

Master Adaptive Learning as a Framework for Physical Therapist Professional Education: A Call to Action

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Introduction

We believe it is imperative that the culture and practice of physical therapist education (Doctor of Physical Therapy, or DPT) evolve to ensure the sustainability of physical therapist professional education and the influence of the physical therapy profession on the health of society. To prepare future physical therapists to integrate into the rapidly and ubiquitously changing environments of practice, research, and health care, innovations in professional education are critical.^{1–3} Research is advancing our knowledge about science, diagnosis, and intervention. Simultaneously, practice is responding to a myriad of socioeconomic and political factors, new health care organizational structures, restricted payment policies, new conceptions of health and wellness, and shifts in the health profile across the lifespan. Furthermore, market forces have entered the professional environment, creating additional, powerful catalysts for change, such as expanding applicant competition among an increasing number of entry-level (professional) DPT programs, a shortage of qualified academic leaders and faculty, a decline in undergraduate enrollments that feed our graduate programs, changing expectations of college graduates, and a rapidly rising debt load of physical therapists following their professional education.^{4,5} The literature regarding education best practices also is shifting, with a critical focus on producing master adaptive physical therapist learners who will bring new visions of practice to improve the health, wellness, and mobility of our society.^{6,7} We believe that advancing DPT education by focusing on adaptive learning practices is essential to better prepare physical therapists for the future.

To develop professionals prepared to practice within the evolving health care landscape, DPT education must shift its

focus. Each new graduate must have the skills and mindset to adapt to rapid advances in science and practice within a myriad of social, cultural, economic, and organizational contexts. Four interconnected academic imperatives for change emerged from a recently held education summit on disruptive innovation. This Point of View will discuss these imperatives and issue a call to action to assure that we graduate adaptive learners fully prepared to dynamically adjust and advance patient-sensitive care.

The Master Adaptive Learner: A Shared Imperative for Change

Over the years, multiple factors have influenced the rate of change in physical therapist professional education. Institutional traditions, the culture of higher education, academic silos, rigid curricular sequencing, and concerns about compliance with accreditation standards have slowed the rate of change.⁸ Even so, some education programs have capitalized on an internal readiness for change and forged novel approaches to try to meet the imperatives of contemporary practice. Other academic programs are poised and ready to begin designing new collaborative pathways. Such readiness may be fueled by the recently revised mission statement of the Commission on Accreditation of Physical Therapy Education (CAPTE) to “ensure and advance excellence in physical therapy education.”⁹ To expand innovation and change across a broad group of physical therapist education stakeholders, the Physical Therapy Learning Institute¹⁰ hosted a virtual Disruptive Innovation Summit in 2021. This Summit, entitled “Reimagining Physical Therapist Education,” was attended by 100 invited participants representing academic and clinical

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leaders from a variety of settings. Within the Summit, 3 critical topics were discussed: hybrid education, unwarranted variation in Doctor of Physical Therapy (DPT) education, and competency-based education.

The Disruptive Innovation Summit featured a keynote address focused on master adaptive learners.¹¹ The master adaptive learner philosophy refers to the development of adaptive expertise and the ability to solve problems both familiar and unfamiliar by using flexible, innovative, and creative competencies.¹² Developing adaptive expertise involves 4 interconnected phases—planning, learning, assessing, and adjusting.¹³ To produce a master adaptive learner, critical thinking and reflection are crucial for learners to acquire expertise. Furthermore, a learning environment that fosters robust educational interactions and regular assessment of outcomes must be present to facilitate adaptive learning.⁷ For adaptive expertise to be achieved, teaching and learning must occur in the context of interprofessional clinical practice across multiple social systems, that is, the microsystem (clinical/interprofessional team), mesosystem (organizational/institutional), and macrosystem (societal/health care system).¹³ A multiple systems approach is needed to prepare physical therapists to make meaningful contributions at all levels of practice, ranging from the individual, to the institution, to society, and to the community. The goal must be to see developing expertise at these levels to be a continuous process and to provide learning experiences at all levels to enable success. We believe that practitioners who are master adaptive learners will lead the future of the profession because they will be prepared to be adept at tailoring their work to the contexts in which they provide patient care, and within the contexts of advocacy and professional interactions. As a result of deliberations and discussions at the Summit, 4 imperatives emerged as a call to action (Tab. 1). These include:

- **Embrace the master adaptive learner.** This primary imperative confirmed that we must produce master adaptive learners to prepare practitioners for the future of physical therapist practice. By developing the capabilities of master adaptive learners, future physical therapist professionals will be able to integrate adaptive expertise to learn and continually innovate in response to ever-evolving practice and societal challenges.¹²
- **Develop a new conception of competency.** A second thrust was recognition of the imperative to establish a set of transferable, flexible competencies and entrustable professional activities.¹⁴ These competencies must be focused on preparing and accommodating master adaptive learners.^{15–17} A shift towards competency-based education, emphasizing critical thinking, clinical reasoning, effective decision-making, and adaptive learning will prepare graduates for expanded roles (ie, primary care) within evolving systems, and for appraising the continual and rapidly growing body of research and other information relevant to evidence-informed practice and lifelong learning.
- **Provide robust and contemporary faculty development.** A third imperative was to provide faculty development focused on the learning sciences and pedagogy. Application of the master adaptive learner framework will require new pedagogical approaches for both didactic and clinical educators.
- **Build educational cultures that invite and embrace change.** Fourth, was a strongly felt need to build new cultures

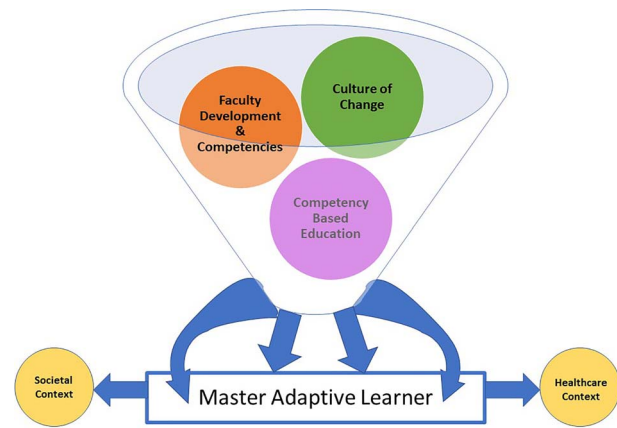


Figure 1. Elements necessary for the creation of master adaptive learners in Doctor of Physical Therapy (DPT) education.

in educational communities that foster a willingness to change the way we prepare physical therapists for practice. Without cultures oriented to change, innovation within DPT education will remain slow.¹⁸

Take-Home Messages

We agree with the imperative that the profession must produce professional graduates with the capabilities of master adaptive learners. Master adaptive learners are prepared to use insightful expertise to learn and continuously innovate responses to ever-evolving practice and societal challenges. Embracing the master adaptive learner framework is crucial to reframing DPT education and enabling future DPT professionals to contribute to positive health at the level of the individual patient as well as populations and society at large (Fig. 1). What is certain is that health care will continue to evolve at a rapid pace. Education and practice of health professionals need to move forward in parallel, building the skill set to enable professionals to be prepared for current as well as future practice. Change and innovation are the foundations of the master adaptive learner.

It is not possible to teach professional students everything they need to know for current as well as future practice. Therefore, it is essential to rethink how to deliver professional DPT education. At the Summit, there was strong consensus among participants about the need to have consistent expectations of students and graduates. These expectations should be adjusted to emphasize the learning process versus the content to be learned. Competencies focused on safety and knowledge in the core sciences, movement principles, and social and behavioral domains must also emphasize competence in critical thinking, evidence appraisal, and clinical reasoning, all of which are central elements of the master adaptive learner framework.^{15,19} Expectations should grow as the learner proceeds through the development trajectory, which includes participation in professional and postprofessional education.¹⁴ When learners are more adaptable, nontraditional learning models using nontraditional learning approaches become more viable on a larger scale. This may allow a wider audience to take advantage of expanding their professional interests in physical therapy.

To enact change in DPT education, Summit participants highlighted the need for faculty development regardless of the topic an instructor is delivering. To adopt a new way of

