

SPECIAL ARTICLES

Center for the Advancement of Pharmacy Education 2013 Educational Outcomes

Melissa S. Medina, EdD,^{a*} Cecilia M. Plaza, PharmD, PhD,^b Cindy D. Stowe, PharmD,^c Evan T. Robinson, PhD,^d Gary DeLander, PhD,^e Diane E. Beck, PharmD,^f Russell B. Melchert, PhD,^g Robert B. Supernaw, PharmD,^h Victoria F. Roche, PhD,ⁱ Brenda L. Gleason, PharmD,^j Mark N. Strong, PharmD,^k Amanda Bain, PharmD, MPH,^l Gerald E. Meyer, PharmD, MBA,^m Betty J. Dong, PharmD,ⁿ Jeffrey Rochon, PharmD,^o and Patty Johnston, RPh^p

^aCollege of Pharmacy, The University of Oklahoma, Oklahoma City, Oklahoma, Chair*

^bAmerican Association of Colleges of Pharmacy, Alexandria, Virginia

^cCollege of Pharmacy, University of Arkansas for Medical Sciences, Little Rock Arkansas, Arkansas

^dCollege of Pharmacy, Western New England University, Springfield, Massachusetts

^eCollege of Pharmacy, Oregon State University, Corvallis, Oregon

^fCollege of Pharmacy, University of Florida, Gainesville, Florida

^gSchool of Pharmacy, University of Missouri-Kansas City, Kansas City, Missouri

^hSchool of Pharmacy, Wingate University, Wingate, North Carolina

ⁱSchool of Pharmacy and Health Professions, Creighton University, Omaha, Nebraska

^jSt. Louis College of Pharmacy, St. Louis, Missouri

^kNorthern Navajo Medical Center, Indian Health Service, Ship Rock, New Mexico

^lThe Ohio State University Health Plan, Inc, Columbus, Ohio

^mJefferson School of Pharmacy, Thomas Jefferson University, Philadelphia, Pennsylvania

ⁿSan Francisco School of Pharmacy, University of California, San Francisco, California

^oWashington Pharmacists Association, Renton, Washington

^pColony Drug and Wellness Center, Beckly, West Virginia

An initiative of the Center for the Advancement of Pharmacy Education (formerly the Center for the Advancement of Pharmaceutical Education) (CAPE), the CAPE Educational Outcomes are intended to be the target toward which the evolving pharmacy curriculum should be aimed. Their development was guided by an advisory panel composed of educators and practitioners nominated for participation by practitioner organizations. CAPE 2013 represents the fourth iteration of the Educational Outcomes, preceded by CAPE 1992, CAPE 1998 and CAPE 2004 respectively. The CAPE 2013 Educational Outcomes were released at the AACP July 2013 Annual meeting and have been revised to include 4 broad domains, 15 subdomains, and example learning objectives.

Keywords: CAPE, educational outcomes

CAPE BACKGROUND AND 2013 REVISION PROCESS

CAPE 2013 represents the fourth version (preceded by panels in 1992, 1998 and 2004) of educational outcomes created to guide curricular discussions of faculty and preceptors within the academy and curriculum planning,

Corresponding Author: Cecilia M. Plaza, PharmD, PhD, Senior Director of Academic Affairs, Director of the Center for the Advancement of Pharmacy Education, American Association of Colleges of Pharmacy, 1727 King Street, Floor 2, Alexandria, VA 22314. Tel: 703-739-2330, ext. 1018. Fax: 703-836-8982. E-mail: cplaza@aacp.org

*Committee chair.

delivery, and assessment within colleges and schools of pharmacy.^{1,2} CAPE will be established as an active Center within the Association, in recognition of the key role the CAPE Educational Outcomes continue to play in the evolution of pharmacy education. Revision of the CAPE 2004 Educational Outcomes was recommended by the 2010-2011 AACP Academic Affairs Standing Committee and the AACP Board of Directors commissioned the CAPE 2013 panel in the spring of 2012.³ The CAPE 2013 panel was charged to review and revise the CAPE Educational Outcomes to ensure that the outcomes are relevant and consistent with emerging scientific and clinical developments and practitioner roles. Melissa S. Medina,

EdD (University of Oklahoma) was selected to chair the panel and Cecilia M. Plaza, PharmD, PhD, served as AACP staff liaison. The Panel was comprised of representation from 8 Joint Commission Pharmacy Practitioners member organizations and 7 AACP appointees listed in Table 1.

