-based Teaching for Public Health is intended to provide a common resource on practice-based teaching for public health including a description and explanation of terms and practices as well as suggestions on methodologies for implementation. No comparable resource currently exists that assists faculty and their practice partners to recognize, appreciate, implement, and promote practice-based teaching. This groundbreaking document:

- Concisely explains what is practice-based teaching;
- Outlines guiding principles;
- Imparts proven and practical approaches; and,
- Presents recommendations on sustaining and advancing partnerships for professional public health education and training.

Unquestionably our nation is facing serious and complex public health challenges in this era, and the challenges faced by practitioners and the crises in the public health workforce also affect public health academia's education and training of students. Many efforts have been made to better prepare the public health workforce to confront new and emerging infectious disease outbreaks, injury risks, health effects of terrorism, and shifts in socioeconomic trends.

Academia has a major obligation to shape the public health infrastructure by training well-educated professionals who can understand and provide solutions to complex problems. However, without a framework of an academic/practice partnership to support public health education, educational approaches that omit practice render public health education and training inadequate and incomplete. Currently many innovative frameworks exist as examples for schools of public health and their practice partners to adapt toward supporting practice-based teaching, such as Dr. C.W. Keck's innovative concept of the Academic Health Department.[1] This document presents how the principles and methods of practice-based teaching can be demonstrated through academic/practice partnerships.

The strength of a school's practice-based education depends on its active partnerships with practitioners and communities. This publication will help schools of public health take leadership in providing innovative and successful frameworks for quality professional public health education and lifelong learning opportunities to the public health workforce in order to help overcome the challenges faced in the field and improve the health of communities.

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Public health professionals, knowledgeable about the ecological approach to health and educated in a transdisciplinary fashion, are essential to preserving and improving the health of the public.

— *Who Will Keep the Public Healthy?*
Educating Public Health Professionals for the 21st Century

Accredited schools of public health are committed to playing a more significant and prominent role in the professional development of the current and future public health workforce in the governmental, community, and for-profit public health sectors. The myriad challenges facing public health, the current public health workforce crisis,[2,3] and the demographic and cultural shifts across communities require a concerted effort to educate and train public health workers, both to successfully address the complexity of public health problems facing the nation today and to provide the foundation for advancement along a positive and rewarding professional career path.

This document articulates an approach to enable schools of public health to effectively respond to the concerns cited previously and in the recently released Institute of Medicine (IOM) reports.[4,5] This articulation includes, but is not limited to, concerns about how well the schools of public health bridge the gap between academia and the practice community and the degree to which schools of public health fulfill their collective core educational vision and mission pertaining to teaching, research and service.

The intricacies of today's public health problems necessitate partnerships and collaborations between schools of public health and the practice community. The reality is that protecting the public's health is a shared enterprise, in which a major responsibility is to assure a system of lifelong learning and training that is based on models that support and enhance the practice aspects of public health activities. From assuring the competent delivery of the *Essential Services of Public Health*[6] to meeting the nation's health agenda outlined in *Healthy People*,[7] the academic and practice communities have a joint responsibility for the preparatory and lifelong learning needs of students and practitioners.

Moreover, the importance of academic/practice partnerships is recognized through the accrediting process overseen by the Council on Education for Public Health (CEPH). To meet CEPH standards for the provision of integrated learning, faculty must incorporate practice-based perspectives, which include the involvement and support of practitioners in the education process. The accreditation guidelines fundamentally support practice-based teaching, because the historical and present significance of CEPH was established through collaboration between the Association of Schools of Public Health and the practice-based American Public Health Association. Yet, to date, no coherent roadmap exists to help schools of public health promote practice-based teaching; as a result, current efforts across the schools have been varied and diffuse.

The 1999 release of the document *Demonstrating Excellence in Academic Public Health Practice* presented a scholarly framework for schools to use toward integrating and achieving practice, which is based on the concepts of Ernest L. Boyer's model of scholarship:[8] scholarship of discovery, scholarship of integration, scholarship of application, and scholarship of teaching. Central to this framework is the promotion of practice-based teaching as a priority for schools of public health. Practice-based teaching emphasizes that, "the art of teaching, especially interdisciplinary collaboration in education and training, is particularly relevant to practice-based scholarship that enhances the practitioner competence and capacity. Applied teaching informs both the academician and co-learners, and enhances student competence through field placements, internships and practice-based curricula."[9]

Practice-based teaching aims to provide a comprehensive learning experience for the student, academician, and agency preceptor involved; and each individual is considered a co-learner.

This document primarily focuses on the Master of Public Health (MPH) degree, the core professional degree offered in schools of public health, to inform and guide the Deans of the schools of public health, faculty, and their community partners on the scholarly responsibility of practice-based teaching and on how to expand practice in public health education and training. However, the lessons learned and recommendations can and should be applied in other professional degree programs (e.g., MHA and DrPH), as well as in lifelong learning modules. Since CEPH-accredited schools of public health are required to incorporate a practice component within the MPH curriculum, practice-based teaching mechanisms are essential for the education and training of public health professionals.[10]

The intent of this document is to prepare readers to

- advocate for effective practice-based teaching in their institutions;
- enhance practice-based faculty and preceptor skills in conducting practice-based teaching activities;
- identify the range of models representing the best approaches to implementing practice-based teaching; and,
- promote a culture within the schools and their practice partner institutions that nurtures and sustains practice-based teaching.

Within this document, guiding principles and recommendations are outlined to help schools meet the responsibility and challenges associated with creating successful teaching programs that incorporate the public health education theory with highly effective practice-based teaching. *Demonstrating Excellence for Practice-Based Teaching for Public Health* fills the existing void of common guidance on practice-based teaching for public health as to its explanation, significance, and conduct.

Finally, this document is an initial step for implementing sound principles in meaningful practice-based teaching models needed to train students for professional practice and to help mitigate workforce crises. This has been achieved only through generous support from the W.K. Kellogg Foundation, the Bureau of Health Professions of the Health Services and Resources Administration, the Association of Schools of Public Health, ASPH Council of Public Health Practice Coordinators,[11] and the Deans of the accredited schools of public health. Support from these organizations and individuals is gratefully acknowledged.

First inform with the wisdom of practice. Knowledge is generated from the complexity and demands of practice applications. Experience is the source of learning and understanding. The wisdom of practice needs to inform and enrich theory. Theory and practice need to be mutually interactive, each building on the other.[12]

Public health education is a shared enterprise between academia and practice that supports schools of public health, which have a responsibility to assure the health of the public through their missions of teaching, research, and service. Central to this concept is the promotion of practice-based teaching as part of the education mission of schools of public health. The purpose of practice-based teaching in public health is to respond to the broad, diverse, and multidisciplinary needs of practitioner agencies and organizations that serve the community with the goal of improving the public's health. Through practice-based teaching, student learning is meaningful, relevant, and benefits the host agencies and organizations. Well-planned and well-implemented practice-based teaching enhances the art of problem framing, the art of implementation, and the art of interdisciplinary adaptation and improvisation—all of which are necessary to use in the practice of applied science and techniques.[13]

In addition to contributing to the education mission of the schools, practice-based teaching contributes to the research and service missions. The research mission can be illustrated in school engagement in community-based participatory research, which employs elements of practice-based teaching in the translation process. A school's service mission is embraced when practice-based teaching occurs outside the classroom and in the field, because it contributes value and productivity to the host agencies or community organizations where students are placed. Practice-based teaching is distinguished from the traditional, straightforward public health pedagogy in the early twentieth century because it is marked by the hallmark of the shared enterprise, the dimension of community involvement, and the performance of scholarly service to protect the health of the public.

The seminal document *Demonstrating Excellence in Academic Public Health Practice*, which was released in 1999, defined a framework for accomplishing public health practice in academia and examined the critical nexus between academia and practice. This definition of public health practice, "the strategic, organized, interdisciplinary application of knowledge, skills and competencies necessary to perform public health core functions," is embedded in the model of scholarship using the concepts of Boyer: scholarship of discovery, scholarship of integration, scholarship of application, and scholarship of teaching.

