

NCOPE Pre-Summit Survey 2023

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NCOPE Pre-Summit Survey

2023

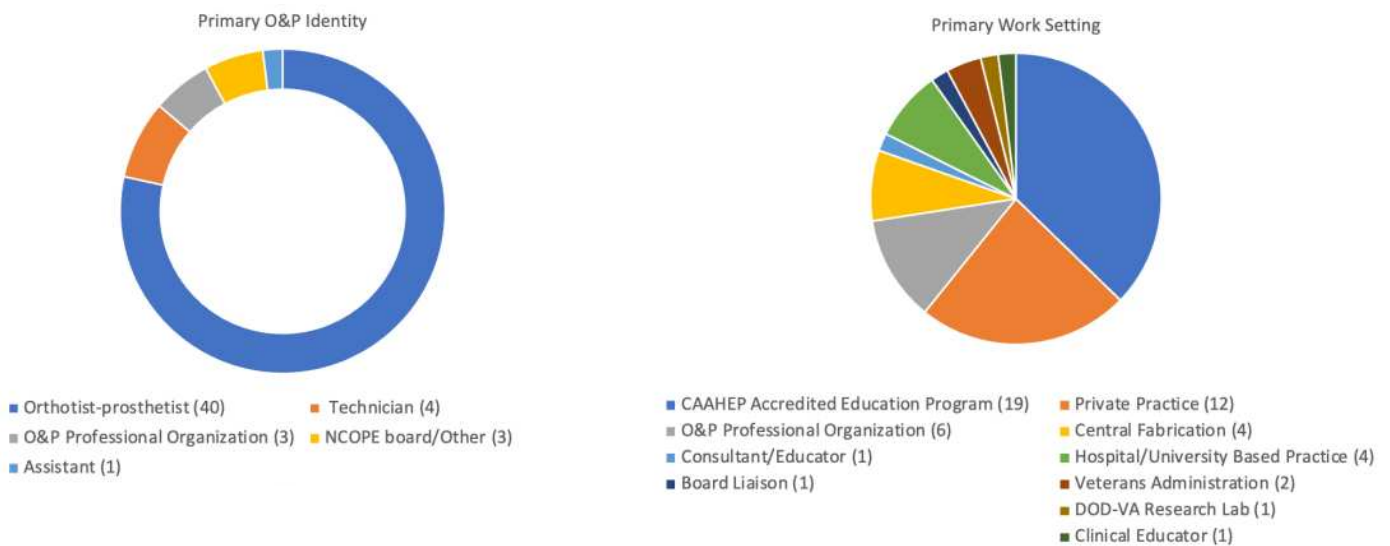
To fulfill the growing demand for orthotic and prosthetic (O&P) services, we need effective, affordable, yet accessible and sustainable training programs for all orthotic and prosthetic professionals.

Purpose

We need to clearly define the problems related to the sustainability and vitality of all O&P professional training programs before we develop strategies to address them.

Who completed the survey?

Fifty-one people completed the pre-summit survey. Fewer than half of the respondents (37%) spend most of their time in clinical practice with direct patient contact and/or hands-on fabrication of O&P devices. Most participants (40/51) are orthotists-prosthetists and most (19/51) work in CAAHEP accredited education programs.



Method to analyze survey responses.

Response data were de-identified for the analysis. Record IDs replaced all demographic data. We used a qualitative hybrid descriptive approach to analyze the participants' responses. Then we sorted responses into two groups based on primary work setting: 1) "CAAHEP" includes people whose primary work setting is in educators and those who work in professional organizations (n=26) and 2) "Practice" represents people who work in practice, including private and institutional practices (n=25).

What are the challenges or issues of developing and/or sustaining O&P education programs?

Summary of Challenges

Survey Question: What are the challenges or issues of developing and/or sustaining O&P education programs?

Results: The first four figures represent the challenges of all O&P programs (technician, assistant, orthotist-prosthetist, and residency). Figures 5-10 indicate the challenges unique to each program.

- Fig 1. Challenges for All O&P Programs: Administrative Issues
- Fig 2. Challenges for All O&P Programs: Curriculum Issues
- Fig 3. Challenges for All O&P Programs: Broad Profession Issues
- Fig 4. Challenges for All O&P Programs: Specific Business Issues

- Fig 5. Challenges for Technician Programs: Administrative Issues
- Fig 6. Challenges for Technician Programs: Other Issues

- Fig 7. Challenges for Assistant Programs

- Fig 8. Challenges for CPO Programs: Administrative Issues
- Fig 9. Challenges for CPO Programs: Other Issues

- Fig 10. Challenges for Residency Programs

We sorted responses into two groups based on primary work setting:

- The blue bar, "CAAHEP", includes people whose primary work setting is in education and those who work in professional organizations (n=26)
- The orange bar, "Practice", includes people who work in practice, including private and institutional organizations (n=25).

The numbers across the horizontal axis indicate the number of respondents that commented.

What are the challenges or issues of developing and/or sustaining O&P education programs?

Fig 1. Challenges for All O&P Programs:
Administrative Issues

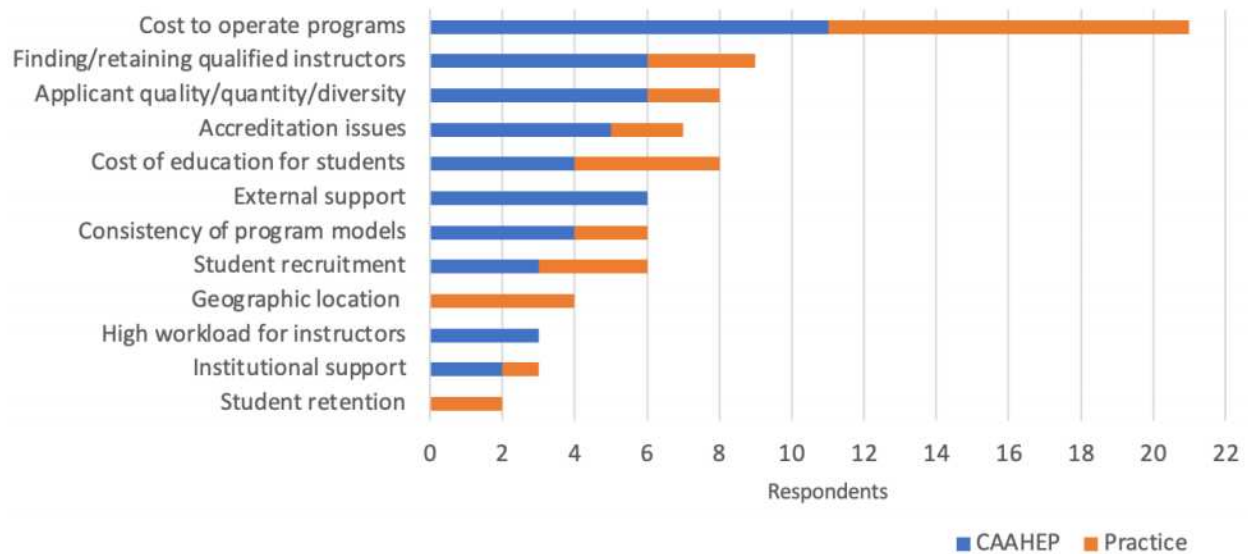


Fig 1. Challenges for All O&P Programs: Administrative Issues. The most frequently identified challenge of developing and/or sustaining O&P education programs was the cost to operate programs, such as cost of equipment and amount of space needed (21 respondents). Nine respondents noted the challenges of finding/retaining qualified instructors and eight noted the limited number of student applicants. Over-specificity and lack of clarity and oversight of the accreditation standards were reported. The excessive cost of education for students was noted by both those in education and in practice. Support of educational programs was also indicated as an administrative concern; regarding institutional support specifically, some educators reported that academic leaders do not understand the resources needed to sustain an O&P education program.

What are the challenges or issues of developing and/or sustaining O&P education programs?

Fig 2. Challenges for All O&P Programs:
Curriculum Issues

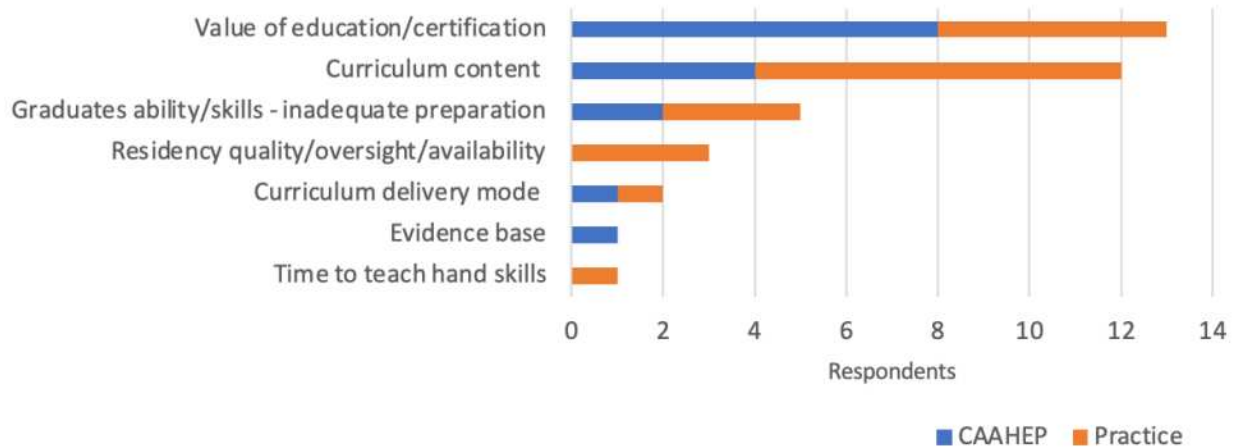


Figure 2. Perceived Challenges of All O&P Programs – Curriculum Issues. The third and fourth most highly noted challenges were the value of education and certification (13 respondents) and curriculum content (11 respondents). Specifically, they reported the need to update curriculum content, make it relevant for today's practice, and strengthen the evidence base; they also noted the excessive scope of material in the curriculum and the challenges of predicting future needs. Five respondents reported the limited ability of graduates; three noted issues about the residency quality, oversight, and availability; one noted the need for an evidence base in education; and one noted the limited time to teach hand skills in the curriculum.

What are the challenges or issues of developing and/or sustaining O&P education programs?

Fig 3. Challenges for All O&P Programs:
Broad Profession Issues



Figure 3. Perceived Challenges of All O&P Programs – Broad Professional Issues. Ten people in practice and education noted a lack of awareness of the profession. Others noted that the lack of clarity, consensus, and requirements of the O&P credentialing model were challenges for the sustainability of O&P programs. Additional challenges include the limited communication between educators and people in practice, resistance to change, encroachment within the profession. Two people noted a fragmented profession and two noted a lack of consensus of our clinical practice model as challenges.

What are the challenges or issues of developing and/or sustaining O&P education programs?