To guide their work, the CAPE 2013 panel used literature from pharmacy and other health professions to provide evidence-based revisions. The panel gained additional perspectives from other health professions when they met representatives from the Interprofessional Education Collaborative (IPEC) organizations including Association of American Medical Colleges (AAMC), American Association of Colleges of Osteopathic Medicine (AACOM), American Association of Colleges of Nursing (AACN), and American Dental Education Association (ADEA), American Association of Colleges of Pharmacy (AACP), as well as a patient care advocate. The panel also sought input regarding the revision from the pharmacy academy through focus groups at the AACP 2012 Annual and 2013 Interim meetings. The detailed methodology used in the development of CAPE 2013 can be found in the 2012-13 Academic Affairs Standing Committee report.⁴ Through these meetings, general themes and suggestions emerged that have helped shape the revision process. Specifically, the majority of feedback called for:

- Continued commitment to a firm grounding in the science of the profession,
- Inclusion of an affective domain that would address personal and professional skills, attitudes and

attributes required for the delivery of patient-centered care,

- Emphasis on what is unique to pharmacists and their role in healthcare,
- Enhanced clarity of terminology that aligns with the core content and language of other health professions,
- Outcomes that are forward thinking and aspirational, yet achievable and measurable,
- Creation of example learning objectives for each subdomain to guide programs in curricular revision and assessment
- Minimization of redundancy in outcomes within the document.

Preamble

The CAPE 2013 Educational Outcomes were created by focusing on the end of the Doctor of Pharmacy program and the knowledge, skills, and attitudes entry-level graduates should possess. They are designed to define for the academy and other health professions the curricular priorities of the Doctor of Pharmacy programs. The CAPE 2013 Educational Outcomes provide a structured framework for promoting and guiding curricular change, inspiring innovation, meeting challenges facing pharmacy education, and mapping and measuring programmatic outcomes. They are aspirational and emphasize increased program expectations; motivating educators and students alike to strive for the highest level of professional prepa-

Table 1. CAPE 2013 Panel Members

AACP Appointees	JCPP Appointees^a
Melissa S. Medina, EdD, Chair, The University of Oklahoma, College of Pharmacy	ACPE Appointee: Victoria F. Roche, PhD, Creighton University, School of Pharmacy and Health Professions
Cecilia M. Plaza, PharmD, PhD, Staff Liaison, American Association of Colleges of Pharmacy	ACCP Appointee: Brenda L. Gleason, PharmD, St. Louis College of Pharmacy
Cindy D. Stowe, PharmD, University of Arkansas for Medical Sciences, College of Pharmacy	APhA Appointee: Mark N. Strong, PharmD, Northern Navajo Medical Center, Indian Health Service
Evan T. Robinson, PhD, Western New England University, College of Pharmacy	AMCP Appointee: Amanda Bain, PharmD, MPH, The Ohio State University Health Plan, Inc
Gary E. DeLander, PhD, Oregon State University, College of Pharmacy	ASHP Appointee: Gerald E. Meyer, PharmD, MBA, Thomas Jefferson University, Jefferson School of Pharmacy
Diane E. Beck, PharmD, University of Florida, College of Pharmacy	NABP Appointee: Betty J. Dong, PharmD, University of California at San Francisco, School of Pharmacy
Russell B. Melchert, PhD, University of Missouri-Kansas City, School of Pharmacy	NASPA Appointee: Jeffrey Rochon, PharmD, Washington Pharmacists Association
Robert B. Supernaw, PharmD, Wingate University, School of Pharmacy	NCPA Appointee: Patty Johnston, RPh, Colony Drug and Wellness Center

^a Joint Commission of Pharmacy Practitioners (JCPP) appointees were nominated from the following JCPP members: the American Association of Colleges of Pharmacy (AACP), the Accreditation Council for Pharmacy Education (ACPE), the American College of Clinical Pharmacy (ACCP), the American Pharmacists Association (APhA), the Academy of Managed Care Pharmacy (AMCP), the American Society of Health-System Pharmacists (ASHP), the National Association of Boards of Pharmacy (NABP), the National Alliance of State Pharmacy Associations (NASPA), and the National Community Pharmacists Association (NCPA)

ration. They are also intended to be achievable by the end of the professional program and measurable within academic and practice environments that are evolving to meet a changing healthcare system.