FIGURE 1

Eight Guiding Principles of Practice-based Teaching for Public Health

1. Practice-based teaching aims to bridge academia and practice to enhance public health education and assure the health of the public.
2. Practice-based teaching benefits the student, the school of public health, the agency, and the community.
3. Practice-based teaching involves the development and employment of critical thinking and problem-solving skills to make sound judgments that adapt public health for diverse populations.
4. Practice-based teaching is interdisciplinary, multidisciplinary, and multidimensional.
5. Practice-based teaching is a facilitative learning partnership between faculty, practitioners, and students to educate educators, practitioners, and researchers.
6. Practice-based teaching incorporates experiential education, which includes the element of critical reflection and service learning.
7. Practice-based teaching uses principles of adult learning theories to educate people for professional learning.
8. Practice-based teaching is the applied, interdisciplinary pursuit of scholarly teaching to inform and enhance professional public health education and training.

Eight guiding principles of practice-based teaching have been identified. These eight principles, shown in figure 1, must first be understood to help schools of public health and their practice partners jointly implement effective processes for professional learning.

PRINCIPLE 1:

Practice-based teaching aims to bridge the gap between academia and practice to enhance public health education and assure the health of the public.

Public health education is an ongoing process of lifelong learning that involves a *reciprocal dynamic*, which is a process of teaching and learning that requires engagement of all students, practitioners, and faculty and that yields benefits for all participants. The academic partnership between practitioners, faculty, and students helps to inform and improve faculty knowledge to better meet the needs of the field and hence, to meet the health needs of communities.

The learning that occurs from practice-based teaching is well illustrated in the academic health department model,[14] which partner faculty with practitioners in state and local health departments to not only improve the education and training of the current and future workforce, but also to improve the departmental performance in advancing community health. These teaching methods apply current theories and concepts to real-world public health problems for successful learning. Practice-based teaching contributes needed resources, technical assistance, and consultation to practitioners and consequently contributes a scholarship-based service to the community.

PRINCIPLE 2:

Practice-based teaching benefits the student, the school of public health, the agency, and the community.

Practice-based teaching seeks to manage the diverse challenges of the workforce and the public health system, including workforce skills, personnel shortages, and the provision of technical assistance, such as the evaluation of the agency or the organization's culturally competent services.

Specifically, the immediate outcomes of practice-based teaching are evident in the following:

- Students develop skills and competencies and test methods to address current and emerging public health problems while furthering their career objectives. Specifically, students refine critical thinking skills and develop the capacity to understand and create "best practices" in relation to community needs.
- Faculty benefit from the collaboration with community partners by developing research initiatives in the area of public health practice and enhancing their practice-based curriculum with practice to prepare students.
- Communities and agencies benefit from specific projects and research initiatives that promote public health.
- Practice-based teaching incorporates real-world interventions and lessons learned.

PRINCIPLE 3:

Practice-based teaching involves the development and employment of critical thinking and problem-solving skills to make sound judgments that adapt public health for diverse populations.

The teaching and acquisition of critical thinking and analysis skills give added value to study and learning that goes far beyond the memorization of information related to a topic. Practice-based teaching includes observation, feedback, and reflective activities that promote critical thinking among learners.

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One popular definition posits that critical thinking is skillful, responsible thinking that facilitates good judgment because it (1) relies upon criteria, (2) is self-correcting, and (3) is sensitive to context.[15] Another prevalent perspective emphasizes that critical thinking is synonymous with logic or the hypothetico-deductive method[16] (proposing hypotheses and testing their acceptability or falsity by determining whether consequences are consistent with observed data), whereas a third view frames critical thinking as a process of inquiry and problem solving.[17]

PRINCIPLE 4:

Practice-based teaching is interdisciplinary, multidisciplinary, and multidimensional.

Interdisciplinary teaching provides a meaningful way in which students can use knowledge learned in one context as a knowledge base in other contexts in and out of school.[18] Multiple professional and community perspectives are often at the heart of practice-based teaching. Given the complexity of most public health challenges, interdisciplinary approaches have become the norm rather than the exception in public health practice. Understanding and responding to real public health problems requires the use of applied, interdisciplinary approaches that widely tap content, skills, resources and knowledge processes to create exploratory connections, which are synthesized across disciplines and varying worldviews. In addition to the student/faculty/ practitioner collaboration, the increased community representation and participation lends a multidimensional feature in practice-based teaching.

Because of the increasingly complex economic and social forces affecting the public health system, schools of public health should provide leadership in ecologically based, transdisciplinary partnerships with health-related disciplines and professional academies in areas such as nursing, medicine, business, law, and computer science, in order to strengthen modern public health knowledge and practices.

PRINCIPLE 5:

Practice-based teaching is a facilitative learning partnership between faculty, practitioners, and students to educate educators, practitioners, and researchers.

Practice-based teaching assumes a facilitative teaching approach on the part of the faculty involved and the agency preceptor, which is quite different from the traditional teaching role manifested in the classroom. In this role, the faculty and agency preceptors are educators who assume a facilitative, or "coaching," function.

To effectively enhance educators' capacities, specific and clear recommendations should be developed and disseminated among all partners. Practice-based teaching offers collaborative, structured opportunities for the faculty, the agency preceptor, and the student to each participate as co-learners and derive benefits. With appropriate "coaching," or practice-based teaching from the faculty practicum mentor and agency preceptor, a student integrates what he or she has learned elsewhere in the curriculum through planned experiences, in addition to refining his or her critical thinking and judgment.

The adaptive nature of the facilitative partnership helps meet the changing developmental learning needs of professional practitioners. Students are better prepared to enter the workforce when the academic goals and competencies for the MPH degree have been developed in partnership with practicing professions and explicitly delineate the desired knowledge and skills to be developed.

Practice-based teaching incorporates experiential education, which includes the elements of critical reflection and service learning.

Experiential education, particularly the process of experiential learning, is implied in practice-based teaching. Experiential education encompasses experiential learning, or learning from both formal and informal experience. Experiential learning considers the subjective experiences of the co-learners to be critical in the learning process and is largely based on principles from the educational philosophy of John Dewey.[19] The professional experience from practice-based teaching shapes a person's frame of reference for practice and any lifelong professional learning that he or she may later undertake. Experiential learning is "education that occurs as a direct participation in the events of life,"[20] and learning from experience in public health has civic roots, as exemplified in volunteerism and community service.

The philosophy of experiential learning is that people learn most effectively through direct, hands-on experience, as long as these experiences are well-designed and facilitated. Yet experience alone is insufficient unless it is supplemented with facilitated exercises that involve thinking, discussing, or creatively processing cognitions and emotions related to the experience.[21] Thus, practice-based teaching attempts to arrange particular sets of distinct encounters within courses and fieldwork to offer experiences that are related to enhancing a student's learning. The teachers' facilitative instruction is also affected by a variety of knowledge and unique experiences, and in practice-based teaching their instructional techniques undergo constant construction and reconstruction through reflection during and after the teaching engagement with the student. This reflection process has the learner step back from each experience to carefully ponder and learn.

…there is an intimate and necessary relationship between the processes of actual experience and education

—*John Dewey, 1938*

Experiential learning can be explained in terms of learning cycles that describe an iterative series of learning processes. The term "experiential learning cycle" often refers to the four-stage process model that is most extensively discussed by Kolb.[22,23] Experiential learning cycles can be used to help structure experienced-based education and training. The four models shown in figure 2 illustrate experiential learning cycles that depict the diverse processes of practice-based teaching that occur in various phases of learning within schools of public health.