Fig 4. Challenges for All O&P Programs:
Specific Business Issues

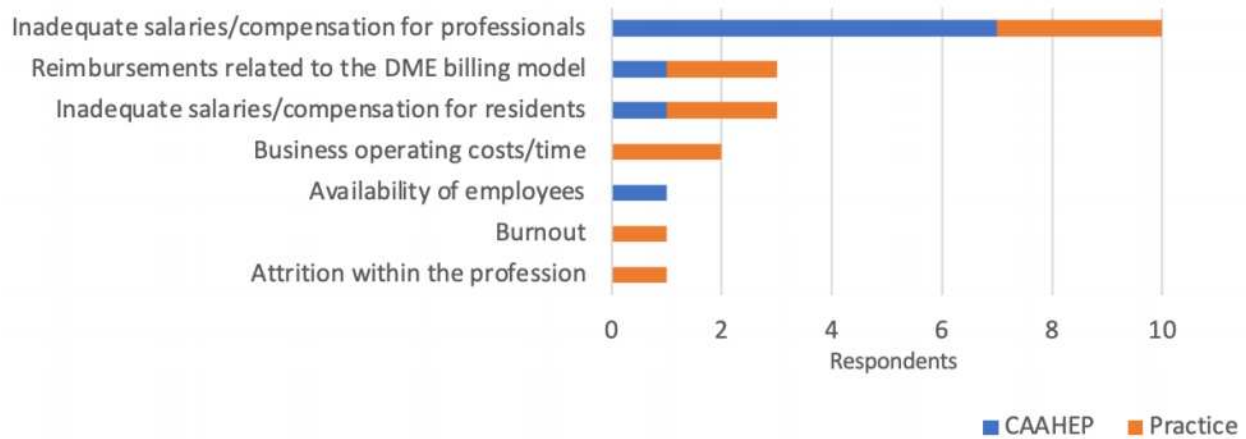


Figure 4. Perceived Challenges of All O&P Programs – Specific Business Issues. Respondents reported business practice challenges such as inadequate salaries for professionals and residents, DMEPOS reimbursement model, attrition, business operating costs, ability of employees, burnout, and recruiting residents to private practice.

What are the challenges or issues of developing and/or sustaining O&P education programs?

Fig 5. Challenges for Technician Programs: Administrative Issues

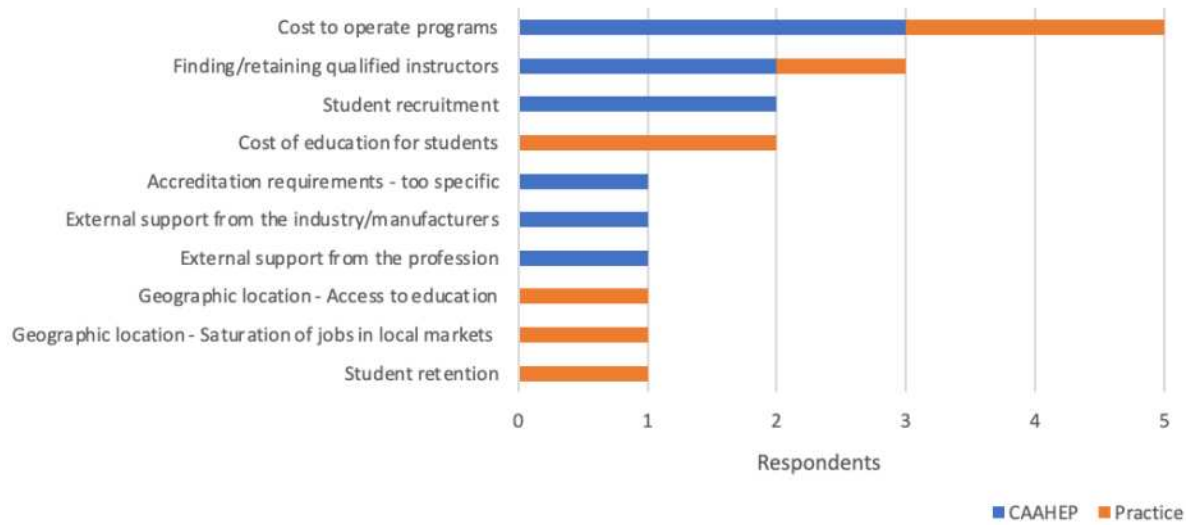


Fig 6. Challenges for Technician Programs: Other Issues

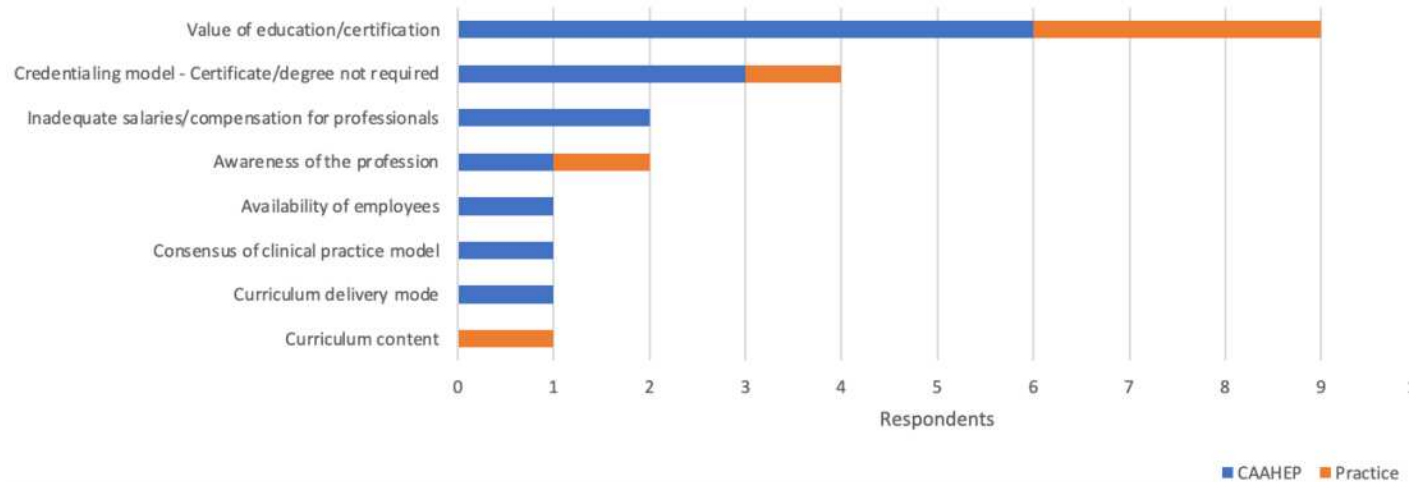


Figure 5. Challenges of Technician Programs – Administrative Issues. Five respondents noted the cost to operate programs as challenges, including space, equipment, and materials. Three noted finding/retaining qualified instructors as challenges. The cost of education for students, student recruitment, overly specific accreditation requirements, geographic location and lack of external support were also reported.

Figure 6. Challenges of Technician Programs – Other Issues. The value of education and/or certification was number one challenge for Technician program sustainability, mentioned by nine respondents. Value refers to the participants' comments that compared the cost or time investment to the benefits of the technician degree. They noted a lack of consensus about the credentialing model and the role of the technician. Other challenges included the salaries, awareness of the profession, availability of technicians, the curriculum delivery mode, and the curriculum content.

What are the challenges or issues of developing and/or sustaining O&P education programs?

Fig 7. Challenges for Assistant Programs

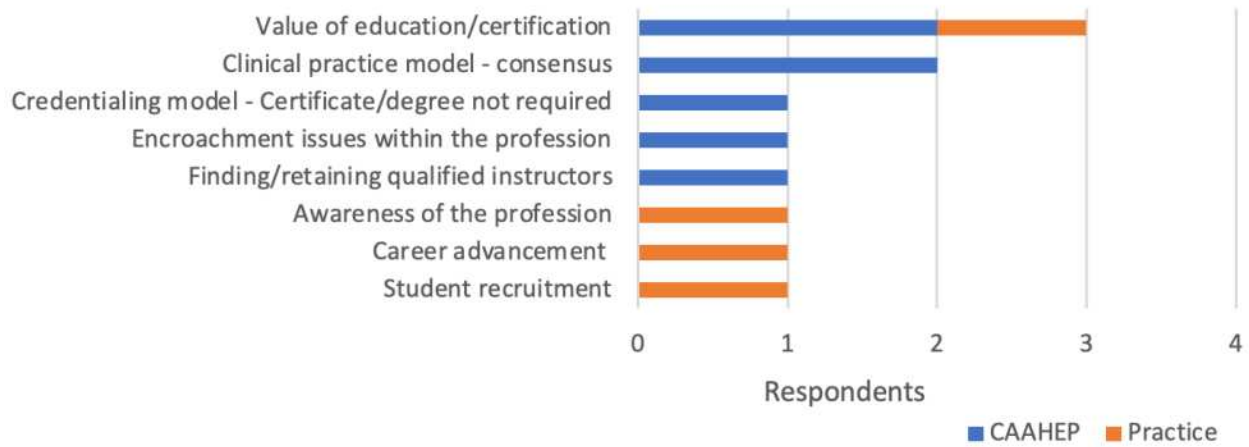


Figure 7. Perceived Challenges of Assistant Programs. There were few responses on Assistant programs as compared to the other program levels. There is a lack of consensus or awareness about the role of assistants in clinical practice. There is confusion about the scope of practice and the purpose for education. In addition, the opportunities for career advancement are unclear.

What are the challenges or issues of developing and/or sustaining O&P education programs?