CAPE 2013 was intentionally expanded beyond knowledge and skills to include the affective domain, in recognition of the importance of professional skills and personal attributes to the practice of pharmacy. The change emphasizes the mindset of self-awareness, innovation, leadership, and professionalism needed for pharmacy practice. The affective domain bridges foundational scientific knowledge with essential skills and approaches to practice and care. It also highlights that a concentration in any singular domain alone is insufficient for graduates to practice at the highest level of the profession. Instead, this expanded scope is essential for pharmacists to be able to transform their knowledge and skills into positive outcomes in all professional settings. Reexamination of programmatic educational outcomes in context of this revision should include attention to admissions as this examination is critical to assure candidates are prepared to advance in all essential domains of the professional program. Attention should also be paid to integrated assessments to ensure that students are retaining, integrating, and applying the knowledge, skills, and attitudes.

The outcomes were purposefully constructed around 4 broad domains to guide the academy in educating pharmacists who possess: 1) foundational knowledge that is integrated throughout pharmacy curricula, 2) essentials for practicing pharmacy and delivering patient-centered care, 3) effective approaches to practice and care, and 4) the ability to develop personally and professionally.

The 4 broad domains of CAPE 2013 are divided into 15 specific subdomains. The subdomain outcome statements are designed to capture what students should be capable of upon graduation from a Doctor of Pharmacy program. A one word descriptor in parenthesis is provided for each subdomain that illustrates the main construct and can be used to concisely articulate the outcome. In addition to the 15 subdomain outcome statements, example student learning objectives for each subdomain have been developed to guide programs in curricular revision and assessment. The domains, subdomains, and example learning objectives are coded with a numbering system to increase clarity. The depth and delineation of the example learning objectives allows for mission specific needs of individual institutions to be met at the programmatic level. Colleges or schools are encouraged to expand or edit these example learning objectives to meet local needs, as these are *not* designed to be prescriptive. To illustrate this flexibility, an example of expanded learning objectives has been provided in Table 2. To provide clarity of terms used in the

outcome statements and learning objectives a glossary was created, see Table 3. The terms defined in the glossary are bolded and italicized in the CAPE 2013 document.

Overall, an essential premise of CAPE 2013 is that pharmacists now and of the future must be capable of functioning collaboratively as members of an interprofessional team, advocating for patients and demonstrating leadership, providing care for diverse patient populations, contributing to the health and wellness of individuals and communities, educating a broad range of constituents, and effectively managing a highly technical workplace. CAPE 2013 is designed to represent all areas of pharmacy and guide the academy's efforts to educate Doctor of Pharmacy students.

EDUCATIONAL OUTCOMES

Domain 1 – Foundational Knowledge

1.1. Learner (Learner) - Develop, integrate, and apply knowledge from the foundational sciences (i.e., pharmaceutical, social/behavioral/administrative, and clinical sciences) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and patient-centered care.

Examples of Learning Objectives (colleges or schools are encouraged to expand or edit these example learning objectives to meet local needs, as these are not designed to be prescriptive):*

- 1.1.1. Develop and demonstrate depth and breadth of knowledge in pharmaceutical, social/behavioral/administrative, and clinical sciences.
- 1.1.2. Articulate how knowledge in foundational sciences is integral to clinical reasoning; evaluation of future advances in medicine; supporting health and wellness initiatives; and delivery of contemporary pharmacy services.
- 1.1.3. Integrate knowledge from foundational sciences to explain how specific drugs or drug classes work and evaluate their potential value in individuals and populations.
- 1.1.4. Apply knowledge in foundational sciences to solve therapeutic problems and advance patient-centered care.
- 1.1.5. Critically analyze scientific literature related to drugs and disease to enhance clinical decision making.
- 1.1.6. Identify and critically analyze emerging theories, information, and technologies that may impact patient-centered and population based care.

Domain 2 – Essentials for Practice and Care

2.1. Patient-centered care (Caregiver) - Provide patient-centered care as the medication expert (collect and interpret

evidence, prioritize, formulate assessments and recommendations, implement, monitor and adjust plans, and document activities).

Examples of Learning Objectives:*

- 2.1.1. Collect subjective and objective evidence related to patient, medications, allergies/adverse reactions, and disease, by performing patient assessment (including physical assessment) from chart/electronic health records, pharmacist records and patient/family interviews.
- 2.1.2. Interpret evidence and patient data.
- 2.1.3. Prioritize patient needs.
- 2.1.4. Formulate evidence based care plans, assessments, and recommendations.
- 2.1.5. Implement patient care plans.
- 2.1.6. Monitor the patient and adjust care plan as needed.
- 2.1.7. Document patient care related activities.

2.2. Medication use systems management (Manager) - Manage patient healthcare needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication use systems.