FIGURE 2
Four Experiential Learning Cycle Models

One-Stage Cycle: Experiencing	This model structures and organizes learning activities in which the experiences themselves facilitate learning. This model may be traced to the following proverbial quote: *Tell me, and I will forget. Show me and I may remember. Involve me, and I will understand.* —Ancient Chinese Proverb.[24]
Two-Stage Cycle: Experiencing, Reflecting	This model involves experiences followed by periods of reflection for effective, facilitative education.
Three-Stage Cycle: Experiencing/Observing, Reflecting/Recollecting, Planning/Judging[25]	This model links what is observed and what is recalled in order to understand what is signified.
Four-Stage Cycle: Experiencing, Reviewing, Reflecting, Describing, Communicating, Planning, and Applying	In this model, participants engage in concrete experiences, followed by reflective observation of theory and hands-on encounters to develop new knowledge for planning and application.

The graphic in figure 3 further elaborates the experiential learning cycle.

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FIGURE 3

The Experiential Learning Cycle [26] by Exeter and adapted from Kolb [27]
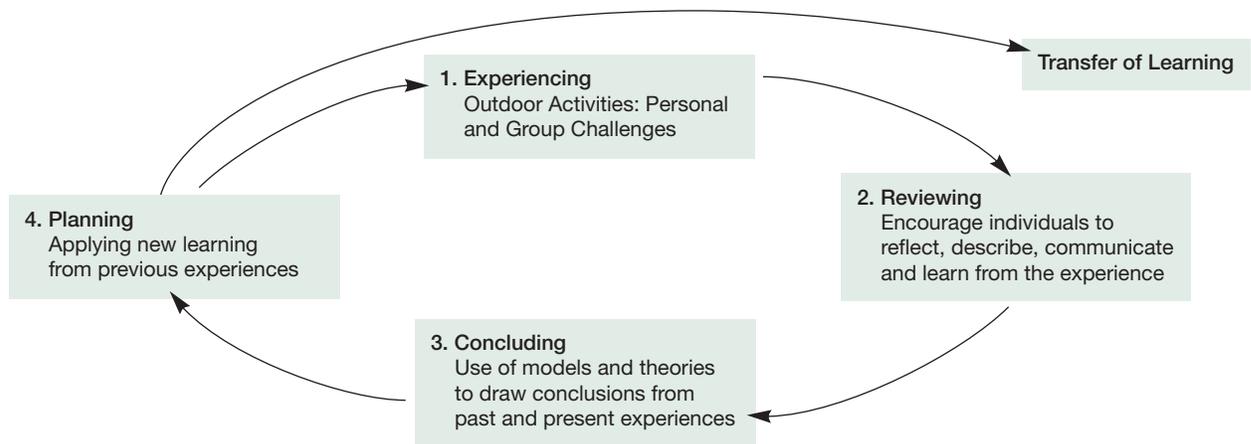
Critical Reflection in Experiential Education

As a corollary to critical thinking and problem-solving skills, the implementation of reflective exercises helps link the learner's experiences. Reflective exercises help students focus and refocus their attention; provide insight into the student's level of understanding; identify student needs; build more complete and complex mental models; refine critical thinking skills; and assess progress, mastery, and competence. Examples of reflective exercises and tools to focus students' attention include the use of daily or weekly journals, case discussions, presentations, role-plays, oral presentations, and papers.

Service-learning as a Form of Experiential Education

Service-learning is a structured learning experience that combines community service with preparation and reflection. Students engaged in service-learning provide community service in response to community-identified concerns and learn about the context in which service is provided, the connection between their service and their academic coursework, and their roles as citizens.[28] Service-learning is discussed later in this document.

As schools enrich and expand practice-based teaching, it is important to recognize that some faculty are inclined to distinguish the term *service-learning* from the term *practice-based teaching*. Practice-based teaching possesses attributes that mirror service learning, as it is described in the Institute of Medicine publication, *The Future of the Public's Health in the 21st Century*.[29] However, many in public health academia interpret *scholarly service learning* as a part of practice-based teaching, not only because credit is granted for students but also because the implications for faculty career advancement, with respect to promotion and tenure, are considered greater.

PRINCIPLE 7:

Practice-based teaching uses principles of adult learning theories to educate people for professional learning.

Adult learning principles complement experiential education to prepare individuals for a professional practice degree. To appreciate practice-based teaching, an understanding of the ways that adults learn is required, because misconceptions about learning can affect success in teaching and training students.

> **Summary of Knowles' Theory of Adult Education**
>
> - Adults are self-directed learners.
> - Adults have many life experiences to incorporate and apply in learning activities.
> - Adult readiness to learn depends on need.
> - Adults often learn most readily during times of transition.
> - Educational institutions should accommodate adults in terms of their particular personal situations,
> - Adult orientation to learning is life- or problem-centered.

Unlike learners in formal K–12 programs, adults possess a wide range of professional experiences to enhance practice, so adult learning theories undertake approaches that meet the circumstances and needs of full- and part-time adult or lifelong learners.[30] Awareness of the adult learning strategies, tools, and approaches will assist assessments of how well schools of public health meet the responsibility to prepare professionals, because critical reflection is an element in the evaluation of practice-based teaching.

The principles and theories of adult learning models are well summarized in the Characteristics of Adults as Learners model (CAL model),[31] which is based on the adult learning theories of Malcolm Knowles.[32] An example of the adult learning model in action is the active participation of the student and agency preceptor in the development of learning objectives or in planning and implementation during the teaching and learning process. Adult learning models in practice-based teaching shape the learning environment through four means:

1. Setting a cooperative learning climate, creating mechanisms for mutual planning, and arranging for a diagnosis of learner needs and interests;
2. Enabling the formulation of learning objectives that are based on the diagnosed needs and interests and designing sequential activities for achieving the objectives;
3. Executing the design by selecting methods, materials, and resources; and,
4. Evaluating the quality of the learning experience while re-diagnosing needs for further learning.

The teaching of adults is learner-centered, so it is important for teachers to design and implement curricula and training that is sensitive to the adult learners' cultural differences, diverse career experiences, knowledge, skills and attitudes.

PRINCIPLE 8:

Practice-based teaching is the applied, interdisciplinary pursuit of scholarly teaching to inform and enhance professional public health education and training.

The demonstration of the shared teaching enterprise impact upon the student, agency preceptor, faculty practicum mentor, agency/community organization, school of public health, and community is especially important for faculty because the evidence gained can support a faculty career advancement, provided that practice-based promotion and tenure guidelines exist at the school of public health. "Scholarship is not static, but rather that it assumes multiple dimensions, does not mean that it should be without rigorous evaluation criteria."[33]

Framework for the Scholarship of Teaching in Academic Public Health Practice[34]

Activity example:
In-service learning or practice-based courses for degree students and/or practitioners
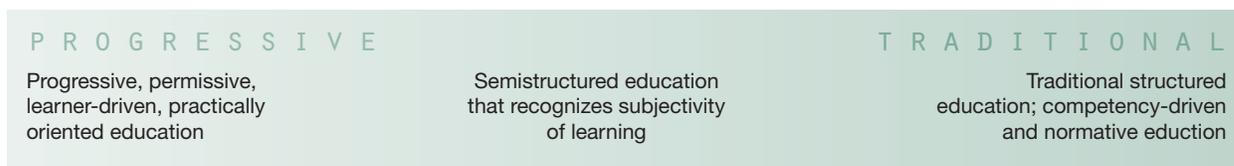
Academician's role and responsibilities:	Define course objectives; identify and assemble texts, materials and technology/software; identify service settings; consult with mentors/trainers; assist in defining performance tasks; establish performance criteria; evaluate learning
Indicators of practice impact:	Improved teaching effectiveness; improved curriculum design; improved applications of technology/software development; enhanced performance/competency of graduates and practitioners
Documentation of scholarship:	Course syllabus; field placement/practica records; technology/software design/demonstrations; program/ curricula design documents; students'/mentors' evaluations; subsequent requests for assistance; extramural funding; honors/awards/ document practice recognition
Evaluation processes and participants:	Students/peer/practitioner reviewers; mentor's reports; teaching documents/publications/reports; portfolio documents; evaluation of teaching on job performance

Figure 4 illustrates the common criteria to assist in evaluating the scholarship and rigor of practice-based teaching for the purposes of faculty promotion and tenure. This framework follows the ASPH Practice Council's 1999 recommendations on teaching activities and evidence of practice criteria to guide schools of public health.