Fig 8. Challenges for CPO Programs: Administrative Issues

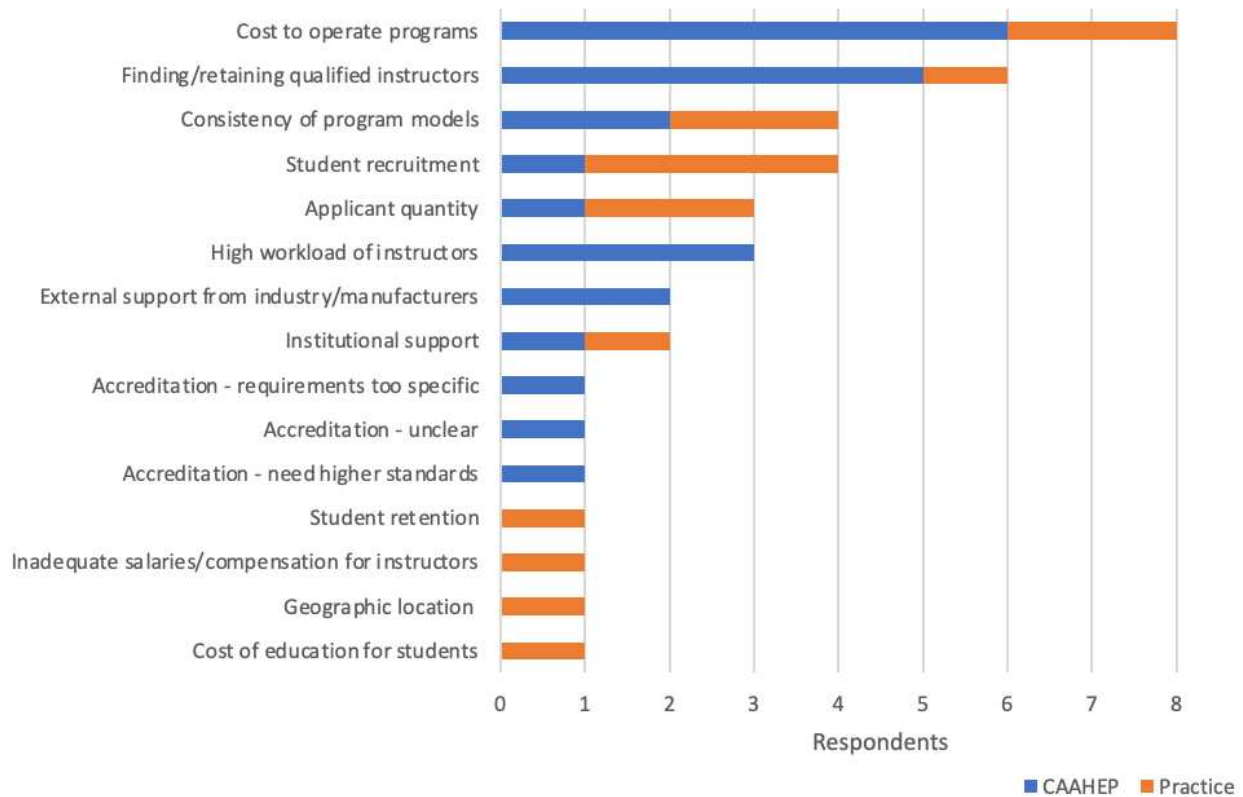
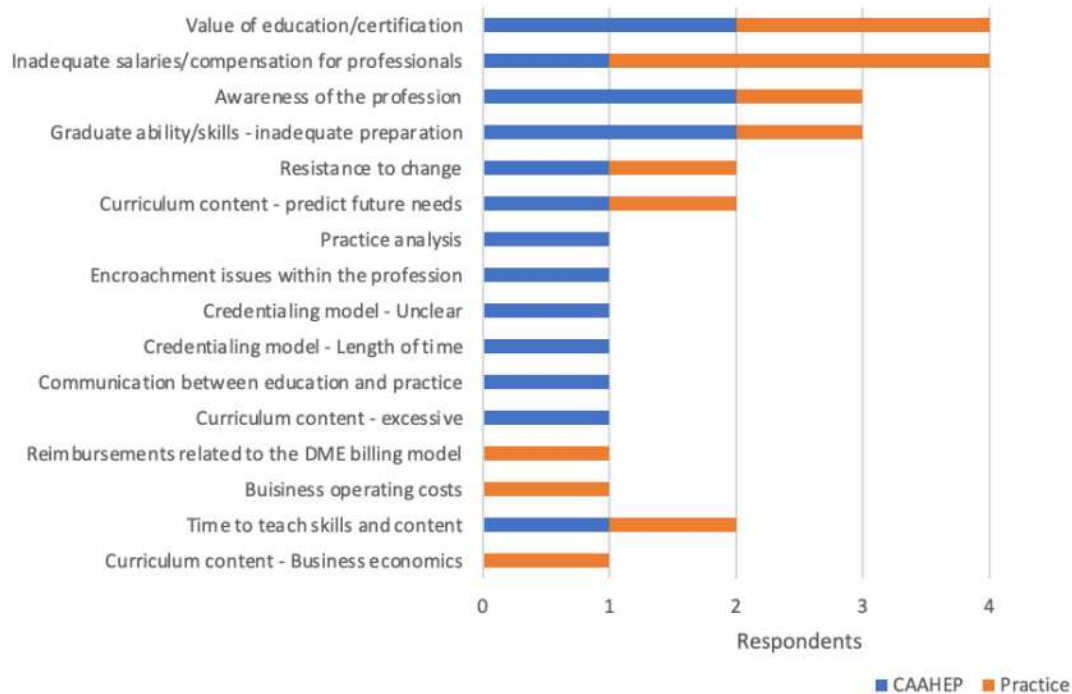


Fig 9. Challenges for CPO Programs: Other Issues



What are the challenges or issues of developing and/or sustaining O&P education programs?

Figure 8. Challenges of Practitioner Programs – Administrative Issues. Costs to operate academic programs were among the most reported challenges. Other common challenges included finding and retaining dedicated and qualified faculty, high faculty workload, and the variation of program models. Those working in education and those in practice noted that the limited number of applicants is a challenge. Those in academia reported that the accreditation requirements were too specific and time-intensive; some would like higher accreditation standards and more oversight. Institutional support challenges included administrators' lack of understanding about the time-intensive learning activities.

Figure 9. Challenges of Practitioner Programs – Other Issues. Respondents identified low salaries of O&P professionals and the appeal of other more lucrative career opportunities as challenges. The value of education is a concern for CPO education programs. Two people noted a resistance to changing the program model. Additional challenges include the limited ability of graduates due to inadequate preparation, such as deficient hand skills and the inability to communicate about materials and fabrication methods. The time to implement the curriculum was noted as a challenging factor for the sustainability of O&P programs. One respondent reported a lack of opportunities and time to practice hand skills.

What are the challenges or issues of developing and/or sustaining O&P education programs?

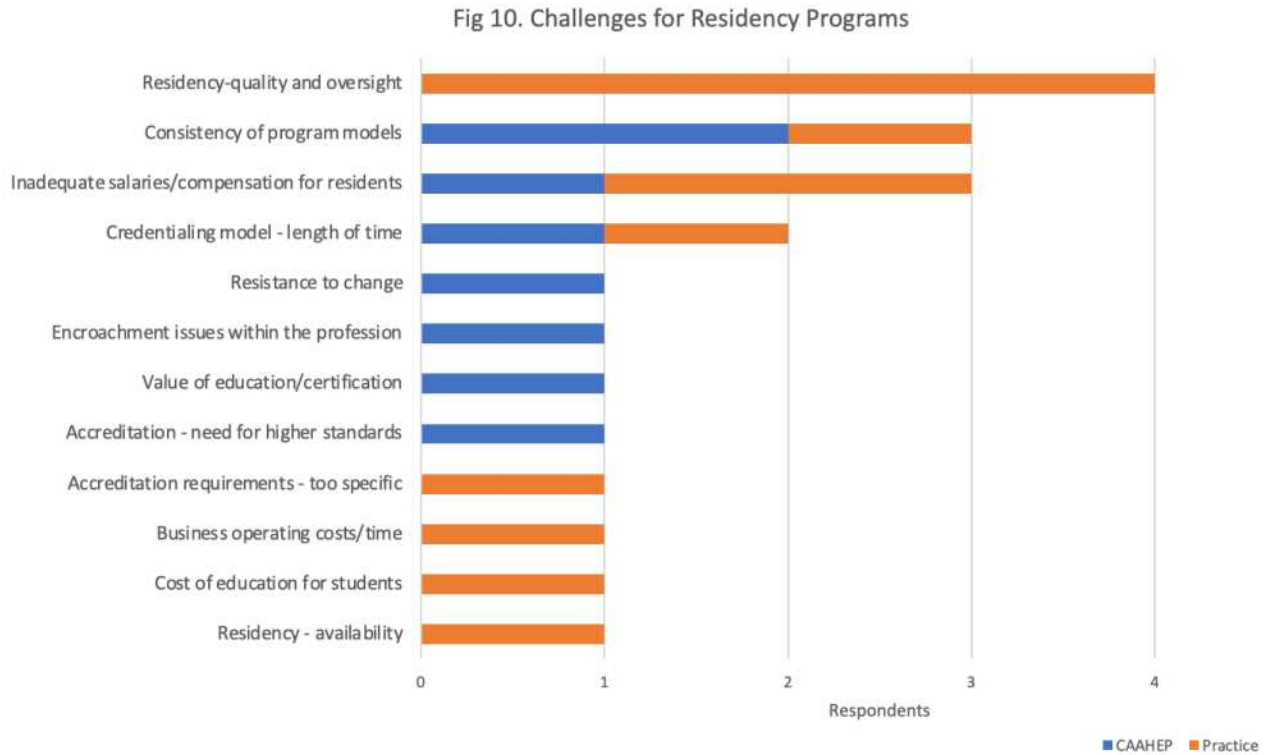


Figure 10. Challenges of Residency (Clinical Education) Programs. The primary concerns are the quality and consistency of residency programs, and resident salaries. Respondents noted the need to make the education process more efficient and less expensive, while others noted the need for more oversight and higher standards. People from practice identified the difficulties of hosting residency programs such as time, cost, and meeting residency requirements. Others reported challenges such as the low number of residency sites and resistance to change from the way things have always been done.

Representative Quotes of Challenges

Figure 1. Challenges for All O&P Programs: Administrative Issues

Representative quotes from 9 respondents:

Comment including multiple points

- *“Challenges for all programs include general awareness of the profession, cost of equipment, amount of space needed, finding and keeping qualified faculty, increasing cost of student tuition and other fees/expenses, and a possible decrease in numbers of students attending college/interested in health care careers.”*

Cost to operate programs

- *“Budgetary cuts at the federal and state governmental levels have caused downstream cuts at the college/university levels; places O&P programs in jeopardy.”*

Finding/retaining qualified instructors

- *“Finding dedicated faculty who want to teach and be willing to put in the hours.”*

Applicant quality/quantity/diversity

- *“The pool of applicants is not increasing with number of available spaces in schools.”*
- *“We must diversify the workforce by attracting students from diverse racial, socio-economic, gender, and geographic backgrounds.”*

Accreditation issues

- *“Small class size due to current requirements for intensive device-centric fabrication and fitting”*
- *“oversight (higher standards are needed for both programs and residency)”*

Institutional support

- *“The university not understanding the demand and hands on needs of the O&P education.”*
- *“High cost to university and space requirements relative to other allied health programs impacts sustainability.”*

What are the challenges or issues of developing and/or sustaining O&P education programs?

Figure 2. Challenges of All O&P Programs: Curriculum Issues

Representative quotes from 10 respondents:

Value of education/certification

- *“There is no need for schooling for the assistant - assistant programs will be in the same position as the technicians programs because businesses will hire assistants based on need rather than based on a degree.”*
- *“We struggle to provide a meaningful ROI to the college, so it becomes difficult to justify the high cost, spacial requirements, and faculty wages.”*

Curriculum content

- *“materials for learning are out of date.”*
- *“Programs must accommodate the needs of students not only in the classroom, but also as they prepare to enter the broader workforce.”*
- *“Anticipating the impact of new technologies to assure quality of care as the profession advances.”*
- *“Are we teaching the proper skills for success in the current work environment? Who defines clinical practice/best practice, academic curricula or manufacturers?”*
- *“Limited and dated educational materials/standards. This is a universal problem in O and P. Rapidly changing industry practices outpace our ability to revise standards, find educational resources, and develop comprehensive curriculum.”*
- *“The field is a challenging combination of soft and hard skills (psychology, patient management, biomechanics, pathology, anatomy, etc). Hard to cover all those things in educational program.”*

Graduate ability/skills

- *“After spending 35 years in this industry I meant very few people that come out of college and truly know how to do the job.”*
- *“I believe there is a disconnect with expectations and specifics of tasks.”*

Curriculum delivery mode

- *“The balancing act is to provide comprehensive education through approaches which are beneficial to the profession as well as beneficial to the educational institution. Blended learning appears to work well however some institutions rely too heavily on the method of education.”*

Evidence base

- *“We need to strengthen our evidence base, provide reasonable references for programs to base curriculum content and continue to find ways to ensure good communication between the clinical sites and education institutes.”*

What are the challenges or issues of developing and/or sustaining O&P education programs?