Examples of Learning Objectives:*

- 2.2.1. Compare and contrast the components of typical medication use systems in different pharmacy practice settings.
- 2.2.2. Describe the role of the pharmacist in impacting the safety and efficacy of each component of a typical medication use system (i.e., procurement, storage, prescribing, transcription, dispensing, administration, monitoring, and documentation).
- 2.2.3. Utilize technology to optimize the medication use system.
- 2.2.4. Identify and utilize human, financial, and physical resources to optimize the medication use system.
- 2.2.5. Manage healthcare needs of patients during transitions of care.
- 2.2.6. Apply standards, guidelines, best practices, and established processes related to safe and effective medication use.
- 2.2.7. Utilize continuous quality improvement techniques in the medication use process.

2.3. Health and wellness (Promoter) - Design prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness.

Examples of Learning Objectives:*

- 2.3.1. Describe systematic preventive care, using risk assessment, risk reduction, screening, education, and immunizations.

2.3.2. Provide prevention, intervention, and educational strategies for individuals and communities to improve health and wellness.

2.3.3. Participate with *interprofessional* healthcare team members in the management of, and health promotion for, all patients.

2.3.4. Evaluate personal, social, economic, and environmental conditions to maximize health and wellness.

2.4. Population-based care (Provider) - Describe how population-based care influences patient-centered care and influences the development of practice guidelines and evidence-based best practices.

Examples of Learning Objectives:*

2.4.1. Assess the healthcare status and needs of a targeted patient population.

2.4.2. Develop and provide an evidence-based approach that considers the cost, care, access, and satisfaction needs of a targeted patient population.

2.4.3. Participate in *population health management* by evaluating and adjusting interventions to maximize health.

Domain 3 - Approach to Practice and Care

3.1. Problem Solving (Problem Solver) – Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

Examples of Learning Objectives:*

- 3.1.1. Identify and define the primary problem.
- 3.1.2. Define goals and alternative goals.
- 3.1.3. Explore multiple solutions by organizing, prioritizing, and defending each possible solution.
- 3.1.4. Anticipate positive and negative outcomes by reviewing assumptions, inconsistencies, and unintended consequences.
- 3.1.5. Implement the most viable solution, including monitoring parameters, to measure intended and unintended consequences.
- 3.1.6. Reflect on the solution implemented and its effects to improve future performance.

3.2. Educator (Educator) – Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding.

Examples of Learning Objectives:*

- 3.2.1. Conduct a learning needs assessment of constituents who would benefit from pharmacist-delivered education (e.g., patients/caregivers,

technicians and interns, pharmacy students, fellow pharmacists, other healthcare providers, legislators).

- 3.2.2. Select the most effective techniques/strategies to achieve learning objectives.
- 3.2.3. Demonstrate the ability to coordinate educational efforts with other healthcare providers, when appropriate, to ensure a consistent, comprehensive, and team-based encounter.
- 3.2.4. Ensure instructional content contains the most current information relevant for the intended audience.
- 3.2.5. Adapt instruction and deliver to the intended audience.
- 3.2.6. Assess audience comprehension.

3.3. Patient Advocacy (Advocate) - Assure that patients' best interests are represented.

Examples of Learning Objectives:*

- 3.3.1. Empower patients to take responsibility for, and control of, their health.
- 3.3.2. Assist patients in navigating the complex healthcare system.
- 3.3.3. Ensure patients obtain the resources and care required in an efficient and cost-effective manner (e.g., triage to social and/or other healthcare services).

3.4. Interprofessional collaboration (Collaborator) – Actively participate and engage as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs.

Examples of Learning Objectives:*

- 3.4.1. Establish a climate of shared values and mutual respect necessary to meet patient care needs.
- 3.4.2. Define clear roles and responsibilities for team members to optimize outcomes for specific patient care encounters.
- 3.4.3. Communicate in a manner that values team-based decision making and shows respect for contributions from other areas of expertise.
- 3.4.4. Foster accountability and leverage expertise to form a highly functioning team (one that includes the patient, family, and community) and promote shared patient-centered problem solving.

3.5. Cultural sensitivity (Includer) - Recognize social determinants of health to diminish disparities and inequities in access to quality care.

Examples of Learning Objectives:*

- 3.5.1. Recognize the collective identity and norms of different cultures without overgeneralizing (i.e., recognize and avoid biases and stereotyping).
- 3.5.2. Demonstrate an attitude that is respectful of different cultures.
- 3.5.3. Assess a patient's health literacy and modify communication strategies to meet the patient's needs.
- 3.5.4. Safely and appropriately incorporate patients' cultural beliefs and practices into health and wellness care plans.

3.6. Communication (Communicator) – Effectively communicate verbally and nonverbally when interacting with an individual, group, or organization.