In planning and curricula and training, faculty at schools of public health may be interested in how the structure of practice-based teaching falls along the continuum of teaching structures. Figure 5 summarizes the spectrum of practice-based teaching structures.

FIGURE 5

Spectrum of Practice-based Teaching Structures

PROGRESSIVE		TRADITIONAL
Progressive, permissive, learner-driven, practically oriented education	Semistructured education that recognizes subjectivity of learning	Traditional structured education; competency-driven and normative eduction

The eight guiding principles will help reinforce how practice-based teaching is achieved in schools. Although many barriers exist in achieving practice-based teaching, an important characteristic correlated with practice-based teaching is a school of public health's commitment to practice as an organization. For instance, a school's management and culture around practice can affect the extent of faculty involvement in the community. The next section briefly discusses the organizational factors involved in building the internal and extramural support needed to sustain a practice culture in schools.

Practice-based teaching requires a commitment and an investment of time and resources from both the academic and practice community.

Since practice-based teaching contributes to an improved infrastructure and ultimately to improved public health, both communities should assure ongoing commitment and sustained investment based on key organizational factors at schools that build a culture of practice and hence promote practice-based teaching. Figure 6 shows suggested organizational factors that greatly facilitate and determine the motivation and sustainability of practice-based teaching in schools of public health.

Also, in the journal article, "Public Health Practice in Schools of Public Health," Stevens outlined a table to identify "Essential Elements for a Practice Culture," which is drawn from the field of corporate culture for schools to review.[35]

Schools of public health that desire to expand or enhance their practice-based teaching may examine the extent of the practice-based teaching guidelines that are evident within their course development process and evaluate the presence of the organizational enabling factors shown in figure 6 both within the curriculum and within the school culture to determine the best approaches and methods for fulfilling the mission of teaching. For additional reference, schools of public health may want to review the chart, "Four Academic Models of Public Health Practice" created by the ASPH Practice Council in the document *Demonstrating Excellence in Academic Public Health Practice*.[36]

FIGURE 6

Ten Suggested Organizational Factors That Enable Practice-Based Teaching in Schools of Public Health

1. The school of public health's mission includes a commitment to practice that is supported by an array of practice agency and community partnerships.
2. Multidisciplinary faculty are committed to practice.
3. The curriculum contains strong practice components.
4. Practice-oriented scholarship is evidenced and rewarded.
5. Active linkages to the ASPH Practice Coordinators' Council are evident.
6. Students are committed to professional practice careers in public health.
7. A school of public health structure for organized practice activities (e.g., an Office of Public Health Practice) provides financial support and conducts such functions as planning, capacity building, program/course evaluation, curriculum development, faculty development, practicum opportunities, program guidance, community networks, communication, and dissemination of best practice activities within the school).
8. Internal and external school advisory boards offer guidance and recommendations on public health issues.
9. External and internal support for a practice infrastructure is provided by school deans and committees (e.g., school provides administrative support, a system of tenure, and promotion guidelines for scholarly practice, as well as a program to recruit and retain practice-oriented faculty).
10. A school of public health strategy exists to continue the development and sustainability of practice activities not only for practice-based research but also resources and support for practice-based teaching.

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The school must provide opportunities for students to apply the knowledge and skills being acquired through their courses…Practical knowledge and skills are essential. A planned, supervised and evaluated practice experience is… a very important component of a public health degree program. These should be arranged in cooperation with as wide a range of community agencies as possible…

—Criterion V.b., CEPH Accreditation, 2002

An important feature of graduate public health education is the opportunity for students to enhance their professional development through learning both in the field and in the classroom. The effective implementation of such experiences will provide students with a rich opportunity to enhance their competence, skill mastery, and readiness to be effective practitioners and leaders in public health. Practitioners in the field are expected to make defensible judgments about vexing public health problems, and many proposals for national educational reform stress the need to strengthen students' critical thinking processes so that they can make interpretive judgments about the world's complex problems.[37,38]

The shared enterprise of public health education has stimulated a variety of methods for academic preparation and professional training. Although practice-based teaching provides opportunities to apply knowledge and skills to real-world situations, the approaches are not confined to field-based activities and settings. Rather, practice-based teaching is characterized by two modalities: field-based and classroom-based. These modalities employ forms of "learning in action" and may be combined with a variety of other practice-based teaching methods, placement sites, and participants to achieve the maximum benefits. The incorporation of as many practice-based teaching principles, methods, and exercises as possible in these modalities can assist administrators, faculty, practicum supervisors, and students in planning meaningful experiences at the MPH level for both early-career and midcareer students.

Each modality has advantages and limitations, which are dependent on the objectives of the co-learners (student, faculty practicum mentor, agency preceptor), so the delivery, format, and equipment for public health education and training within each setting will vary.

FIELD-BASED MODALITIES

The most recognizable and widely used modes of field-based teaching are practicum/internship, service learning, and community service/volunteerism. For purposes of discussion, the field-based modalities are defined and explained as follows.

- **Practicum/Internship:** A practicum/internship is a defined period of formal, supervised placement, typically external to the school of public health, during which a student defines learning objectives for the placement in coordination with his or her faculty mentor and agency preceptor; follows a planned set of activities to gain professional insight and experience relative to his or her career goals; and fulfills MPH degree requirements. Ongoing communication exists among the student, the agency preceptor and the faculty mentor throughout the experience. The practicum or internship may be required or non-required. If it is required, it may also be called the MPH required internship, required capstone or culminating practice experience. Also, depending on the policy of the school of public health, the practicum/internship may be paid or unpaid.

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- **Service-learning:** Service-learning is a structured type of practice-based, experiential learning experience that combines community service with preparation and reflection. Students provide a community service while they learn about the context in which the services are provided, the connection between the service and their coursework, and their roles as professionals and citizens. Service-learning places emphasis on addressing community concerns and broad determinants of health and emphasizes developing citizenship skills and achieving social change. Academic credit is usually awarded.[39]

- **Community Service:** Students participate in organized activities that meet identifiable community needs. Service is the focus of the professional practice linked to the educational process of professional preparation. These projects are usually not awarded academic credit but do provide valuable experience in the mission of providing needed service to the community and preparing students for civic participation. Community service is also known as learning through volunteerism. The service is provided pro bono to improve the quality of life for community residents or to solve particular problems. It also offers valuable experience in the mission of providing needed community services. The student usually negotiates with the school on obtaining credit for relevant work external to the school.

The physical constraints of field-based modalities will differ from the classroom-based modalities, since the teaching is almost always conducted off-site from the school of public health. Encounters between the student and agency preceptor will most likely take place at the host agency or community organization. The practice-based teaching exercises commonly involve increased planning and on-site preparation on the part of the agency, to adequately provide the student with on-site resources. For faculty, appropriate staffing is needed to assist with site selection, student matches, site selection, and partnership building. The common characteristics of practice-based field modalities are as follows.

- Orientation and preparation of students and agency preceptors
  (e.g., training workshop, or a one or two credit course)

- Supervision of the student by the agency preceptor and faculty/practicum mentor

- Infusion of coursework learning in activities

- Integration of problem-based learning approaches in hands-on learning

- Creation of formal contracts and agreements: What is known in the literature about learning contracts and agreements, including contract specifications of the vested individuals and organizational roles and purposes[40]

Examples of field-based projects include a required MPH practicum, a team-based field exercise, a service-learning project with a community health center, paid or unpaid credit-based internships, and community service through a public health honorary society such as Delta Omega.

CLASSROOM-BASED MODALITIES

Practice-based teaching can exist in a classroom setting and is more complicated than a straightforward implementation of a curriculum. The design of the learning environment, the instructional pace, and discussions should be planned wisely. To this end, faculty/practitioner partnerships aid in the adoption of practice and community knowledge in the curricula to meet the students' learning needs, the public health workforce needs, and consequently community public health needs. Employing community knowledge in the development of practice-based teaching methods is a great determinant of successful and enhanced learning and is a rigorous exercise in the scholarship of applied teaching.[41] The reciprocal dynamic in the partnership addresses community-identified concerns and enhances faculty knowledge.