Figure 3. Challenges of All O&P Programs: Broad Professional Issues

Representative quotes from 6 respondents:

Awareness of the profession

- *"I think it would also be helpful to encourage advocacy for our profession and discuss some of the relevant issues that are facing our profession as a whole."*

Credentialing Model

- *"If the field of O&P wants individuals in all aspects of the care of O&P patients to be educated, then the certifying bodies need to be supportive of that as well, rather than providing work-arounds that undermine the educational programs."*

Resistance to change

- *"I also think that newer, younger educators in CPO programs are under utilized, especially if they came from a masters program and there are older faculty from more traditional programs."*
- *"Sentiment that professional training couldn't possibly be done in a more efficient effective way than what we've always done"*

Encroachment issues within the profession

- *"Instead of elevating standards for every corner of O&P and allowing all members to flourish, those with resources depleted them trying to snuff out competition with fewer resources over the years"*

Consensus of clinical practice model

- *"issue in terms of how or what the profession wants and needs of graduates from this level."*

Terminology

- *"The profession needs to continue to move forward at both federal and state levels to be viewed (and ultimately reimbursed) as a profession that provides clinical care. The profession needs to change some of its terms to support this concept. Articles have been written by others as well, but for example one I have read, relates to not using the term "fitting" and using the phrase "treat"."*

Figure 4. Challenges of All O&P Programs: Specific Business Issues

Representative quotes from 5 respondents:

Inadequate salaries

- *"Losing potential practitioners due to rising costs and stagnant salaries."*
- *"The fact that post-graduate employment opportunities often pay far less than professions with lower education requirements for entry (for example entry-level CPO pay immediate post certification is lower than a new Associate Degree RN will earn)."*
- *"Pay is often lower than entry-level positions available at Target, Amazon...etc."*

Reimbursement related to the DME billing model

- *"Separating DME from POS in its self would gain greater acceptance."*

Business costs/time

- *"budgeting for expected pay of Masters level clinical O&P residents is challenging. Also the time commitment to provide a well rounded and comprehensive residency experience is quite the challenge for a small business."*

What are the challenges or issues of developing and/or sustaining O&P education programs?

Figure 5. Challenges of Technician Programs: Administrative Issues

Representative quotes from 8 respondents:

Cost to operate programs

- *“Cost of programs, including equipment, space, supplies”*

Finding/retaining qualified instructors

- *“Small profession and therefore small pool of individuals to pull from that move into education as their career pathway. Small numbers impact the ability of access to O&P educators. So, the competition between programs to maintain and then hire is or can be difficult.”*

Student recruitment

- *“Programs are in competition for quality applicants”*

Cost of education for students

- *“There is no benefit to the students to spend thousands of dollars on a degree in the field if the industry is not going to require the certification.”*

Accreditation requirements too specific

- *“In comparing the accreditation standards for OP Technicians, Assistants, and Pedorthists, it became apparent that the standards for OP Technician are much more prescribed and in depth than the others. Since the technician certification seems to be a lower level credential than either of the others (no direct patient care), why is this and could it be changed?”*

External support from the profession

- *“There is minimal to moderate practical support for technical programs from the profession.”*

Geographic location of programs

- *“fixed locations of the schools are a financial challenge to a potential student evaluating a career.”*
- *“A challenge for employers is that there are not enough grads and the grads generally do not want to move. Pay is often lower than entry-level positions available at Target, Amazon...etc.”*

What are the challenges or issues of developing and/or sustaining O&P education programs?

Figure 6. Challenges of Technician Programs: Other Issues

Representative quotes from 6 respondents:

Value of education/certification

- *"We struggle to provide a meaningful ROI to the college, so it becomes difficult to justify the high cost, spatial requirements, and faculty wages."*
- *"Most facilities do not pay more for the certification/degree."*
- *"If facilities are intent upon training their own technical staff rather than prioritizing graduates of technical programs, how can one justify maintaining technical training programs?"*

Credentialing model - Certificate/degree not required

- *"Technicians do not need a technical degree or be board certified to get a job in the industry."*
- *"When administrators find out technical certification is not a requirement, then it becomes much harder to justify the expense of accreditation, let alone keeping the program alive. I have been asked the following-"Why not turn the OPT program into a short workforce development program, eliminate the degree, forget about accreditation or certification, and run it for much less overhead, attract more students due to less cost/time, and better meet industry demand?" I do not have a response that would shoot this course of action down, and have wondered this myself."*

Inadequate salaries/compensation for professionals

- *"Pay is often lower than entry-level positions available at Target, Amazon...etc."*

Awareness of the profession

- *"Since we deal with a limited budget, we do not have money to market for ourselves and must rely on district funding, which is unpredictable and sporadic. Without marketing, there is no awareness"*

Availability of employees

- *"A challenge for employers is that there are not enough grads"*

Consensus of clinical practice model

- *"..how or what the profession wants and needs of graduates from this level."*

Curriculum delivery mode

- *"The profession is too small - we need to be more creative in the way we teach/share technical education. E.g., rather than asking students to come to us, how can educators go to them?"*

Curriculum content

- *"O&P is rapidly changing and keeping the education programs up to date may not be possible due to the cost and investments needed."*

What are the challenges or issues of developing and/or sustaining O&P education programs?

Figure 7. Challenges of Assistant Programs

Representative quotes from 5 respondents:

Value of education

- *"There is no need for schooling for the assistant"*

Clinical practice model - Lack of consensus of the role of assistants in clinical practice

- *"Difficulty in how the profession as a whole need, and even utilizes this care level and the ability to establish the need and want for this level graduates. This directly can impact the ability for a school to be established without defined needs and future growth for any graduates entering the market place."*

Credentialing model - Certificate/degree not required

- *"A and T programs have the challenge of a degree that is not required for entry into those careers, and doesn't guarantee increased salary/benefits/hiring potential after graduation - so when students are interested, this is discouraging. If the field of O&P wants individuals in all aspects of the care of O&P patients to be educated, then the certifying bodies need to be supportive of that as well, rather than providing work-arounds that undermine the educational programs."*

Encroachment within the profession

- *"The fitter can do everything that the certified orthotic assistant can do with privileging."*

Awareness of the profession

- *"As this is a new segment in its modern iteration, it remains to be seen how assistants and assistant training programs will fare."*

Career advancement

- *"Providing pathway into full clinician."*

Student recruitment

- *"Recruitment and engagement. Who are these programs targeting and what is the market for them after."*

What are the challenges or issues of developing and/or sustaining O&P education programs?

Figure 8. Challenges of Practitioner Programs: Administrative Issues

Representative quotes from 7 respondents:

Costs to operate academic programs

- *“To avoid fabrication bottlenecks, programs must invest in multiple ovens, trautmans, etc. proportional to the number of students within a class, even if these pieces of equipment get relatively minimal use compared to the clinical environment.”*

Finding/retaining qualified instructors

- *“Finding dedicated faculty who want to teach and be willing to put in the hours.”*

Consistency of program model

- *“For CPO programs I think there is too many difference among programs and the education experience students get for this field to be so small. For example, there is not even a unified degree that all CPO students graduate with (MPO, MSOP, MSPO, Master in BME). Also with the different start and finish dates, it can make finding residencies hard for students, especially given that some school have residency included in tuition and they get to choose where they want to get residency experience. I think all program should be on a more unified system and curriculum.”*

Applicant pool - too few/quality

- *“Programs compete with each other for quality applicants by changing interview dates, deadlines, and deposits once accepted.”*
- *“our potential candidates are looking at more lucrative career options for which they can get credentialed in a shorter period of time and reconsidering O&P”*

Instructors - high workload

- *“CPO programs carry many courses usually structured as lab courses, meaning that students are paying for a certain amount of credit hours but spending many more hours than that in the lab space (like 50% more time); this sets up challenges in work expectations for faculty depending on how the educational institution accounts for those extra hours in required faculty responsibilities.”*

External support from industry/manufacturers

- *Lack of donations or discounts for materials and products needed to fabricate lab projects*

Institutional support

- *“Administration understanding the time it requires to implement curriculum.”*

Accreditation - requirements too specific

- *“current requirements for intensive device-centric fabrication and fitting”*

Accreditation – unclear

- *Exposure in a patient care setting needs to be more clearly defined so that programs can figure out how to efficiently meet this accreditation requirement while also not compromising on the purpose of this experience - again, there is a question of how much time is perhaps wasted in clinical rotations if there is an emphasis on the continued learning process in residency.*

Accreditation - need for higher standards

- *“oversight (higher standards are needed for both programs and residency)”*

What are the challenges or issues of developing and/or sustaining O&P education programs?

Figure 9. Challenges of Practitioner Programs: Other Issues

Representative quotes from 11 respondents:

Value of O&P education

- *“The difference between the increasing cost of education and the salaries of residents and recent grads also makes it a less appealing career opportunity, especially for those that have undergraduate degrees that could lead to higher paying jobs.”*

Inadequate salaries/compensations for professionals

- *“High cost of graduate programs relative to starting salary may deter interested students (CPO)”*

Awareness of the profession

- *“Regarding sustaining an O&P program, one of the major challenges is awareness of our profession and experience within the field prior to going to school.”*

Graduate ability/skills - inadequate preparation

- *“For the prosthetist/orthotist programs, students can lack psychomotor skills (i.e., casting skills, modification skills, basic hand skills for repairing devices, etc.)”*
- *“What I feel is lacking is an emphasis on how. ... the residents that I've worked with are fundamentally lacking in hand skills and comfort around tools. I know that practice models are shifting to more central fabrication, but I feel that they are sometimes unable to communicate to central fabrication or local technicians exactly what they would like and what is technically possible. I feel that to be a good practitioner you still need to have a good fundamental understanding of materials and methods of fabrication so that they can effectively communicate what they would like the end device to be.”*

Curriculum Content

- *“Anticipating the impact of new technologies to assure quality of care as the profession advances.”*
- *“Another challenge I see is preparation for the business economics and the current reimbursement model and how this is going to affect the way in which owners and managers may evaluate their performance.”*

Time to teach skills and content

- *“CPO programs don't often have time to teach hand skills for fabrication.”*
- *“Time to deliver all content requirement for competent patient care.”*

Resistance to change

- *“Sentiment that professional training couldn't possibly be done in a more efficient or effective way than what we've always done; our potential candidates are looking at more lucrative career options for which they can get credentialed in a shorter period of time and reconsidering O&P”*
- *“newer, younger educators in CPO programs are under utilized, especially if they came from a masters program and there are older faculty from more traditional programs. This can make it hard for more progressive courses of study like psychosocial education around our jobs.”*

Practice Analysis

- *“I believe there is a disconnect with expectations and specifics of tasks. The Practice Analysis does a very good job up to a point but it might need to have some additional details to direct training.”*

What are the challenges or issues of developing and/or sustaining O&P education programs?