Examples of Learning Objectives:*

- 3.6.1. Interview patients using an organized structure, specific questioning techniques (e.g., motivational interviewing), and medical terminology adapted for the audience.
- 3.6.2. Actively listen and ask appropriate open and closed-ended questions to gather information.
- 3.6.3. Use available technology and other media to assist with communication as appropriate.
- 3.6.4. Use effective interpersonal skills to establish rapport and build trusting relationships.
- 3.6.5. Communicate assertively, persuasively, confidently, and clearly.
- 3.6.6. Demonstrate empathy when interacting with others.
- 3.6.7. Deliver and obtain feedback to assess learning and promote goal setting and goal attainment.
- 3.6.8. Develop professional documents pertinent to organizational needs (e.g., monographs, policy documents).
- 3.6.9. Document patient care activities clearly, concisely, and accurately using appropriate medical terminology.

Domain 4 – Personal and Professional Development

4.1. Self-awareness (Self-aware) – Examine and reflect on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth.

Examples of Learning Objectives:*

- 4.1.1. Use metacognition to regulate one's own thinking and learning.

Table 2. Example of Expanded Learning Objectives Within a Subdomain

Subdomain	Example Learning Objectives^a	Example Expanded Learning Objectives^a
2.2. Medication use systems management (Manager) - Manage patient healthcare needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication use systems.	2.2.3. Utilize technology to optimize the medication use system. 2.2.4. Identify and utilize human, financial, and physical resources to optimize the medication use system.	<ul style="list-style-type: none"> ● Utilize clinical decision support systems to address alerts (e.g., drug dosing, drug interactions, duplicate therapies). ● Locate, retrieve, and organize information needed to manage medication use from the electronic health record. ● Use technology to assure safe and accurate medication dispensing, administration, and monitoring. <p>Human Resources</p> <ul style="list-style-type: none"> ● Describe workforce and workflow principles (e.g., recruitment, retention, training, development, evaluation, termination, and other human resources) to create an effective team. <p>Financial Resources</p> <ul style="list-style-type: none"> ● Describe the elements of a pharmacy budget. ● Review financial performance (e.g., revenues and expenses). ● Describe the key elements of contracts. ● Participate in inventory management (e.g., purchasing, storage, inventory tracking, returns, and disposal). ● Explain various healthcare payment and risk management systems. <p>Physical Resources</p> <ul style="list-style-type: none"> ● Describe legal requirements for space and equipment within a pharmacy. ● Evaluate processes to improve workflow efficiency, effectiveness, and patient safety.

^a Colleges or schools are encouraged to expand or edit these example learning objectives to meet local needs, as these are not designed to be prescriptive.

- 4.1.2. Maintain motivation, attention, and interest (e.g., habits of mind) during learning and work-related activities.
- 4.1.3. Identify, create, implement, evaluate and modify plans for personal and professional development for the purpose of individual growth.
- 4.1.4. Approach tasks with a desire to learn.
- 4.1.5. Demonstrate persistence and flexibility in all situations; engaging in help seeking behavior when appropriate.
- 4.1.6. Strive for accuracy and precision by displaying a willingness to recognize, correct, and learn from errors.
- 4.1.7. Use constructive coping strategies to manage stress.
- 4.1.8. Seek personal, professional, or academic support to address personal limitations.
- 4.1.9. Display positive self-esteem and confidence when working with others.

4.2. Leadership (Leader) - Demonstrate responsibility for creating and achieving shared goals, regardless of position.

Examples of Learning Objectives:*

- 4.2.1. Identify characteristics that reflect leadership versus management.
- 4.2.2. Identify the history (e.g., successes and challenges) of a team before implementing changes.
- 4.2.3. Develop relationships, value diverse opinions, and understand individual strengths and weaknesses to promote teamwork.
- 4.2.4. Persuasively communicate goals to the team to help build consensus.
- 4.2.5. Empower team members by actively listening, gathering input or feedback, and fostering collaboration.