Although classroom-based modalities have certain physical constraints, common characteristics of classroom-based modalities involve the practitioners in planning and implementing teaching and student engagement in the following.

- Problem identification—description of the magnitude and scope of the issue
- Debriefing process—description on the background of the problem
- Story with an educational message
- Analysis and/or application of the story and public health procedures used in the exercise

Examples of classroom-based modalities include case studies, tabletop exercises, role-playing activities, courses on building community organizations, field trips, skills-based workshops, computer programs for group exercises, and problem-based learning.

KEY METHODS

Of the array of practice-based teaching approaches, three key methods have been acknowledged as important for the successful implementation and outcomes of practice-based teaching in the field or classroom: problem-based learning, partnership-developed learning objectives and evaluation.

Problem-based Learning

A teaching exercise that is characteristic in both class- and field-based modalities is problem-based learning. Problem-based learning requires students to use "triggers,"[42] or key facts from a problem or case, to define and shape their learning objectives, although the learning objectives do not have to be established before the experience and may change during the experience. The primary intent is to increase knowledge and develop skills for problem solving in a group context.

Partnership Development of Learning Objectives

The development of clearly defined learning objectives as measurable results that the student will achieve or wishes to achieve are the foundation of a successful learning experience, whether it is in the classroom or in a practicum setting. These learning objectives should be concisely written statements of a desired change in knowledge, skills, and competencies that the student plans to gain.

Learning objectives should support the interests of agency preceptors and faculty, in addition to those of the student. The objectives should also help quantify and evaluate the desired outcomes for the student, faculty practicum mentor, and agency preceptor. The learning objectives of practice-based teaching should be:

- clear and specific statements about the learners' expected competencies
  (e.g., knowledge, skill, and attitude changes as a result of the learning experiences);
- statements that will help guide the student's assessment of the experience, in addition to helping the practicum mentor and agency preceptor improve the practice-based teaching process;
- behaviorally based, measurable statements of the learner's desired outcomes
  (e.g., how the practicum mentor and agency preceptor know whether a student understands or knows; and objectives that incorporate the use of action verbs such as list, explain, apply, predict, analyze, and compare and contrast); and,
- statements that convey the service or benefit to the agency and/or community.

The W.K. Kellogg Foundation's logic model, shown in figure 7, is a tool to help develop learning objectives. It has been adapted and used in several schools of public health to help students and their agency preceptors develop, implement, and evaluate the extent to which practice-based teaching meets the learning objectives. This approach can help students relate practice-based learning objectives to activities and methods that will best yield intended short- and long-term outcomes for the student, host agencies, and communities that are served.

FIGURE 7
Sample Logic Model to Develop Learning Objectives [43]
A Planning Model for Public Health Practicum

Individual	Learning Objectives	Activities/ Methods	Resources	Short-Term Outcomes	Public Health Impact
Student	Through the practicum, I expect to accomplish the following changes in competency, skill, knowledge, or understanding	To address my learning objectives, I will conduct the following activities:	To accomplish the activities, what does the student and the organization contribute to the experience?	I expect that once these activities are complete or under way, they will produce the following changes in 0–1 year:	I expect that if completed, these activities will lead to the following public health changes in the future:
Agency Preceptor					
Faculty/ Practicum Mentor					

Evaluation

It is vital to the practice-based teaching process to include evaluations that not only assess how the practice-based teaching experience influenced the student, agency preceptor, and practicum mentor, but also provide documentation of the achievement of scholarly practice for faculty involved in constructing the teaching.

Formative evaluations, or process evaluations, focus on the process of activities as they are planned and as they occur. Also, the use of critical reflection exercises such as keeping journals can help address questions or concerns during the actual experience. Finally, formative evaluations help the student and agency preceptor refine or adapt the learning objectives and outcomes as needed. Again, the reciprocal dynamic in the partnership is critical for the optimal assessment of the processes.

Summative evaluations, or impact evaluations, focus on outcomes of practice-based teaching and help improve the process planning and implementation process for the future. They are especially helpful when dealing with constantly changing community cultures and populations. These types of evaluations seek the measurable impacts upon the individuals, institutions, and community that are involved, such as the impact on the student and on his or her learning; impact on the agency preceptor, impact on the faculty practicum mentor, impact on the host agency or community organization, impact on the school of public health processes that shape practice-based teaching and impact on the community health status.

Evaluations are particularly significant to faculty who seek promotion and tenure for scholarly, practice-based teaching activities. As previously indicated, the evidence gained can support a faculty member's advancement. Examples of evaluation indicators for faculty scholarship include practitioner reviews, mentors' reports, teaching documents, portfolio documents, legislative testimony, and teaching, and job performance assessments. For a reference for evidence to assess scholarship, Aday and Quill outlined a chart of evidence for schools to consider as documentation of scholarship.[44] Additionally, Maurana et al. has developed Standards for Assessment of Community-Based Scholarship for faculty guidance on identifying scholarship in community-engaged activities.[45] Figure 8, Common Criteria for Evaluating the Scholarship of Practice-based Teaching, can help guide schools of public health in recognizing and rewarding faculty engagement in scholarly, practice-based teaching.

FIGURE 8

Common Criteria for Evaluating the Scholarship of Practice-based Teaching [46]

Standard or Criteria	*Scholarship of Practice-based Teaching*
Are there clear goals?	Does the teacher state the basic purposes of the work clearly? Does the teacher define objectives that are realistic and achievable? Does the teacher identify important questions in the field?
Is there evidence of adequate preparation?	Does the teacher show an understanding of existing scholarship in the field? Does the teacher bring the necessary skills to the work? Does the teacher bring together the resources necessary to move the project forward?
Are methods appropriate?	Does the teacher use methods that are appropriate to the goals? Does the teacher apply effectively the methods selected? Does the teacher modify procedures in response to changing circumstances?
Are results significant?	Does the teacher achieve the goals? Does the teacher's work add consequentially to the field? Does the teacher's work open additional areas for further exploration?
Is scholarship effectively presented?	Does the teacher use a suitable style and effective organization to present the work? Does the teacher use the appropriate forums for communicating work to its intended audiences? Does the teacher present his or her message with clarity and integrity?
Is there evidence of reflective critique?	Does the teacher critically evaluate the work? Does the teacher bring an appropriate breadth of evidence to the critique? Does the teacher use evaluation to improve the quality of future work?

Finally, as practice-based teaching modalities, methods, and tools are explored, the use of technological resources should not be overlooked. Technology is a vital component for extending the reach of public health education, and technological exercises should also incorporate the principles of practice-based teaching. Distance education is rapidly transforming the educational options available to those already established in the public health workforce and enables potential students who are at a great distance from accredited schools of public health to obtain a professional degree in the traditional manner. Employing any distance-based technology requires school-wide support and investment in staff and student development, policy and program development, technological tools, support, financial resources, and investment in the infrastructure and related operations.

Practice-based teaching emphasizes that the "art of teaching, especially interdisciplinary collaboration in education and training, is particularly relevant to practice-based scholarship that enhances the practitioner competence and capacity. Applied teaching informs both the academician and practitioner as co-learners, and enhances student competence through field placements, internships and practice-based curricula."

—*Demonstrating Excellence in Academic Public Health Practice*

If public health professionals are to be ready and able to carry out the mission of public health and if they are to succeed in the leadership roles awaiting them, they need opportunities during their formal education to put their academic knowledge to work in practice settings. The foregoing sections of this document have set the stage; this section provides examples and recommendations that have been instrumental in conducting practice-based teaching in a number of schools. To reiterate, this document is not designed to provide a one-size-fits-all approach. Rather, this document aims to provide suggestions for introducing new or modified techniques and models for practice-based teaching and lifelong professional learning, on the basis of the aforementioned guiding principles.