Figure 10. Challenges of Residency (Clinical Education) Programs

Representative quotes from 8 respondents:

Residency quality and oversight

- *“Residencies are not always good training. Sometimes these are just opportunities for companies to gain cheap labor.”*
- *“Ensuring quality and uniformity of residency experiences (oversight).”*

Consistency of the residency program models

- *“relates to consistency of experience and training across a vast diversity of residency programs. The notion of business practice needing to perform an educational experience has its own set of issues/concerns.”*

Inadequate salaries/compensation for residents

- *“residents I mentor are often disappointed with the pay scale versus education costs.”*

Credentialing model - length of time

- *“see an effort needed to make the entire process of becoming a CPO more efficient and less expensive for the student”*

Resistance to change

- *“Sentiment that professional training couldn't possibly be done in a more efficient effective way than what we've always done”*
- *“I have not worked in a higher education setting, but residents I mentor are often disappointed with the pay scale versus education costs.”*

Encroachment issues within the profession

- *“When private practices hire assistants, some will no longer have space for residents.”*

Accreditation – need for higher standards

- *“higher standards are needed for both programs and residency”*

Accreditation requirements too specific

- *“As a small business owner, budgeting for expected pay of Masters level clinical O&P residents is challenging. Also the time commitment to provide a well rounded and comprehensive residency experience is quite the challenge for a small business.”*

Business operating costs/time

- *“Meeting the NCOPE requirements for smaller sites with limited patient populations”*

Residency availability

- *“Maintaining enough residency sites to meet the needs of graduating students.”*

Summary of Strengths

Survey Question: What are the strengths of the O&P education programs?

Results: The first three figures represent the strengths of all O&P programs (technician, assistant, orthotist-prosthetist, and residency). Figures 4-8 indicate strengths unique to each program.

- Fig 1. Strengths for All O&P Programs: Administrative Issues
- Fig 2. Strengths for All O&P Programs: Curriculum Issues
- Fig 3. Strengths for All O&P Programs: Other Issues

- Fig 4. Strengths of Technician Programs

- Fig 5. Strengths of Assistant Programs

- Fig 6. Strengths of CPO Programs: Curriculum Issues
- Fig 7. Strengths of CPO Programs: Other Issues

- Fig 8. Strengths of Residency Programs

What are the Strengths of the O&P education programs?

Fig 1. Strengths for All O&P Programs:
Administrative Issues

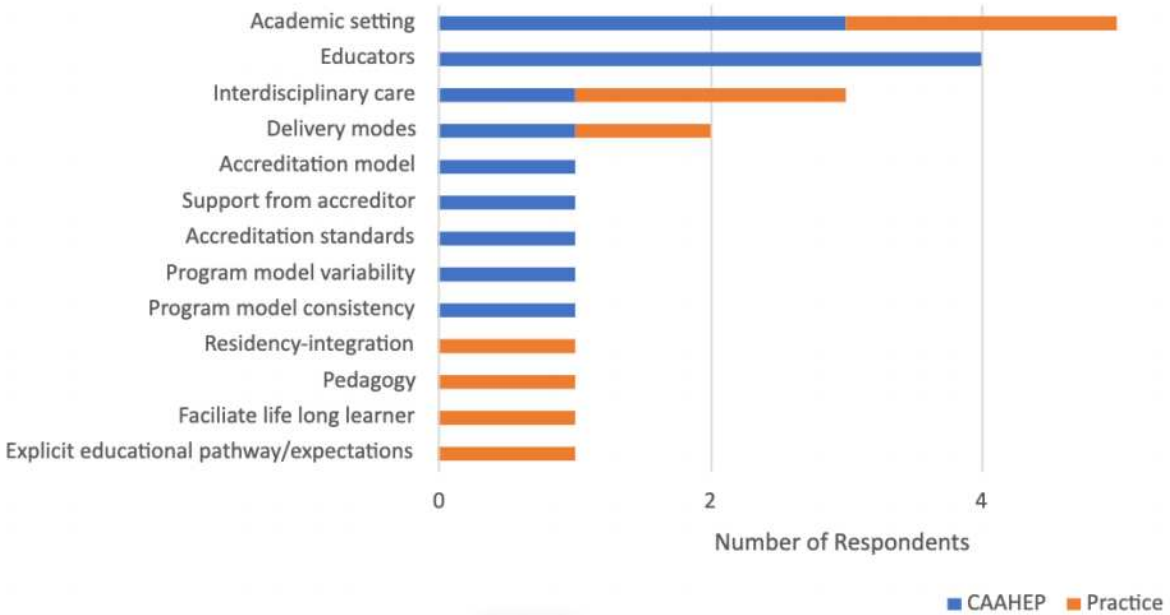


Figure 1. Strengths of All O&P Programs: Administrative Issues. Respondents stated that the academic setting was a strength of the education programs. Additional administrative strengths included the educators, introduction to interdisciplinary care, and academic delivery modes.

What are the Strengths of the O&P education programs?

Fig 2. Strengths for All O&P Programs:
Curriculum Issues

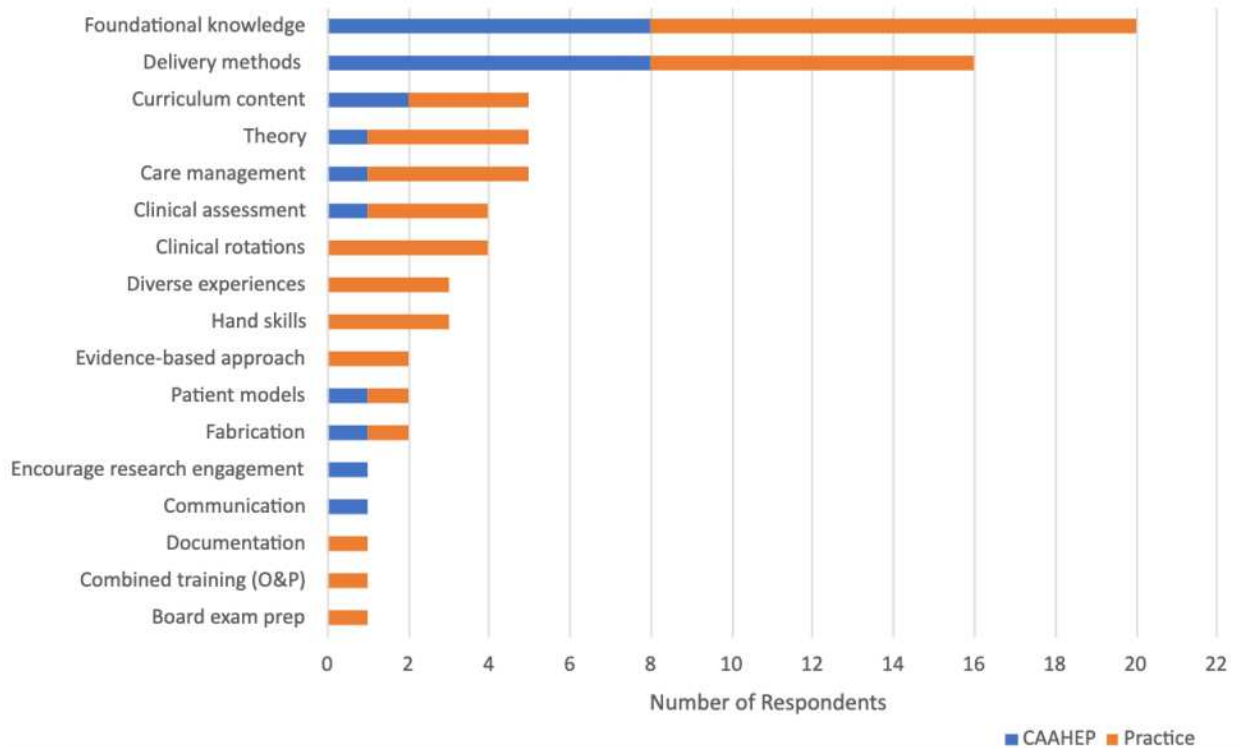


Figure 2. Strengths of All O&P Programs: Curriculum Issues. Respondents from academia and practice noted the foundational knowledge, delivery methods, and curriculum content as strengths of the education programs. Additionally, respondents mentioned that the students' experiences while in school were strengths, such as clinical rotations, patient models, fabrication, and opportunities for engagement in research.

What are the Strengths of the O&P education programs?

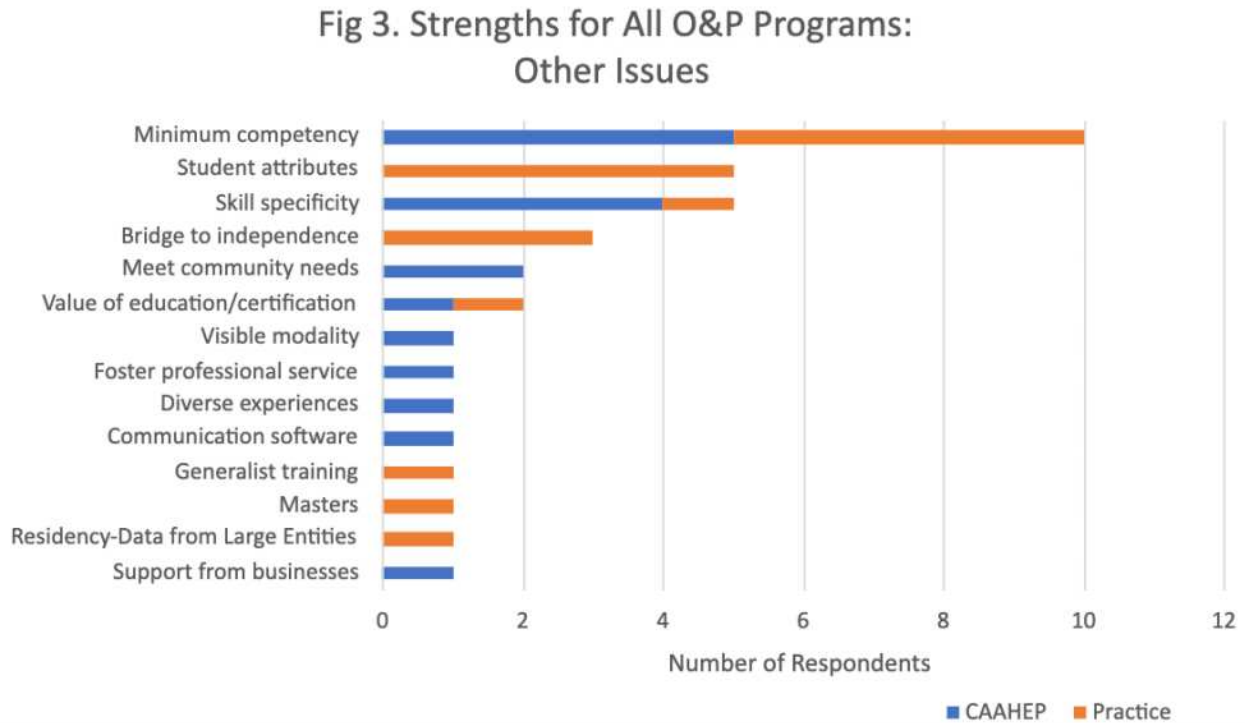


Figure 3. Strengths of All O&P Programs: Other Issues. Respondents reported the graduates' skill level (competency) and preparation for practice as strengths. People in practice reported strengths related to student attributes, such as intelligence and flexibility, and the scaffolded bridge (transition) to practice. Additionally, respondents noted the skill specificity, or unique set of skills, and visible modality as additional strengths.