4.3. Innovation and Entrepreneurship (Innovator) - Engage in innovative activities by using creative thinking

Table 3. Glossary

Term	Definition
Advocacy	The act or process of supporting a cause, idea, policy, or person(s). ⁵
Clinical Sciences	The areas of the professional pharmacy curriculum focused on the integration and application of the foundational sciences (e.g. pharmaceutical and social, administrative, and behavioral sciences) to improve the human condition through the safe and efficacious use medications. ⁶⁻⁷
Competency	A complex set of behaviors built through the integration of knowledge, skills, and attitudes. A competency is observable, measurable, important, and necessary for the practice of pharmacy. ⁸⁻¹¹
Constructive Coping Strategies	Consciously working to solve personal and interpersonal problems and minimize or tolerate stress. ¹²
Culture	Sharing a collective identity, common history and experience, and shared beliefs, values, and norms. ¹³
Entrepreneurial skills	Skills that entrepreneurs effectively exhibit such as: decision making, strategic thinking, risk taking, confidence building, communicating ideas, motivating team members, tolerance of ambiguity, taking responsibility for actions. ¹⁴⁻¹⁶
Habits of Mind	<i>The dispositions that are intentionally used by characteristically successful people when confronted with problems that have no immediately apparent solutions.</i> ^{17,18} <i>These dispositions include:</i> <ol style="list-style-type: none"> 1. Persisting 2. Managing impulsivity 3. Listening with understanding and empathy 4. Thinking flexibly 5. Thinking about your thinking, emotions, and biases 6. Striving for accuracy 7. Questioning with critical curiosity; problem posing 8. Applying past knowledge to new situations 9. Thinking and communicating with clarity and precision 10. Attentively gathering data through all senses 11. Creating, imagining and innovating 12. Responding with wonderment and awe 13. Taking responsible risks 14. Finding humor 15. Thinking interdependently 16. Remaining open to continuous learning
Health literacy	One of the social determinants of health referring to the degree to which an individual can obtain and process basic health information to understand and make appropriate health decisions. ¹⁹
Help Seeking	Assessing needs and finding assistance when a deficit is identified that is associated with academic success. ²⁰
Innovation	The act or process of introducing new ideas, devices, or methods. ²¹
Interprofessional	Two or more professions working together collaboratively. Interprofessional is contrasted with the term interdisciplinary, which focuses on when two or more fields within the same profession interact. ^{22,23}
Leadership	Leadership involves inspiring others. It is a function of knowing yourself, creating a culture of trust and open communication, having a vision that is well communicated, empowering others, taking a broad view of situations, and forming strategic alliances. ^{24,25}
Management	Identifying, implementing, and overseeing resources to effectively accomplish specific projects or processes. ²⁶
Medication Use System	A complex process comprised of medication prescribing, order processing, dispensing, administration, and effects monitoring (e.g., intended or unintended effects). ²⁷

(Continued)

Table 3. (Continued)

Term	Definition
Metacognition	Knowledge about one's own thinking processes and consciously planning, monitoring, and evaluating learning. ^{28,29}
Learning Objective	Brief and specific statements that indicate what learners are expected to know or be able to do after taking part in an educational activity. Objectives may be cognitive, affective, or psychomotor. ³⁰
Learning (Educational) Outcome	Statements that describe what a learner should be able to do at the end of a program. ³¹
Patient-centered Care	Any care that is respectful of and responsive to individual patient preferences, needs, and values, and ensures that patient values guide all clinical decisions. ³²
Pharmaceutical Sciences	The integrative science disciplines (e.g., pharmaceuticals, pharmacokinetics, pharmacology, toxicology, and medicinal chemistry) taught in the professional pharmacy curriculum that, collectively explain drug actions. The pharmaceutical sciences build on principles introduced in the preprofessional (chemistry, physics, biology) and biomedical (anatomy, physiology, biochemistry) sciences. ³³
Population-based Care	A comprehensive care approach where practitioners assess the health needs of a specific population, implement and evaluate interventions to improve the health of that population, and provide care for individual patients in the context of the culture, health status, and health needs of the populations of which that patient is a member. ³⁴
Population Health Management	A set of interventions designed to maintain and improve people's health across the full continuum of care—from low-risk, healthy individuals to high-risk individuals with one or more chronic conditions. ^{35,36}
Social, Behavioral, and Administrative Sciences	The disciplines and concepts of public health, epidemiology, economics, financial management, health behavior, outcomes, biostatistics and research methods, law and ethics, healthcare administration, management, and operations, marketing, communications, medication distribution systems taught within the professional pharmacy curriculum. ³⁷⁻³⁹
Social Determinants of Health	Circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness. Examples include age, race/ethnicity, gender, socioeconomic status, health literacy, religious beliefs, disability status, diagnosis, LGBT (ie, lesbian, gay, bisexual, transgender) status, and geography. ^{40,41}
Transitions of Care	The movement of a patient from one setting of care (e.g., hospital, ambulatory primary care clinic, ambulatory specialty care clinic, long-term care facility, home health, rehabilitation facility) to another. ^{42,43}

to envision better ways of accomplishing professional goals.