Practice-based teaching can be accomplished in a variety of ways; there are no "right" or "wrong" courses of action, but several mechanisms and tools that are frequently used are discussed in detail here. One reference of note is the 1995 ASPH/HRSA–sponsored publication created by Bernard Turnock entitled *A Guide to Field Placements of Students from Schools of Public Health to Public Health Agencies*. No matter what the practice-based teaching modality is, the following eight recommendations are practical mechanisms that schools of public health can use to advance practice-based teaching in general. Since a wide breadth of practice-based teaching examples exists across schools, a select few are illustrated.

EIGHT PRACTICAL MECHANISMS FOR SCHOOLS OF PUBLIC HEALTH
TO ADVANCE PRACTICE-BASED TEACHING

**1. Provide regular encounters between the practice community and the school
to promote collaboration.**

To operate successful partnerships, committed time and resources are critical to partnership-building activities for practice-based teaching. Examples:

- Cultivate partnerships to create an academic health department model, with the goal of developing models of collaboration in the areas of service, teaching and research.
- Convene seminars and workshops in which the presented topics will be specifically appropriate to practice issues and will awaken an understanding of the methodologies and objectives that drive applied public health practice.
- Create and disseminate reports and products from practice-based teaching projects.
- Develop orientations for students and agency preceptors to prepare them for the practice-based teaching experience.
- Establish a practice-based advisory committee for the school.

2. Develop strategies to acquire funding and administrative support for practice activities.

School recognition of faculty who adopt a practice view is essential if practice-based instructional approaches are to become the rule rather than the exception. Examples:

- Develop grant-funded training centers (e.g., a growing number of schools have established centers for public health practice to provide resources and assistance for faculty to incorporate practice-based teaching approaches into their courses and to help them develop practice-based teaching skills).
- Secure academic reimbursement for course-related practice costs.
- Create an associate dean of practice position to oversee academic-practice efforts.
- Provide preceptor stipends.
- Establish mechanisms to fund and sustain adjunct practitioner faculty.

3. Establish protocols to ensure consistency of the range of practice-based teaching modalities offered in the classroom and field that are based on the guiding principles for practice-based teaching of public health.

Examples of classroom-based modalities:

- Develop case-study methodologies to enable critical thinking and reflection. Such methods customarily include a debriefing process (e.g., statement of problem, magnitude and scope of problem, and timeline.) Case studies have become a common feature of lecture-based courses, and courses are sometimes developed solely around case studies. Students can be taught how to develop cases from actual situations or issues that have been identified in community or other settings.
- Incorporate multidisciplinary case studies and team projects into public health curricula for IOM-recommended integrated, interdisciplinary learning.[47]
- Enhance classroom-based exercises and adopt proved and successful practice-based tools to organize class projects. These tools include the W.K. Kellogg Foundation logic model and the lessons learned from the Turning Point Initiative collaboratives, which are cosponsored by the W.K. Kellogg Foundation and The Robert Wood Johnson Foundation.
- Focus activities around national goals and regional initiatives, such as the workforce competencies, Ten Essential Public Health Services, Healthy People 2010. For instance, faculty may find that the *Healthy People* curriculum toolkit and curriculum planning guide,[48,49] developed by Community-Campus Partnerships for Health, can help coordinate teaching based on Healthy People objectives.
- Develop and provide coursework that prepares students for community-based work (e.g., University of California—Berkeley offers a course on participatory action research in public health; University of Alabama at Birmingham offers an integrated problem-based core curriculum, case analysis, and a writing course for interdisciplinary teams of students).

The most recognized and widely used modes of field-based teaching are practicum/internship, service learning, and community service/volunteer learning. For purposes of discussion, the following field-based modalities are defined and explained: practicum/internship; formally organized placements such as internships; and, community service activities.

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Examples of field-based modalities:

- **Practicum/Internship.** The practicum is a formal, supervised practice placement, or required internship, which is required experience for all professional master's degree programs in public health. At times this placement may be an adjunct to certain classroom-based courses. The placement may also fulfill the CEPH requirements. The faculty mentor (faculty practicum mentor) supervises the placement, and an agency preceptor closely mentors the student at the placement site. Placements are typically program-specific and address a particular programmatic issue that requires the student to draw on a combination of skills, knowledge, and interdisciplinary experiences acquired in the degree program. This experience is concluded with a formal final report and evaluation in compliance with schoolwide or departmental placement guidelines.

  Documentation is required that indicates the agreement between the student, the faculty advisor, and the placement-site preceptor on the details of the placement. This written agreement, or learning contract, describes and defines the working relationship between the student and the host agency or organization. The agreement explains the student's learning objectives and interests, as well as the needs and opportunities of the host agency or community organization. It is neither a legal contract nor a policy on individual and institutional liability mitigation, but rather a tool for communicating, monitoring, and evaluating the practicum. Finally, remuneration to the student may or may not be involved.

  Figure 9 is a checklist for a learning contract, and figure 10 is a sample field placement learning contract.

FIGURE 9

Checklist for a Learning Contract

- [ ] Provide the complete name, title, address, and phone number of the preceptor from the sponsoring organization and the faculty member from HSPH.

- [ ] Briefly describe the sponsoring organization and divisions with which the students will be most closely affiliated.

- [ ] Describe the specific work that the student will be performing, as well as the student's responsibilities and expected outcomes designating individual student responsibilities if possible.

- [ ] Identify the issues and problems the student will be addressing.

- [ ] Describe any data to be gathered or used in completing the project, and affirm that the preceptor will make these data available to the student as needed.

- [ ] List the skills and knowledge that the student will use for the project.

- [ ] Describe new knowledge and skills that the student should expect to gain and apply.

- [ ] Describe technical needs of the project, including copying and computer time, and define how these needs will be met.

- [ ] Supervised practica.

- [ ] Other issues: (e.g. paying staff; time flexibility).

FIGURE 10

Sample Field Practice Placement Learning Contract[50]

This document is to be signed by all parties (faculty advisor, field preceptor, and the student).
A copy of this agreement should be retained for future reference and monitoring by all parties.

Student's Name: _____

Name of Field Practice Site: _____

Address of Site: _____

Preceptor's Name: _____

Preceptor's Title: _____   Preceptor's E-mail: _____

Preceptor's Phone: _____   Preceptor's Fax: _____

Project Title: _____

Dates of Field Practice Placement: from _____ to _____

Hours of Work per Week: _____

Salary: _____
(include description of any benefits, e.g., sick time, vacation time etc.):

Learning Objectives of the Field Placement
(As it relates to the client and student goals): _____

_____

Methods and Timetable Necessary to Accomplish Objectives
(Defines the level of mastery that will be obtained.
Written as a statement of measurable results): _____

_____

Final Product or Report to be delivered
(Guided by Learning Objectives): _____

_____

_____   _____
Student's Signature   Date   Preceptor's Signature   Date

_____   _____
Sponsoring Faculty Advisor's Signature   Date   Academic Faculty Advisor's Signature   Date:

_____
School of Public Health Liaison Signature   Date

SPH Contact: _____   Phone: _____   E-mail: _____

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- **Internship.** An internship offers a student the opportunity to gain relevant work experience. In some instances, internships are program requirements and may be eligible for academic credit. If the internship does not bear credit or does not satisfy an academic requirement, it may not require approval or involvement from the school, with the nature of the internship and the experience determined between the student and the agency or organization. If a student wishes to gain academic credit or satisfy an academic requirement apart from the required, supervised practicum, the student should consult with his or her academic advisor, so that guidelines for satisfying the requirement or earning credit can be negotiated. The internship agreement is made between the student and the agency, in compliance with schoolwide guidelines on internships. Also, the internship may or may not involve remuneration.

- **Community Service.** Students interested in volunteering their services may seek a community service opportunity. A community service opportunity can be as brief as one day (e.g., an environmental clean-up project), or of sustained duration (e.g., a tutoring project). The purpose of the opportunity should be to provide a requested or needed service to the community. Service opportunities are not eligible for academic credit, do not meet any other program requirements, and therefore do not require any agreements with the school. Service opportunities are usually not paid; however, they can offer a student a valuable experience and a chance to altruistically contribute to a community, group, or organization, while serendipitously gaining professional knowledge.