What are the Strengths of the O&P education programs?

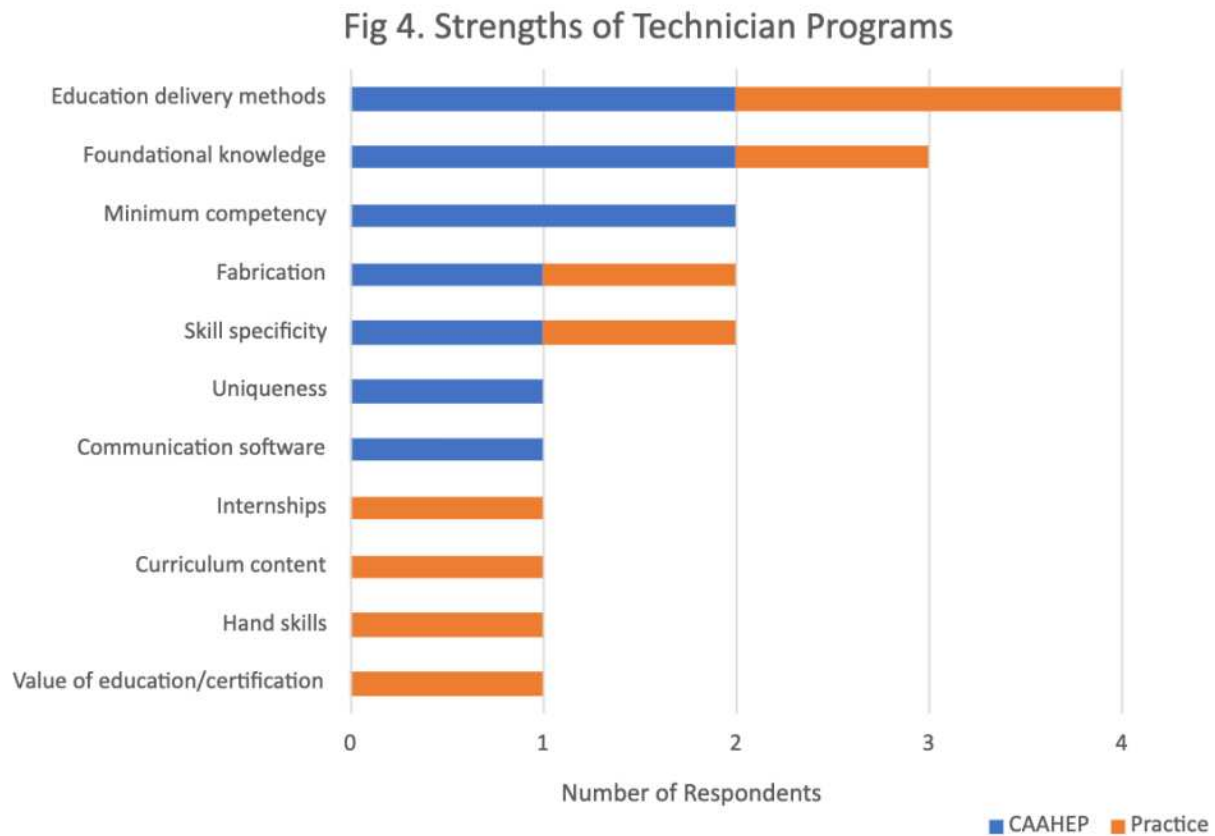


Figure 4. Strengths of Technician Programs. The most noted strength for Technician educational Programs was their delivery methods, including on-the-job training through internships. Curriculum content strengths were noted in foundational knowledge (e.g., anatomy), fabrication, and hand skills, which may contribute to graduates with minimum competency for employment as technicians. Program uniqueness, in part secondary to skill specificity, was also a noted strength.

What are the Strengths of the O&P education programs?

Fig 5. Strengths of Assistant Programs

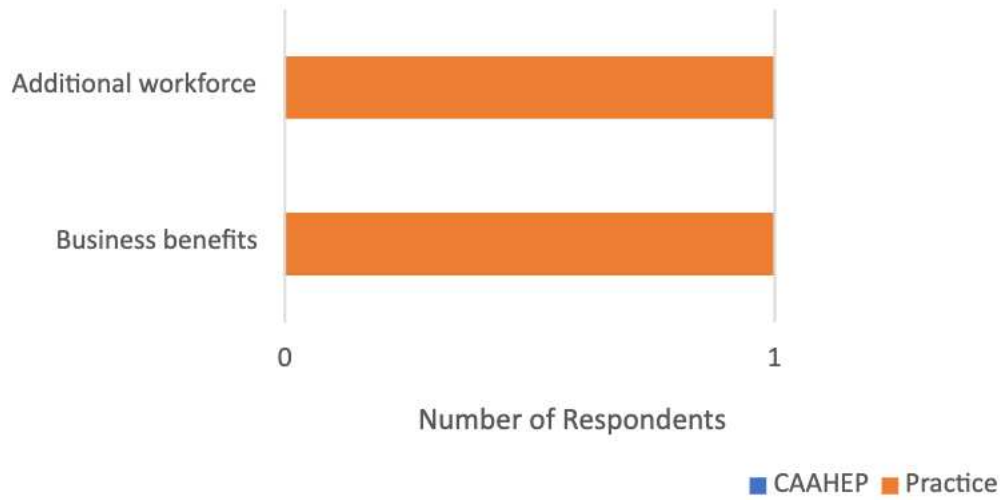


Figure 5. Strengths of Assistant Programs. Only a single respondent explicitly commented on Assistant Programs. Strengths noted by this practitioner included additional workforce and business benefits.

What are the Strengths of the O&P education programs?

Fig. 6: Strengths of CPO Programs: Curriculum Issues

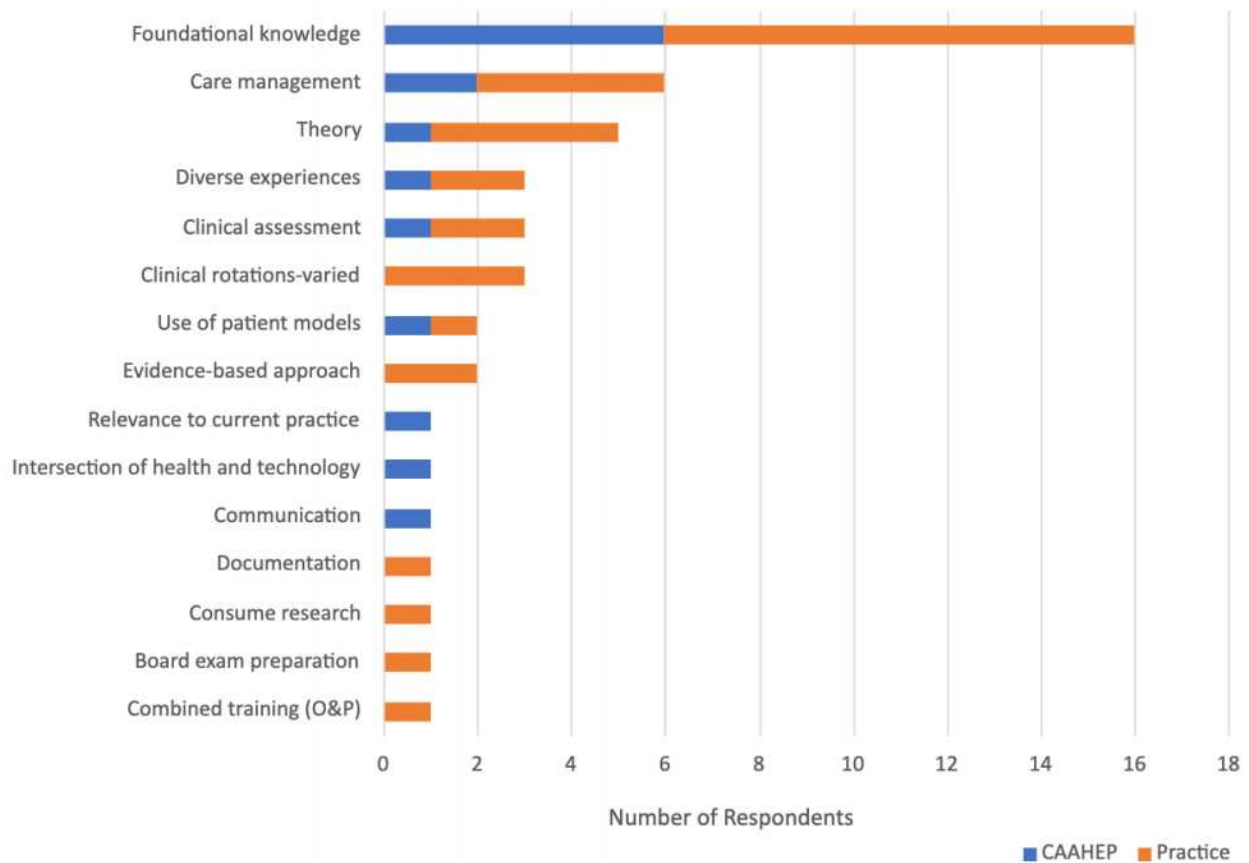


Figure 6. Strengths of CPO Programs: Curriculum Issues. In terms of curriculum content, foundational knowledge including anatomy, physiology, kinesiology, biomechanics, pathology, research, and behavioral sciences, was the most noted strength. Theoretical, or “book knowledge” was also felt to be a strength, as well as clinical assessment, such as gait analysis and outcome measurement. Additional strengths noted by 2 or more respondents included patient care management, the use of patient models, and utilization of an "evidence-based approach to education and treatment."

What are the Strengths of the O&P education programs?