Examples of Learning Objectives:*

- 4.3.1. Demonstrate initiative when confronted with challenges.
- 4.3.2. Develop new ideas and approaches to improve quality or overcome barriers to advance the profession.
- 4.3.3. Demonstrate creative decision making when confronted with novel problems or challenges.
- 4.3.4. Assess personal strengths and weaknesses in entrepreneurial skills
- 4.3.5. Apply entrepreneurial skills within a simulated entrepreneurial activity.
- 4.3.6. Conduct a risk-benefit analysis for implementation of an innovative idea or simulated entrepreneurial activity.

4.4. Professionalism (Professional) - Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society.

Examples of Learning Objectives:*

- 4.4.1. Demonstrate altruism, integrity, trustworthiness, flexibility, and respect in all interactions.
- 4.4.2. Display preparation, initiative, and accountability consistent with a commitment to excellence.
- 4.4.3. Deliver patient-centered care in a manner that is legal, ethical, and compassionate.
- 4.4.4. Recognize that one's professionalism is constantly evaluated by others.
- 4.4.5. Engage in the profession of pharmacy by demonstrating a commitment to its continual improvement.

ACKNOWLEDGEMENTS

This report is the product of the 2013 CAPE Panel and is intended to serve as a resource. It is not an adopted policy of AACP or other supporting organizations.