  The nature of service opportunities is such that, while generally worthwhile, they may not necessarily provide relevant work experience. Students should be encouraged to design or develop service projects that address a community public health issue or interest and that contribute to their understanding of the public health infrastructure.

Although the procedures may differ, each program should be able to document the requirement for preceptors, faculty, proposals, reports, and evaluation and should indicate the policies on credit, grades, and remuneration of students. It is recommended that schools adopt general policies and procedures for practicum/internship and service-learning and community service that set minimum standards, which departments may exceed.

4. To ensure quality, conduct effective evaluations by establishing instruments for evaluating individual practice activities and the overall contribution of practice experiences to the teaching objectives and learning goals.

Evaluations help improve the experience of the co-learners, in addition to supporting and strengthening the schools' comprehensive partnerships within the community. Examples:

- Partner faculty and agency preceptors and develop a mentor program on research and evaluation in developing training evaluations
- Institute advisory committees consisting of practice leaders to help school-based offices of public health practice facilitate practitioner involvement to develop cases and participate in community-based participatory research projects.
- Conduct oral presentations of students' experience in the practicum or internship.
- Engage in pedagogical research in curriculum planning and professional development.

5. Develop distance-learning capabilities to enable lifelong learning of practitioners as students and to increase their involvement in practice and teaching.

The advances in technology can help standardize, coordinate, and disseminate best practices in teaching, as well as efficiently catalogue and build the evidence base for scholarly, practice activities. Examples:

- Use technology to manage practice-based teaching modalities and methods.[51]

- Adapt successful distance education programs that have been demonstrated through the HRSA-funded Public Health Training Centers and by the Turning Point Initiative projects, which are cosponsored by the Robert Wood Johnson and W. K. Kellogg Foundations.

- Disseminate practice-based distance education techniques with other schools and educators interested in expanding the use of practice-based teaching within distance education environments. Consider the use of Bates's "ACTIONS" model,[52] which offers basic criteria for schools to consider when creating distance-based teaching programs.

- Develop a distance-based academic track that facilitates formal degree study for practitioners to cultivate faculty for the future.

6. Establish incentives to recruit and retain practice-based teaching faculty.

Professional rewards and incentives should be implemented for faculty and preceptors of agencies and community organizations to increase their participation. Examples:

- Create and increase promotion and tenure policies that recognize faculty contributions of practice-based teaching.[53]

- Adapt models from such national projects as the W.K. Kellogg and The Robert Wood Johnson–funded Turning Point Initiative, which has created community-based practice collaboratives and useful resources for proven models of academic engagement in the community.

- Use, as a guiding document, the 2004 ASPH Summary of Examples of Academic Public Health Practice in Promotion and Tenure Guidelines at Schools of Public Health.

- Monitor and utilize tools developed from the W.K. Kellogg funded initiative, Commission on Community-Engaged Scholarship in the Health Professions, which develops and disseminates tools that health professional faculty and promotion and tenure committees can use to better understand, document, and assess community-engaged scholarship.

7. Establish incentives for students through promotion of student awards and recognition in academic publications to foster student involvement in practice opportunities.

The preparation of students to be effective public health practitioners should include not only a broad range of learning opportunities but also incentives to motivate student participation. Examples:

- Showcase student projects at annual school of public health conferences and national public health meetings, such as the annual American Public Health Association conference.

- Create school of public health awards that recognize a student's substantial involvement in practice activities.

- Publish a periodic column that spotlights a student's practice achievements.

- Increase training funds for students.[54]

FIGURE 11

Suggested Organizational Evaluation Benchmarks for Successful Practice-based Teaching

1.	School of public health missions include a commitment to practice	Evaluation Benchmark: The extent to which the practice culture has been embedded in the culture of the school, as cited in the mission and/or departmental objectives.
2.	Multidisciplinary faculty are committed to practice	Evaluation Benchmark: The extent of discipline-diversity of faculty who are in public health practice–oriented career tracks and are engaged in practice-based teaching and research activities, such as community-based participatory research.
3.	Curriculum contains strong practice components	Evaluation Benchmark: The extent to which the MPH curriculum has incorporated a strong practice component, as visible in the school of public health's promotion and tenure guidelines.
4.	Strong practice-oriented scholarship is evidenced	Evaluation Benchmark: The extent to which the school has incorporated a strong sense of practice-oriented scholarship.
5.	Linkages to ASPH Practice Coordinators' Council are evident	Evaluation Benchmark: The extent to which the school has developed a strong linkage to the ASPH Academic Public Health Practice Committee and the ASPH Council of Public Health Practice Coordinators and whether the dean-appointed practice coordinator is in a position equal to or higher than a position of an associate dean of practice.
6.	Students at the school are committed to careers in public health	Evaluation Benchmark: The extent to which a school organizes and increases partnerships for practice opportunities; and as a consequence, the extent to which students are engaged in those opportunities.
7.	A structure for organized practice activities is evident in a formal model (e.g., Office of Public Health Practice)	Evaluation Benchmark: The extent to which the school supports an office of office of public health practice financially and with resources.
8.	Advisory Boards (internal and external) offer guidance on public health issues in practice	Evaluation Benchmark: The extent to which the school of public health relies on the advice of a practice-based advisory board consisting of both internal and external members, such as the increase of joint faculty/practitioner planned coursework and training.
9.	Support from school of public health deans and committees (external and internal)	Evaluation Benchmark: The extent to which the faculty and practice partners are aware of, and actively participate in, the resource and development activities of the school's office or center of academic public health practice.
10.	A diversified strategy for development and sustainability of practice activities and the provision of support for practice-based teaching methods	Evaluation Benchmark: The extent to which the school has developed and implemented diversified strategies for the development and sustainability of practice-based teaching, such as annual earmarked funds for the office or center of public health practice.

8. Establish a scholarly process for faculty who are engaged in practice activities that allows them to achieve promotion objectives or other career goals and that supports academic/practitioner partnerships.

Within the context of the academic institution, the recruitment, recognition, and rewarding of practice-oriented faculty is critical to the practice-based teaching effort of a school of public health. Examples:

- Provide the instructors with adequate instructional assistance, including support and evaluation feedback for maximum benefits.

- Assist in the development of faculty who lack practice experience. Such faculty members can still achieve important learning outcomes and student satisfaction if they emphasize the relevance of the information they impart, create an instructional atmosphere that fosters active, hands-on student learning, and maximize the use of real-world, practical examples.[55]

- Ensure that adjunct appointments with rank are available to regularly employed community preceptors (e.g., the salary of the person is divided between the health department and the school of public health; at University of South Florida, College of Public Health, for example, the agency and college each provide 50 percent).

EVALUATING THE IMPLEMENTATION OF PRACTICE-BASED TEACHING

In addition to the formative and summative evaluations discussed previously, any evaluation of a school's practice activities should measure the extent to which the practice culture has been embedded in the mission of the school and determine the extent to which the desired outcomes are achieved, effective, and are successful evaluation benchmarks for the future. Figure 11 shows suggested organizational evaluation benchmarks, which are based on the suggestions in figure 6, that would result from a meta-assessment of practice-based teaching in a school of public health.

As practice-based teaching expands, evaluation should be conducted on the value of various teaching mechanisms, on learning, and on the quality of public health services delivered. More attention is needed to evaluate the effectiveness of tools and approaches. Schools of public health may want to develop or expand their repositories that catalogue the wide range of methods and evaluate methods to help guide the creation of reliable, responsible practice-based teaching.

Actions should be taken to advance practice-based teaching not only by the individual schools of public health but also by the members of the ASPH Academic Public Health Practice Committee and the ASPH Council of Public Health Practice Coordinators. A working group of the Council should undertake an inventory of the practice-based teaching activities of the member schools and measure the effectiveness of these activities over time.

