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# The History and Development of Doctor of Health Science (DHSc) Programs in the United States - Past, Present, and Future PART II – Present – Comparing DHSc programs

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# The History and Development of Doctor of Health Science (DHSc) Programs in the United States - Past, Present, and Future PART II – Present – Comparing DHSc programs


## Abstract

Purpose: This three-part article series will advance the understanding of the Doctor of Health Science (DHSc) programs in the United States. Method: Part I discussed relevant historical information about Higher Education and the Doctor of Philosophy (PhD) to reach this goal. It described the transition of PhD philosophies to professional doctorates by following the historical postgraduate program paths in Education, Nursing, and Public Health. There was a brief discussion about the rapid growth of professional doctorates. Part I ended by identifying the origins of DHSc programs in the United States. Part II looks at the evolutionary stages of professional doctorates and DHSc programs. This section compares the DHSc degree to a PhD degree and examines the recent state of DHSc programs. Part III discusses present and future trends among DHSc programs in the United States. It focuses on workplace expectations of doctorate graduates, changing learner demographics and needs, essential curriculum designs for students, competency-based learning and assessment for future learners, the design of culminating projects critical for prospective DHSc learners, and the importance of third-generation style DHSc programs.

Conclusion: These are the first papers that record the origins, development, current state, and trends of DHSc programs in the United States.



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# The History and Development of Doctor of Health Science (DHSc) Programs in the United States - Past, Present, and Future

## *Part 11: Present - Comparing DHSC Programs*

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**ABSTRACT**
**Purpose**: This three-part article series will advance the understanding of the Doctor of Health Science (DHSc) programs in the United States. **Method**: Part I discussed relevant historical information about Higher Education and the Doctor of Philosophy (PhD) to reach this goal. It described the transition of PhD philosophies to professional doctorates by following the historical postgraduate program paths in Education, Nursing, and Public Health. There was a brief discussion about the rapid growth of professional doctorates. Part I ended by identifying the origins of DHSc programs in the United States. Part II looks at the evolutionary stages of professional doctorates and DHSc programs. This section compares the DHSc degree to a PhD degree and examines the recent state of DHSc programs. Part III discusses present and future trends among DHSc programs in the United States. It focuses on workplace expectations of doctorate graduates, changing learner demographics and needs, essential curriculum designs for students, competency-based learning and assessment for future learners, the design of culminating projects critical for prospective DHSc learners, and the importance of third-generation style DHSc programs. **Conclusion:** These are the first papers that record the origins, development, current state, and trends of DHSc programs in the United States.

**Keywords:** professional doctorate, doctorate education, education trends

## INTRODUCTION

The Doctor of Health Science Degree (DHSc) transition followed similar principles to nursing, education, public health, and physician assistant/associate programming.[1,2] These shifts show a progressive move from the formal research-based Doctor of Philosophy (PhD) towards an applied science workplace-oriented degree that enhances each health professional's role within healthcare.[2] A review of current DHSc programs provides insights into how the DHSc degree differs from the PhD degree and examines the recent state of DHSc programs.

## CLINICAL DOCTORATE TRANSITIONS AND STYLES

Since the first DHSc program launched in the United States in 2001, DHSc programs have grown to sixteen in number as of the Spring of 2021. Programs evolved in three directions.[1,2,3] The *first-generation* programs are closely aligned with the research-style PhD programs.[1] The *second-generation* programs depend on discovering and using an evidence-based approach to support best workplace practice applications.[1,2,3] The second-generation programs focus more on graduating "scholarly professionals" versus "professional scholars," emphasizing filling societal and healthcare needs.[4,1,3] Learning outcomes shift towards skills relevant to healthcare practice, education, and workplace management.[1,3] The *third generation* represents the most substantial commitment to using an evidence-based approach to equip learners to succeed in changing healthcare and education workplaces. This third generation makes a robust commitment to the "scholarly professional" principle, is strongly student-centered and flexible, uses technology to promote an interactive learning style, and constantly adjusts to student and societal needs; for example, offering shorter lengths of programs and lower cost of programs.[1,2,3]