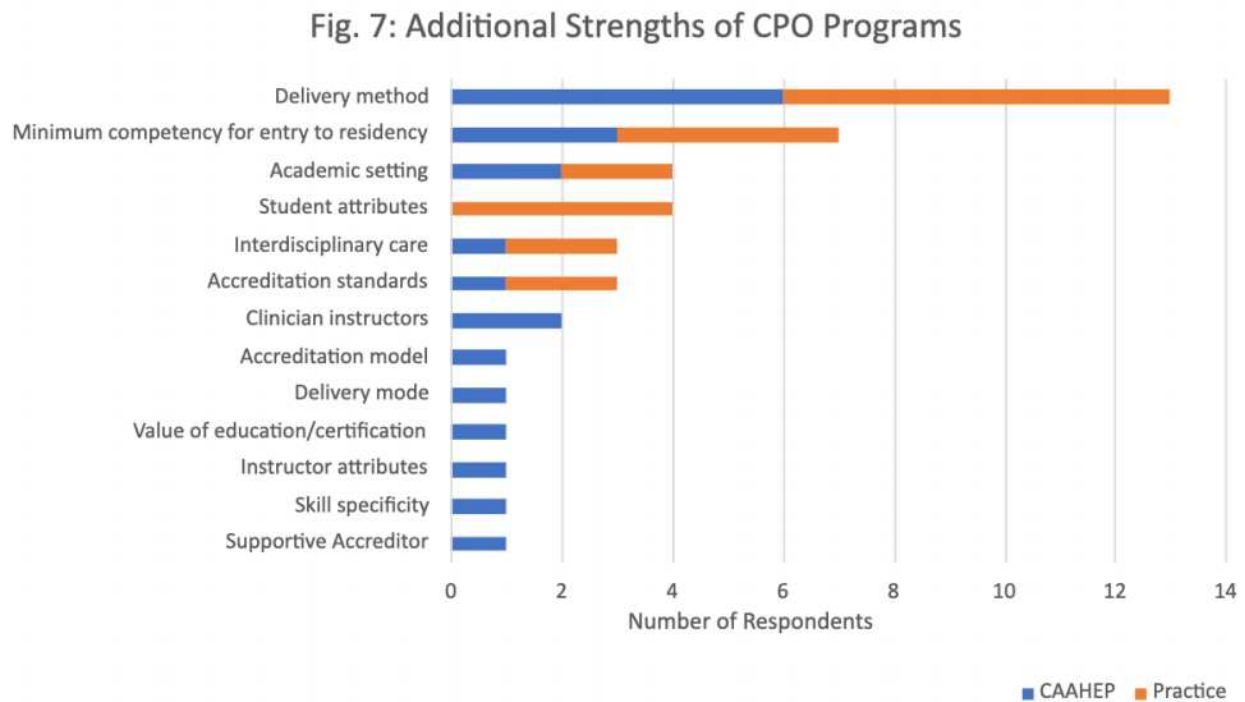


Figure 7. Additional Strengths of Prosthetist-Orthotist Programs. Next to foundational knowledge (see Figure X), the most commonly mentioned strength overall was the delivery method of prosthetic-orthotic programs. Programs are delivered with varied instructional modes, including laboratories, case-based learning, and with a specific focus on hand skills. Minimal competency for entry to residency was a recurring strength. Respondents described students as problem solvers who were curious and well-rounded. Accreditation, including minimum standards and experiences, was noted as a strength. [↗](#)

What are the Strengths of the O&P education programs?

Fig 8. Strengths of Residency Programs

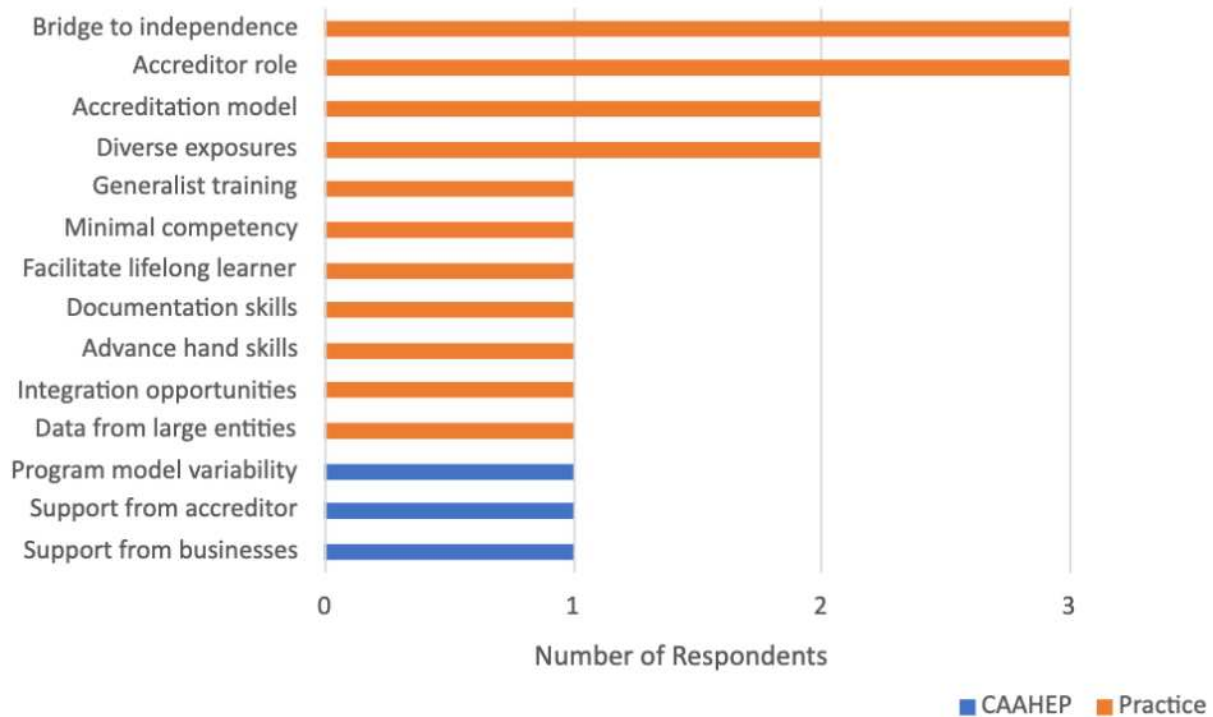


Figure 8. Strengths of Residency Programs. The most commonly noted Residency strengths centered around the accreditor's role and providing a bridge to independence for the new graduates, including opportunities to advance their hand skills and care management through diverse exposures in terms of caseloads and interventions. Respondents suggest support from the accreditor and business practices are strengths facilitating quality Residency program management and residency slots for graduates of Masters of O&P programs.

Representative Quotes of Strengths

Figure 1. Strengths of All O&P Programs: Administrative Issues

Representative quotes from 7 respondents:

Academic Setting

- *"I believe we give the students a space to learn and make mistakes without the repercussions and safety concerns associated with practice."*

Educators

- *"I feel that the staff are the strength of each of the programs. If you have staff that has been clinical, it increases the demand and the rigor of the program."*
- *"First and foremost, primary strength is the O&P faculty and their dedication and commitment to education on behalf of the O&P profession - this is for all levels."*

Interdisciplinary care

- *"provide good foundational knowledge, focus on holistic and team based approach to patient care."*
- *"I also when programs offer cross disciplinary interactions for training and working with patients."*

Academic Delivery Modes

- *"CPO primary training in on-campus learning"*

Accreditation Model

- *"Balance between academics and experience/residency."*

Figure 2. Strengths of All O&P Programs: Curriculum Issues

Representative quotes from 12 respondents:

Foundational knowledge

- *"The O&P programs provide excellent educational foundation at all levels."*
- *"The foundational knowledge, as defined by CAAHEP, is covered well."*
- *"Generally, I see students coming out of school, familiar with the types of patients and pathologies common to our profession. Students' baseline understanding of the types of people they will be working with is good."*
- *"Clinical practice has become increasingly complex and a base understanding of technical, clinical and administrative processes provide the resident and residency facility with a valuable asset to any organization."*

Academic Delivery Methods

- *"project-based learning activities"*
- *"T(echnician) programs prepare graduates to join a practice with psychomotor skills"*
- *"The hands-on component is key to achieving this."*
- *"I believe that the schools have a good mix of hands on and didactic portions"*

What are the Strengths of the O&P education programs?

Curriculum content

- *"Strengths of O&P programs include preparing students to be O&P practitioners/professionals in all areas from content in classroom through hands-on clinical residencies."*
- *"Students are also now much improved consumers of research than certificate program students."*

Theory

- *"I feel that the schools do a very good job establishing the fundamental principles of prosthetic and orthotic rehabilitation. Essentially the theoretical what and why."*

Care management

- *"I believe that the strong clinically-oriented programmatic environment enhances the training of O&P students."*

Figure 3. Strengths of All O&P Programs: Other Issues

Representative quotes from 7 respondents:

Minimum level competencies

- *"The current educational programs provide comprehensive education to prepare graduates for entry level residency experiences. Graduates seem fairly well-prepared for entry level residency experiences"*

Student attributes

- *"For CPO programs, they are higher caliber graduates, very intelligent and eager to learn and do. Tend to be critical thinkers."*

Skill specificity

- *"Technician - this level is strengthened by the unique skill set and knowledge for the specific role/responsibility of working only on the orthosis/prostheses - meaning the profession has the ability to attract very diverse set of individuals"*
- *"We have long clinical and fabrication labs which are unique to health programs."*

Bridge to independence

- *"Bridge the transition to certified clinician with career path progression."*

Meet community needs

- *"Encouraging the students of today to be engaged in more than simply "seeing patients" and "building legs/braces" via research, service to the profession, international outreach, etc."*

Value of education

- *O&P tech is offering a great solution for a large number of young people who may not see the value in going to a traditional college."*

Visible modality

- *"So, the uniqueness of this profession will also always be a strength (you provide clinical services that have a very visible modality of care known as the orthosis and prosthesis)."*

What are the Strengths of the O&P education programs?

Figure 4. Strengths of Technician Programs

Representative quotes from 5 respondents:

- *"Technical programs give the students general knowledge of fabrication of devices. Without this general knowledge of anatomy, fabrication, fit and function, the individuals would be walking in completely green. Internships/affiliations help to educate the students with on-the-job training."*
- *"T[echnician] programs prepare graduates to join a practice with psychomotor skills, communication tools, and a base of cognitive knowledge to perform as entry level technicians. T[echnician] Programs expose students to a wide variety of devices, designs, and materials."*
- *"T[echnician]- this level is strengthened by the unique skill set and knowledge for the specific role/responsibility of working only on the orthosis/prostheses - meaning the profession has the ability to attract very diverse set of individuals who are able to find an interest that allows for working with hands and not an interest in patient care."*
- *"We are unique and novel enough for the college to show off and use as a "flagship", even if they don't support us-sometimes I think this is all that keeps us alive."*
- *"O&P tech is offering a great solution for a large number of young people who may not see the value in going to a traditional college."*

Figure 5. Strengths of Assistant Programs

Representative quotes from 1 respondent:

- *"We will soon have a new class of professionals who can fill a void opened when CPO's transitioned to master's degrees. This has the potential to positively impact practice structure and management."*

What are the Strengths of the O&P education programs?