Working together, the Deans, with the ASPH Practice Committee and Practice Council, can advocate for federal funding to support public health education and training programs, such as academic health departments through mandated through Title VII of the Public Health Service Act of the U.S. Department of Health and Human Services, which authorizes health professions training programs to improve the distribution, quality, and diversity of the health workforce.

The Committee and Council members, supported by the Deans, can also encourage and promote research in the development, application, and dissemination of successful practice-based teaching methods. Community engagement in scholarly practice-based teaching, research, and service will strengthen the schools' practice partnerships with governmental and nongovernmental public health agencies, community organizations, foundations, hospitals, the managed care industry, and more. These partnerships will serve to reinforce schools of public health responsibility to prepare competent and skilled public health professionals.

A variety of political, economic, and social forces affect the ever-increasing and complex field of public health. Now, more than ever, the leadership of schools of public health is needed to help solve these problems. Because of the multidisciplinary and multidimensional perspectives involved in public health, schools of public health should increase their leadership in ecological-based, transdisciplinary partnerships with health-related disciplines and other professional academies in such areas as nursing, medicine, business, law, and computer science, to help augment public health knowledge and practices. Schools must consider overarching challenges in implementing practice-based teaching. Host agencies and schools are increasingly faced with individual and institutional liability concerns that can impede or threaten discontinuance of the reciprocal dynamic, the shared partnership, for teaching. Moreover, schools of public health and their practice partners are wrestling with the challenging issues of competencies, workforce credentialing, workforce certification, and accreditation of the educational programs of schools. Competencies vary from school to school and become more complicated when such joint study programs as MPH/RN, MPH/MD, MPH/JD, or MPH/MBA are considered. The outcomes of the various credentialing and certification initiatives will undoubtedly have an impact on practice-based teaching. As CEPH accreditation criteria evolve and change in the future, the strategies on how schools meet their teaching, research, and service missions will also be affected.

Despite the challenges, one constant remains: without practice, public health teaching lacks purpose. To produce a prepared public health workforce, academic programs must provide practice-based experiences for their students. The Institute of Medicine's report, *Who Will Keep the Public Healthy: Educating Public Health Professionals for the 21st Century*, calls on academically based public health programs to provide students with "integrated learning opportunities." Within the walls of academic institutions, many multilateral relationships have developed as the result of organizing competitive research projects. These academic/practice relationships require an expansion of a collaborative culture that aligns teaching with complementary intramural-based and extra-

mural-based activities through ecological-based topics and approaches, as recommended by the IOM. The greater challenges for academia will be the paradigm shifts that occur as schools respond to complex issues, including how schools integrate and apply new knowledge that is contributed by the practice communities.

The future expansion of scholarly, practice-based teaching will strengthen public health academia's significant role to improve the public health infrastructure that supports schools of public health and the practice community's joint responsibility —the reciprocal dynamic— to protect the public's health. The benefits of increasing the capacity and effectiveness of practice-based teaching are realized through the outcomes of a better-prepared, competent and diverse public health workforce. It is the intent of this document to promote discussion and stimulate advances in the quality and quantity of practice-based teaching in every school of public health, which is a goal reflected in the vision and mission of public health academia.

Agency: Any organizational setting, whether public or private, to which a student may be assigned for purposes of completing a practicum/internship.

Agency preceptor: An individual within the workplace setting who bears primary responsibility for guiding the (required?) public health student practice/internship during the period of assignment (sometimes called the *agency supervisor, agency liaison,* or *agency mentor*).

Competency: The combination of knowledge, skills, and abilities in a manner that demonstrates the individual's ability to execute the duties and responsibilities associated with a prescribed position or specific job function.

Community service/volunteerism: Community service/volunteerism is determined by the intended service to benefit an organization. It is service provided pro bono to improve the quality of life for community residents or to solve particular problems, and it offers valuable experience in the mission of providing needed service to the community. It helps complements the lifelong learning needs of professionals, and students may want to negotiate with a school of public health for academic credit, based on individual school policy.

Essential Public Health Services: The Essential Public Health Services provide a working definition of public health and a guiding framework for the responsibilities of local public health systems. They describe the public health activities that should be undertaken in all communities. The Core Public Health Functions Steering Committee developed the framework for the Essential Services in 1994.

Experiential education: Experiential education is a philosophy and methodology in which educators purposefully engage with learners in direct experience and focused reflection to increase knowledge, develop skills, and clarify values. It is a systematic approach to applied learning whereby a student is directly engaged in professional and productive learning activities.

Experiential learning: The intentional outcomes of experiential education; learning by doing; a process in which learning occurs as a direct participation in the events of life to produce knowledge. Self-evaluation is a method of assessing progress or success.

Interdisciplinary/cross-curricular: A conscious effort to apply knowledge, principles, and values to more than one academic discipline in a related field or subject simultaneously toward one activity.[56]

Internship: See "Practicum/Internship."

Learning: The goal of practice-based teaching. The acquisition of knowledge, skills, perspectives, and insights through planned instruction, mutual feedback, and a critical reflection process that enables a student to integrate theory and classroom learning within a real or simulated public health work environment. It also enables students to observe and learn from professionals in the field.

Learning contract: A formal agreement between the student, practicum mentor, and agency preceptor that describes learning objectives, activities and methods, timeline, required resources, and deliverables.

Multidisciplinary: A conscious effort to apply knowledge, principles, and values from a range of several academic disciplines simultaneously toward one activity.

Practice-based teaching: A transdisciplinary, collaborative process that engages the student in experiential learning. It includes strategies that enable students to critically reflect and synthesize learning to enhance professional competence.

Practicum/Internship: A defined period of formal, supervised placement, typically external to the school of public health, during which a student defines learning objectives for the placement in coordination with his or her faculty mentor and agency preceptor; follows a planned set of activities to gain professional insight and experience relative to his or her career goals; and fulfills MPH degree requirements. Ongoing communication exists among the student, agency preceptor, and faculty mentor throughout the experience. The practicum or internship may be required or nonrequired. If required, it may also be called the MPH required internship or required capstone, culminating practice experience. Also, depending on the policy of the school of public health, the practicum/internship may be paid or unpaid.

Practicum mentor: A school of public health faculty member who has primary responsibility for guiding the academic component of the practicum (sometimes called *faculty mentor, faculty advisor, faculty preceptor,* or *faculty sponsor*).

Problem-based learning: Problem-based learning requires students to use "triggers," or key facts, from a real-world problem or case to define and shape their learning objectives, although the learning objectives do not have to be established before the experience and may change during the experience. The primary intent is to increase knowledge and develop skills for problem solving in a group context.

Public health education: Public health education is any formal, structured, undergraduate, graduate, or postgraduate course of study or training. It is typically bears credit, but it may include training activities that provide continuing education or lead to other forms of certification.

Public health practice: Public health practice is the strategic, organized, and interdisciplinary application of knowledge, skills, and competencies necessary to perform essential public health services and related activities to improve the population's health.

Public health training: Public health training is a subset of public health education, typically non-degree related, consisting of professionally oriented instruction enabling the practitioner to meet state or local professional licensure requirements; it also may provide a means for professional growth and development.

Reflection/Reflective Learning: Reflection is the process of stepping back from an experience to ponder, carefully and persistently, its meaning to the self through the development of inferences; learning is the creation of meaning from past or current events that serves as a guide for future behavior.[57]

Service-learning: Service-learning is a structured learning experience that combines community service with preparation and reflection. Students engaged in service-learning provide community service in response to community-identified concerns and learn about the context in which service is provided, the connection between their service and their academic coursework, and their roles as citizens.

Transdisciplinary: Broadly constituted of a range of disciplines using an ecological approach to address complex health issues; an integrated, team-based approach to problem solving that makes a simultaneous blend and use of a broad range of disciplines to focus on a problem or issue to inform, provide guidance, and reach solutions toward using a holistic view. The process and outcomes go beyond and transcend individual disciplines by crossing traditional professional boundaries, and individuals strive to adapt their own discipline's theories and research to the needs of other disciplinary members.[58]

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