Our review showed that DHSc program styles aligned with their institutional philosophies and priorities rather than following a time-based sequential transition from "first-generation" to "third-generation" styles. For example, the first two programs, Nova Southeastern University (NSU) and A.T. Still University (ATSU) are closely aligned with the "third-generation" style.[5] The University of Indianapolis, on the other hand, followed more closely with the "first generation" style, "The curriculum is designed for students to complete the course requirements in two and a half years… and work collaboratively with the dissertation committee to successfully complete a dissertation…between one and two additional years". [6(para 2)]

## COMPARING DHSc VERSUS PHD

DHSc degrees primarily use interprofessional learning anchored by evidence-based practice knowledge and skills to prepare learners for leadership roles in areas such as clinical practice, education, and administration. The DHSc programs emphasize applied research with real-time workplace value and prioritize a more flexible learner-driven style in their delivery. PhD students conduct original, highly focused, innovative research that adds to their chosen discipline. PhD programs are delivered through a time-honored well established, traditional institution-centric style. Diagram 1, developed by A.T. Still University, conceptualizes the differences between a DHSc and a PhD degree.[4]

**Diagram 1.** Conceptual Differences DHSc versus PhD

| DOCTOR OF HEALTH SCIENCE (DHSc) | Versus | DOCTOR OF PHILOSOPHY (PhD) |
|---|---|---|
| | | |
| Prepare health professionals to apply, translate, and disseminate research into professional practice | **GOAL OF DEGREE** | Prepare professionals to conduct research that develops advanced theory |
| | | |
| Educate and prepare health professionals, through studies of diverse foundational topics, for interprofessional leadership of health systems and healthcare | **PRIORITIES** | Educate professionals, through performing original research focused in a specific discipline or field, to be experts in a research area |
| | | |
| Applied or practical research achieved through an Applied Research Project | **RESEARCH FOCUS** | Basic or theoretical research achieved through a Dissertation |
| | | |
| Develop advanced clinical practitioners, leaders, and educators with a broad base of applicable knowledge of healthcare issues | **PROFESSIONAL OUTCOMES** | Develop advanced scientists and scholars in a defined area |
| | | |
| **SCHOLARLY PROFESSIONAL** | **RESULTS** | **PROFESSIONAL SCHOLAR** |

Adapted from A.T. Still University

Based on the observations and knowledge of the authors, Table 1 highlights specific distinctions between DHSc professional practice-based degrees versus PhD research-based degrees, noting some of the specific differences.

**Table 1.** DHSc versus PhD: Specific Theme Differences

| DHSc | PhD |
|---|---|
| Short history | Long history |
| Emphasis on professional practice | Emphasis on science and research |
| Interprofessional learning | Discipline-specific learning |
| Collaborative learning | Independent learning |
| Student-centered | Process centered |
| Facilitates work and study | Less amenable to work & study |
| Emphasizes newer learning models | Uses traditional learning models |
| Scholarship flexes to meet workplace needs | Scholarship prioritized |
| Scholarship flexes to society's social/economic needs | Scholarship prioritized |
| Completion time well-demarcated | Completion time less defined |
| Costs are more predictable | Costs are less predictable |

The interprofessional and interdisciplinary nature of DHSc programs separates them from PhD programs. The rise of interdisciplinary learning in higher education illustrates a movement away from the traditional specialization model. Past National Academies' reports discussed how over two hundred programs in the United States have integrated STEMM (science, technology, engineering, mathematics, and medicine) disciplines and humanities with positive outcomes.[7,8,9] Interprofessional practice is now commonplace in healthcare, and the advantages of multidisciplinary learning are being identified: improved critical thinking, content mastery, problem-solving, teamwork, and communication.[8,9]

## COMPARING DHSC PROGRAMS

During the Spring of 2021, publicly available data was collected about DHSc programs through internet searches of institutional websites and by contacting schools directly through phone or email. We found no organization that specifically pooled information about DHSc programs. In 2021, there was no single formalized oversight body for DHSc programs in the U.S. In 2021 we found sixteen DHSc programs presented in alphabetical order (Table 2).