Table 1. Key Strategic Initiatives^a

Imperative	Insights	Call to Action
Embrace the MAL	<p>Intentional and continuous learning is critical to assure the evolution of clinical practice in physical therapy.</p> <p>Excellent care is derived from adaptive expertise that assures response to the context in which services are delivered and to the individual needs of each client in need of care.</p> <p>Ongoing assessment of skills, abilities, and knowledge, with high motivation to pursue new perspectives are hallmarks of adaptive expertise.</p> <p>It is critical that all stakeholders in the learning environment embody curiosity, motivation, an enduring growth mindset, and personal and professional resilience.</p>	<p>Define teaching and learning competencies consistent with the MAL framework that aim to produce graduates who are fully capable of becoming adaptive experts.</p> <p>Specifically foster the ability to respond to an ever-evolving practice fed by the explosion of new evidence, the increasing complexity of health profiles, and the responsibility to manage multiple morbidities within complicated and disjointed health systems.</p> <p>Use the MAL framework to imbue in DPT students the skills to learn and innovate continuously throughout their careers.</p> <p>Nourish the post-professional expression of adaptive expertise by building cultures of innovation at the workplace that embrace continuous change.</p>
Develop a new conception of competency	<p>In the face of evolving market forces, professional identity challenges, demand for convenience in education, and high variation in curricular content and process, we must prepare graduates as MALs who will lead the transformation of practice.</p> <p>All stakeholders in DPT teaching and learning must come to a consensus about critical competencies for entry-level practice, and expectations for post-professional proficiency, and then engage in profession-wide dissemination of these expectations.</p> <p>Interprofessional collaboration is a critical element of contemporary frameworks of practice and education and must be incorporated into new concepts of competency at both professional and post-professional levels.</p> <p>Adoption of time-variable CBE will require changes in basic assumptions of DPT education and will affect myriad aspects of the academy and clinical practice.</p>	<p>Advance the creation, validation and adoption of professional and post-professional competencies centered on the concepts of MAL.</p> <p>Accept that entry-level graduates cannot attain full competence in the totality of contemporary physical therapist practice and establish priorities and vehicles for progressive levels of professional development that enable success at each level.</p> <p>Focus teaching and learning on competence in the types of critical thinking, clinical reasoning and decision-making that characterize adaptive expertise and that yield full participation in the enterprise of evidence-informed, interprofessional practice.</p> <p>Gather evidence to evaluate the “fit” of time-variable CBE within the current context and envisioned ethos of DPT education.</p>
Provide robust faculty development	<p>New competencies for didactic and clinical teaching within a MAL framework are needed to enable the transformation of education in physical therapy.</p> <p>Professional development of both academic faculty and clinical faculty is critical for advancing the multi-system curriculum design required to meet contemporary expectations in physical therapist practice.</p> <p>Continuous development of all stakeholders is required to engage the entire education community in changing professional and post-professional learning cultures.</p>	<p>Adopt strong philosophies of teaching and learning informed by the learning sciences that can drive decisions to change delivery in professional education</p> <p>Launch a large-scale effort to gain consensus about how to define and deliver hybrid education and apply that knowledge to policy and procedures used throughout the education community.</p> <p>Invest in broad-spectrum faculty development in delivery using hybrid education models that embrace the contributions of all stakeholders and meet the critical need for change in DPT education.</p>
Build educational cultures of change	<p>Although the pandemic was a catalyst for change, vigilance is required to avoid anchoring to traditional practices or responding nonstrategically to the lure of new and untested approaches that may fuel prematurely adopting change in the academy.</p> <p>Development of cultures that embrace ongoing assessment and employ evidence to reduce unwarranted variation in curriculum, resources, structures, and processes is critically needed.</p> <p>All stakeholders must determine the outcomes that yield excellence and show respect for diversity of educational and clinical processes, but work to reduce unwarranted variation in DPT education that interferes with optimal outcomes.</p>	<p>Re-establish that the goal of professional DPT education is founded on core competencies within the movement system</p> <p>Promote understanding throughout the profession that achieving proficiency occurs with post-professional learning and intentional reflective practice, reinforced by engaging in formal clinical or academic post-professional education.</p> <p>Embrace disruption and innovation in the education community and acknowledge that consensus may not be required prior to effecting change.</p> <p>Develop vehicles for stakeholders to build cultures of change throughout the academic community and demonstrate the commitment to evidenced-informed teaching so critical for infusion of MALs into the profession.</p>

^aDPT = Doctor of Physical Therapy; MAL = master adaptive learner.

student preparation, all faculty will need a new set of instructional skills that support student-centered learning within a flexible model in which educators integrate learning in the academic and clinical environments. Learning in the context of the clinical environment is particularly critical in the development of master adaptive learners.^{20,21} Thus, all educators, regardless of their site of instruction, must be provided new teaching insights.

To achieve these goals, we must build cultures of change within our educational organizations. Building a culture that supports seeking, engaging, and inviting change within our educational institutions can facilitate building a similar culture within practice environments. Individual faculty need to be invited to engage in discourse regarding change and have the support to take risks without fear of failure. As a community of educators, we need to collectively support processes that encourage consistent experimentation and innovation in teaching and learning with regular active assessment of the effectiveness and the impact on change. Reflection and refinement of options for change are critical for enabling comfort with change, and for increasing the power of physical therapist practice.

The Time Is Now

The time to move forward to change physical therapist professional education is *now*. Actions must be creative and bold to meet the imperatives for change. Profession-wide consensus or peer validation may need to wait for evidence from pilot research efforts, but innovators, early adopters, and change agents should be encouraged to move forward. CAPTE's new mission statement frees educators to drive change in professional education and to strive for excellence. When making modifications, especially revolutionary changes, educators must create safe and exciting cultures for teaching and learning. Individuals teaching in didactic and clinical environments—and collective faculty—must be empowered to think with curiosity and creativity, to facilitate a growth mindset in all stakeholders and to experiment with new ideas. These actions will be the foundation of the development of a new type of adaptive learner and a new culture of strategic risk taking in academic physical therapy.

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