REFERENCES

1. Association of Colleges of Pharmacy. *Educational Outcomes 1998*. Alexandria VA: Center for the Advancement of Pharmaceutical Education Outcomes; 1998. <http://www.aacp.org/resources/education/cape/Documents/CAPE%20Outcomes%20Document%201998.pdf>.
2. American Association of Colleges of Pharmacy. *Educational Outcomes 2004*. Alexandria VA: Center for the Advancement of Pharmaceutical Education Outcomes; 2004. <http://www.aacp.org/resources/education/Documents/CAPE2004.pdf>.
3. Mason HL, Assemi M, Brown B, et al. Report of the 2010-2011 academic affairs standing committee. *Am J Pharm Educ*. 2011; 75(10): Article S12.
4. Medina MS, Plaza CM, Stowe CD, et al. Report of the 2012-13 Academic Affairs Standing Committee: revising the Center for the Advancement of Pharmacy Education (CAPE) educational outcomes 2013. *Am J Pharm Educ*. 2013; in press.
5. Bzowycykj AS, Janke KK. A consensus definition and core competencies for being an advocate for pharmacy. *Am J Pharm Educ* 2013;77(2): Article 24.
6. American College of Clinical Pharmacy. The definition of clinical pharmacy. *Pharmacotherapy*. 2008;28(6):816-817.
7. Accreditation Council for Pharmacy Education. Accreditation standards and guidelines for the professional program in pharmacy leading to the doctor of pharmacy degree. 2007. http://www.acpe-accredit.org/pdf/ACPE_Revised_PharmD_Standards_Adopted_Jan152006.pdf. Accessed June 2013.
8. Rowe C. Clarifying the use of competence and competency models in recruitment, assessment and staff development. *Ind Commer Train*. 1995;27(11):12-17.
9. Carraccio C, Wolfsthal SD, Englander R, Ferentz K, Martin C. Shifting paradigms: from Flexner to competencies. *Acad Med*. 2002;77(5):361-367.
10. Albanese MA, Mejicano G, Mullan P, Kokotailo P, Gruppen L. Defining characteristics of educational competencies. *Med Educ*. 2008;42(3):248-255.
11. Epstein RM, Hundert EM. Defining and assessing professional competence. *JAMA*. 2002;287(2):226-235.
12. Shaikh BT, Kahloon A, Kazmi M, et al. Students, stress, and coping strategies. *Educ Health*. 2004;17(3):346-353.
13. Smith WT, Roth JJ, Okoro O, Kimberlin C, Odedina FT. Disability in cultural competency pharmacy education. *Am J Pharm Educ*. 2011;75(2): Article 26.
14. Vandel JH. Developing a spirit of entrepreneurship and a managerial attitude in students. *Am J Pharm Educ*. 1985;49(4): 371.
15. Gartner WB, Baker T. A plausible history and exploration of Howard Stevenson's definition of entrepreneurship. *Front Entrep Res*. 2010;30(4): Article 2.
16. Brazeau G. Entrepreneurial spirit in pharmacy. *Am J Pharm Educ*. 2013;77(5): Article 88.
17. Habits of Mind. Defining habits of mind: a close look. <http://www.habitsofmind.org/content/defining-habits-mind-close-look>. Accessed May 2013.
18. Speedie MK, Baldwin JN, Carter RA, Raehl CL, Yanchick VA, Maine LL. Cultivating 'habits of mind' in the scholarly pharmacy clinician: report of the 2011-12 Argus Commission. *Am J Pharm Educ*. 2012;76(6):Article S3.
19. Consumer Health Informatics Research Resources (CHIRr). <http://www.chirr.nlm.nih.gov/health-literacy>. Accessed June 2013.
20. Payakachat N, Gubbins PO, Ragland D, et al. Academic help-seeking behavior among student pharmacists. *Am J Pharm Educ*. 2013;77(1): Article 7.
21. Merriam-Webster Dictionary Online. Innovation. <http://www.learnersdictionary.com/search/Innovation>. Accessed May 2013.
22. World Health Organization. Framework for action on interprofessional education & collaborative practice. http://www.who.int/hrh/resources/framework_action/en/. Accessed June 2013.
23. Purden M. Cultural considerations in interprofessional education and practice. *J Interprof Care*. 2005;19(Supplement 1): 224-234.
24. Bennis, W. *On Becoming a Leader*. Reading, MA: Addison-Wesley Publishing Company; 1995.
25. Zgarrick DP. Management functions. In: Desselle SP, Zgarrick DP, Alston GL, eds. *Pharmacy Management: Essentials for All Practice Settings, 3rd edition*. New York: McGraw-Hill; 2012.
26. Fincham JE. Leaders or managers for difficult times. *Am J Pharm Educ*. 2009;73(2): Article 29.
27. Institute for Safe Medication Practices. http://www.ismp.org/faq.asp#Question_3. Accessed May 2013.
28. Flavell, JH. Metacognition and cognitive monitoring. *Am Psychol*. 1979;34(10): 906-911.
29. Garrett J, Alman M, Gardner S, Born C. Assessing students' metacognitive skills. *Am J Pharm Educ*. 2007;71(1): Article 14.
30. Wojtczak, A. Glossary of medical education terms: part 4. *Med Teach*. 2002; 24(5):567-68.
31. National Institute for Learning Outcomes Assessment. Providing evidence of student learning: a transparency framework. <http://www.learningoutcomesassessment.org/TFCComponentSLOS.htm>. Accessed May 2013.
32. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press; 2001. <http://iom.edu/~media/Files/Report%20Files/2001/Crossing-the-Quality-Chasm/Quality%20Chasm%202001%20%20report%20brief.pdf>. Accessed May 2013.
33. Pandit NK, Soltis RP. *Introduction to the Pharmaceutical Sciences, 2nd edition*. Philadelphia, PA: Lippincott Williams & Wilkins; 2011.
34. Association of American Medical Colleges, Medical Informatics Panel and the Population Health Perspective Panel. Contemporary issues in medical informatics and population health: report II of the Medical School Objectives Project. *Acad Med*. 1999;74(2):130-141.
35. Zeich R. Patient identification as a key to population health management. *New Med*. 1998;2:109-116.
36. Felt-Lisk S, Higgins T. Exploring the promise of population health management programs to improve health. http://www.mathematica-mpr.com/publications/pdfs/health/PHM_brief.pdf. Accessed May 2013.
37. American Association of Colleges of Pharmacy. Social and administrative sciences section. <http://www.aacp.org/governance/SECTIONS/socialadmsciences/Pages/default.aspx>. Accessed June 2013.
38. American Pharmacists Association. APhA-APRS Sections. <http://www.pharmacist.com/apha-aphr-sections/>. Accessed June 2013.
39. Research in Social & Administrative Pharmacy. About RSAP. <http://www.rsap.org/>. Accessed June 2013.

40. World Health Organization. Social determinants of health: key concepts. http://www.who.int/social_determinants/thecommission/finalreport/key_concepts/en/index.html. Accessed May 2013.

41. Report of the National Expert Panel on Social Determinants of Health Equity: Recommendations for Advancing Efforts to Achieve *Health Equity*. Atlanta, GA. September 2009. <http://www.unnaturalcauses.org/assets/uploads/file/SDOH%20Expert%20Panel%20Report%20final%2009%2025%202009.pdf>. Accessed May 2013.

42. National Transitions of Care Coalition. Improving Transitions of care: the vision of the National Transitions of Care Coalition. <http://www.ntocc.org/Portals/0/PDF/Resources/PolicyPaper.pdf>. Accessed June 2013.

43. Centers for Medicare and Medicaid Services. Eligible professional meaningful use menu set measures. http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/downloads/8_Transition_of_Care_Summary.pdf. Accessed May 2013.