**Table 2.** List and Locations of DHSc Programs

| University | State |
|---|---|
| A.T. Still University | Arizona |
| Bay Path University | Massachusetts |
| California University of Pennsylvania | Pennsylvania |
| Campbell University | North Carolina |
| Drexel University | Pennsylvania |
| East Stroudsburg University | Pennsylvania |
| Eastern Virginia Medical School | Virginia |
| George Washington University | D.C. and Virginia |
| Indiana State University | Indiana |
| Keiser University | Florida |
| Massachusetts College of Pharmacy and Health Sciences | Massachusetts |
| Nova Southeastern University | Florida |
| Radford University Carilion | Virginia |
| University of Indianapolis | Indiana |
| University of Bridgeport | Connecticut |
| University of New Haven | Connecticut |

The first DHSc program, which graduated the first DHSc graduates, was from Florida's Nova Southeastern University in 2004. A.T. Still University's Arizona campus, the second program, had its first graduating class in 2010. The newest program identified was at New Haven University in Connecticut. Based on a review of the public information on these programs, there was minimal standardization. Programs differ in length, focus, intent, structure, content, and delivery method. The following sections identify some relevant findings about DHSc programs in 2021. Areas reviewed included: programs' target audience, admission criteria, outcome measures, delivery method, completion time, cost per credit, course numbers, and intakes per year.

**Target Audience**

The target audience for all schools was working healthcare professionals, mostly but not always, with a master's degree and work experience. This group usually included practicing clinicians in various allied health professions, health educators, and those with health administrative backgrounds.

**Admission Criteria**

There were no universally accepted entrance criteria into DHSc programs. The following paragraphs illustrate a summary and highlight the admission criteria.

1. Degree requirements: The admission criteria for most, but not all schools, were a master's degree that may or may not be healthcare related. One (1) school accepted students with undergraduate degrees who had professional practice designations and active licenses such as RN (registered nurse), PT (physical therapist), or LCSW (licensed clinical social worker). Another school accepted a bachelor's degree for their joint program of Master of Healthcare Administration or Master of Public Health completed in conjunction with the DHSc, for example MHA or MPH/DHSc programs.
2. Work experience: Work experience was a theme for all programs. One (1) program required four years of clinical or teaching experience. Four (4) programs specifically stated a mandatory two years, and one (1) had a mandatory one year of clinical practice. The others did not specify the amount of healthcare experience needed for entrance.
3. Grade point average (GPA): Eight (8) out of the sixteen programs used a GPA of 3.0/4.0 for admission. Six (6) programs did not openly state the needed GPA. One (1) program used 2.5/4.0, and one (1) used 3.5/4.0.
4. Essay/personal statement/writing sample: Thirteen (13) programs required a written candidate statement. The reported lengths varied, with most asking candidates to state their goals. One (1) school allowed past presentations or publications as an option with no mandatory written submission.
5. Letters of reference: Thirteen (13) of the sixteen programs required a reference letter. Eleven (11) of these asked for two letters, one (1) asked for three, and (1) one requested one.

6. Personal or online interviews: Five (5) of the sixteen programs required an interview electronically or face to face. One (1) school used optional interviews.
7. Resume/CV: All schools required a resume or curriculum vitae for admission.
8. English language proficiency: Not all websites specifically address the English proficiency requirement. Those who checked proficiency used a standardized test, a written submission, or both.
9. International students: Only one school out of the 16 programs (all US based) specifically stated they did not take international students except Canadians.
10. Graduate record exam (GRE): None of the sixteen schools used the GRE as an entry criterion. But one (1) school encouraged its applicants to have a GRE or Miller Analogy Test (MAT) as part of their application.

**Outcome Measures.** Three areas were examined in this review of DHSc programs: global program outcomes, concentrations, and culminating projects. The following paragraphs show the results of the outcome measures used.

1. Global outcomes: All sixteen (16) programs directly or indirectly mentioned leadership. Improving skills and knowledge or using evidence-based information was mentioned by all schools. All schools took an interprofessional, interdisciplinary, and collaborative approach. Fewer than five (5) schools alluded to learning more research skills in their outcomes. However, many schools mentioned learning to gather, analyze, and interpret evidence-based information as program objectives.
2. Concentrations/Focus area: Twelve (12) out of the sixteen programs offered concentrations. Ten (10) schools offered a leadership concentration, but some had their entire program devoted to leadership, although they had no specific concentration. Education was a concentration in ten (10) schools. Other program concentrations were global health (3), general (3), telehealth (1), rural health (1), community and public health (1) and nutrition (1).
3. Culminating project: Programs used different terms for their culminating project, applied research project, research project, capstone project, dissertation, or doctoral project.