Figure 6. Strengths of CPO Programs: Curriculum Issues

Representative quotes from 5 respondents:

- *"For the prosthetist/orthotist programs, students are well educated in didactic content (i.e., anatomy, pathologies, planes of motion, biomechanics, disease processes, etc.)"*
- *"CPO: provide good foundational knowledge, focus on holistic and team based approach to patient care. Provide a lab environment as well as classroom education. Evidence based approach to education and treatment."*
- *"Generally, I see students coming out of school, familiar with the types of patients and pathologies common to our profession. Students' baseline understanding of the types of people they will be working with is good."*
- *"Implementing project-based learning activities that combine healthcare with technology"*
- *"Students now have more exposure to real patient scenarios. Students are also now much improved consumers of research than certificate program students."*

Figure 7. Additional Strengths of Prosthetist-Orthotist Programs

Representative quotes from 9 respondents:

- *"(CPO) I think that the education programs all have very dedicated faculty that are willing to go above and beyond to help students in their learning. I believe we give the students a space to learn and make mistakes without the repercussions and safety concerns associated with practice. The foundational knowledge, as defined by CAAHEP, is covered well. Overall, we prepare students to take the next step in their careers."*
- *"O&P educations due a good job of providing training/information about a wide range of skills: movement sciences, clinical assessments, material design, behavioral sciences. It is well constructed to include both classroom studies and experiential residency."*
- *"CPO programs provide a wide variety of educational experience, attempting to create a balance of theoretical and practical knowledge, as well as hands-on skills to prepare students for entry into residency."*
- *"CPO education programs provide strong foundational education to produce safe, entry level practitioners."*
- *"For CPO programs, they are higher caliber graduates, very intelligent and eager to learn and do. Tend to be critical thinkers."*
- *"My colleagues in other disciplines (PT, OT, PA) that interact with O&P students are always so impressed with how comfortable and natural our students are with patient interaction. I believe all programs do an excellent job with this real-world, practical approach to teaching O&P that builds confidence in our students. The hands-on component is key to achieving this."*
- *"There is a clear expectation for the training from schooling to residency for the O&P clinician students."*
- *"I feel that the staff are the strength of each of the programs. If you have staff that has been clinical, it increases the demand and the rigor of the program."*
- *"CPO primary training in on-campus learning - and residency."*

What are the Strengths of the O&P education programs?

Figure 8. Strengths of Residency Programs

Representative quotes from 8 respondents:

- *"R[esidency programs]: Ensure practitioners have a prerequisite amount of clinical experience and competency before entering into independent patient management. Have exposure to a broad range of pathologies and treatments and not just speciality. Bridge the transition to certified clinician with career path progression."*
- *"Residency helps connect didactic knowledge to "real world" clinical setting."*
- *"Residencies large enough to host rotations (UCSF, Baylor, Gillette, etc.) are gathering important data that can influence how all residencies are managed. NCOPE training of residency directors and mentors is outstanding! I hope this becomes required of residency proprietors at periodic intervals (every 5 years, perhaps?) to keep leaders sharp and current on training priorities."*
- *"R[esidency] - strength is the support of business practices to assume a role of educator/mentor, which they were not trained for specifically and offer positions to new graduates (or entergrated students). It truly is remarkable that R[esidency] has been as successful as it has been and all based on ultimately the profession accepting it as the primary way to educate/train orthotist/prosthetist."*

What are the threats to the O&P education programs?

Summary of Threats

Survey Question: What are the threats to the O&P education programs?

Results: Figure 1 shows the results from the question about threats for all O&P education programs. Most of the 40 different themes identified from this question were already noted as challenges, such as the top three threats included in the chart. Therefore, this figure primarily shows the themes that have not already been identified as challenges.

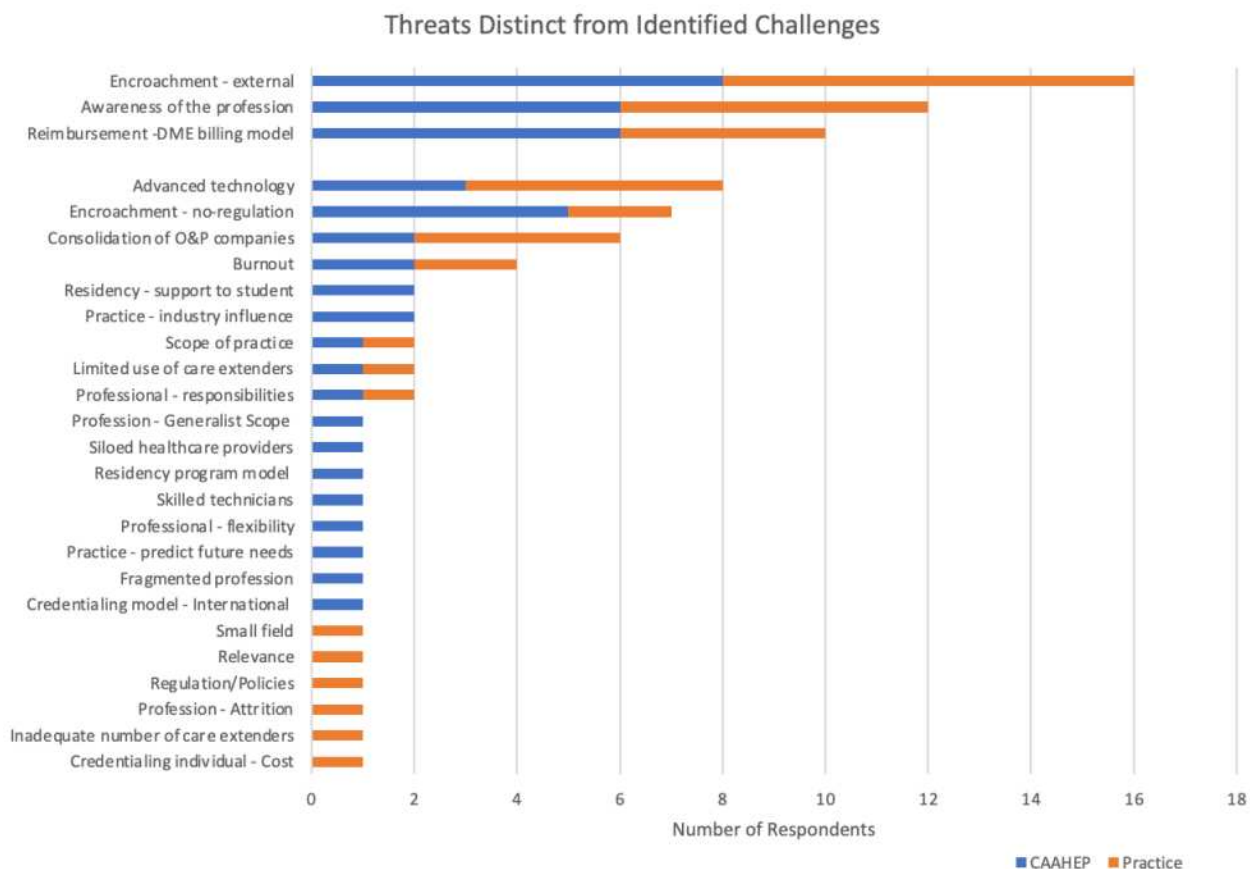


Figure 1. Threats Distinct from Identified Challenges. The top three threats reported were external encroachment, awareness of the profession, and the limitations of the DME reimbursement model. Additional threats, distinct from those listed in the challenges, included advanced technologies, encroachment without regulation, consolidation of O&P companies, and burnout.

Representative Quotes of Threats

Figure 1. Threats Distinct from Identified Challenges

Representative quotes from 19 different respondents:

Advanced technology

- *“The field is very vulnerable to potential disruptive technologies. The capacity of the hobbyist to create a unique custom fit device use to be a barrier to encroachment from. other professions, well meaning volunteers etc. the advent of 3D has ended that.”*
- *“Increase in additive manufacturing and the ability for un-educated individuals to provide low-cost and perhaps low-quality care.”*
- *“Rapid advancements in technology require programs to constantly update their curriculum and invest in expensive equipment and software. Keeping up with these technological advancements can be resource-intensive and time-consuming. Moreover, incorporating new technologies into the curriculum may require faculty development and training to ensure effective teaching and student engagement.”*
- *“CPO: AI will push into the space of determining treatment modalities and possibly documentation generation. How does education address this and define the role of the clinician. T: 3D printing and other rapid/automated fabrication. Are these being stressed and taught in the technician programs to the level where graduates will not become obsolete.”*

Encroachment - no regulation

- *“Open source CAD files, example \$500 prosthetic arm Artificial Intelligence Leg in a Box*
- *“Is Amazon a threat? Proves that licensure is invaluable.*

Consolidation of O&P companies

- *“I think the consolidation of independent practices to Ottobock and Ossur (along with the existing Hanger mergers and changes) will have a huge impact on the entire profession, including education.”*
- *“Consolidation of care, through practice mergers, acquisitions, and insurance contracting seems to be a factor”*

Burnout

- *There also should be additional/adequate preparation for the "real world" to help reduce early burnout--setting realistic expectations.*
- *“Older colleagues in all aspects of our business (CPOs, Front & Back office staff, and purchasers) all tell me their jobs are harder now than they used to be. There is clearly demand for CPO expertise, but there are also threats to the sustainability of O&P clinics. These threats trickled down to affect the applicant pool to O&P programs.”*

Residency support to student

- *“Having a supportive work environment during their first years post graduation is very important. I have had multiple graduates tell me they left the field due to negative experiences during their residency, including being burnt out.”*

What are the threats to the O&P education programs?

Practice - industry influence

- *"We don't want the "industry" side of our profession to have too large of a fingerprint on the educational process of O&P credentialed professionals."*

Scope of practice

- *"Limited scope of practice"*

Limited use of care extenders

- *"O&P is not fully embracing a model that efficiently uses the assistant role in place of an abundance of CPOs, which may be a limiting factor in our salaries."*

Professional Responsibilities

- *"CPOs are required to assume numerous roles beyond clinical care. Many spend more time acting as patient liaisons, navigating referrals, reimbursement, and appeals than originally trained or their schedule allows."*

Profession – generalist scope

- *"The scope of the profession is overwhelming, and many have a feeling of being a "jack of all trades and master of none"."*

Siloed healthcare providers

- *"Siloed healthcare providers and lack of interprofessional collaboration is reducing efficiencies, hampering transparency and adding barriers to effective and coordinate care provision."*

Residency program model

- *"Our residency model needs to change---it holds the profession and most residents back in a number of ways. Other health professionals and institutional administrators are shocked at our board exam process and cost (not in a good way)."*

Skilled Technicians

- *"Decrease in competent technicians. Lack of committed support to the all levels of education."*

Professional flexibility

- *"Our profession doesn't afford the flexibility associated with other career choices."*

Relevance

- *"Our biggest challenge is staying relevant."*