    a. Two (2) universities used a PhD style (original research emphasis) for their culminating project. Their styles represented the first-generation offshoot of the PhD, as previously highlighted. They added collaborative and interdisciplinary approaches to their programs.

    b. Fourteen (14) programs required completion of an applied research project for graduation. Each school tailored the project to its specifications with the balance between the professional degree and scientific research methodology varied. For example, one (1) university explicitly required students to produce a paper for a peer-reviewed journal. Another university had students participate in an experiential internship within a community and write about their experiences. Some schools had their students defend their project before a committee in person; others had their professor or a committee evaluate their final project, which could involve an online culminating project presentation before their classmates. There was no accepted standard or protocol for project evaluation. One (1) school offered classes with no culminating project, while another had students complete a "portfolio" with an optional dissertation requiring additional study.

**Delivery Method**

Nine (9) of the sixteen programs blended face-to-face and online learning; students met on campus for short periods, such as a week or less. These in-person intervals could occur at the program's onset, a "residency" during the program, or presenting their portfolio or applied research project at the end of their program. The classes themselves were online. Six (6) programs were one hundred percent online with no in-person time spent at the institution. One (1) university offered an in-person "Executive Weekend Education" program.

**Completion Time**

Five (5) schools offered two-year programs. Three (3) offered programs between two and three years, with another five (5) offering three-year programs. Three (3) programs took longer than three years to complete. Based on these figures, two and three years were the norm.

**Cost per Credit Hour**

The lowest rates were around $555 per credit hour, with three (3) universities hovering around this number. Seven (7) programs represented the high range of $950 to $1,100 per credit hour, the other six (6) fell between these endpoints. Schools offered special discounts for veterans, alumni, affiliations with community institutions, and specific workplaces.

**Credit Hours**

The number of credit hours varied from a low of 42 to a high of 70. Twelve (12) of the programs were in the range of 48 to 61.

**Course Numbers**
The required number of courses ranged from fourteen to twenty. Three (3) programs required fourteen courses, eight (8) required sixteen or eighteen courses, one (1) required nineteen courses, and four (4) required twenty courses.

**Intakes per Year**
Six (6) programs had one intake per year, while two (2) had two intakes per year, and two (2) had three intakes per year. Two (2) had four intakes per year, and one (1) had intakes every second year. In contrast, another school had six (6) intakes per year, and they had multiple campuses. One (1) school had not had an intake yet, and one (1) school had admissions on hold.

**Shared Themes**
There were common themes across all DHSc programs which are reviewed in Table 3.

**Table 3.** Shared DHSc Program Themes

| |
|---|
| Being interprofessional |
| Admitting learners who had active careers in healthcare as clinicians such as administrators, managers, and educators |
| Offering diversified curricula |
| Promoting scholarship related to their learners' interest and their work |
| Using applied research methodology |
| Promoting real-world experiential learning and outcomes |
| Encouraging student connectivity |
| Facilitating career promotions in clinical research, leadership, administration, and higher education |
| Accommodating working learners and their lifestyle needs |
| Highlighting rapid completion times and schedule flexibility within their programs |
| Including online learning with progressive learning techniques; and integrating technology into their curriculum |

## ACCREDITATION

In 2021, there was no programmatic accrediting body providing accreditation services for Doctor of Health Science programs in the United States. Instead, all sixteen programs were under the umbrella of their parent institution and their institutional accreditor.

## SUMMARY

This paper, part two of a three-part series, discussed the transition from PhD programs to professional doctorate degrees and the development of three major styles of DHSc programs. The differences between PhD and DHSc programs were reviewed. A recent national program review showed that in 2021 there were sixteen DHSc programs based on publicly available data. They differ in many ways, including admission criteria, outcome measures, delivery method, completion time, costs, length of programs, courses, content, structure delivery methods, and the nature of their culminating projects. However, they have much in common such as being interdisciplinary and interprofessional while graduating "scholarly professionals." DHSc programs are learner-centric, adjust their programs for working professionals, and aim to fill health and education workplace needs. To this point, DHSc programs have no specialized/programmatic accreditation body.

## CONCLUSION

DHSc professional doctorates are a distinct academic entity different from the PhD programs. While DHSc programs are interdisciplinary and interprofessional, they have varied content, focus, and delivery that still awaits a field-specific accrediting body.

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