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# Barriers to Scholarship Integration in Professional Athletic Training Programs and Resources Needed to Overcome Barriers: A Report from the Association for Athletic Training Education Research Network

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**Context:** Athletic training program administrators have identified that it is important to incorporate a scholarship component into professional education curricula.

**Objective:** Explore the barriers to implementing student scholarship in professional programs and identify resources necessary to overcome the barriers.

**Design:** Consensual qualitative research.

**Setting:** Individual teleconference interview.

**Patients or Other Participants:** A total of 17 program directors of professional programs was interviewed. Programs reported an average of 3 ± 1 core faculty supporting 37 ± 21 students, with 3 ± 2 faculty involved in scholarship activities of their students. Data saturation guided the number of participants.

**Data Collection and Analysis:** Interviews occurred using a semistructured interview guide. All interviews were recorded and transcribed verbatim. Data were analyzed by a 3 person research team and coded into themes and categories based on a consensus process. Credibility was established by using multiple researchers, an external auditor, and member checks.

**Results:** Two major themes emerged from the data: (1) current challenges and shortcomings and (2) resources and strategies needed to achieve scholarship. Participants noted a lack of research or scholarship culture at their current institution and a lack of faculty time and expertise to implement and guide research throughout the curriculum as current challenges. Participants further identified that a lack of clear expectations for how much scholarship was necessary and lack of buy-in from faculty, students, and preceptors made it difficult to implement scholarly projects in the curriculum. Necessary resources to overcome barriers included institutional support in the form of faculty release, support, training, or all of the aforementioned. Participants identified that collaborative research opportunities as well as publicly available examples of completed student scholarly activity would further guide them in overcoming the curricular challenge of implementing scholarship.

**Conclusions:** Internal institutional support, external peer collaboration, and public examples of success are necessary to overcome barriers to scholarship integration in professional athletic training curricula.

**Key Words:** Research, culture, faculty, buy-in, collaboration

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## KEY POINTS

- Persistent confusion exists as to the differences in research and scholarship, which contributes to challenges that faculty experience in setting clear expectations and achieving stakeholder buy-in.
- Faculty, students, and preceptors need clear expectations of the time commitment and end product of a scholarship experience to facilitate buy-in on the value of the experience.
- Program administrators at institutions that lack a culture of research and scholarship are seeking assistance in the form of collaborative opportunities and published examples of successful scholarship mechanisms to overcome the challenges of including scholarship in their curricula.

## INTRODUCTION

In health professions education, many accrediting bodies now require the inclusion of scholarship and evidence-based practice for both faculty and students.[1–3] The transition of professional athletic training education to the master's degree level previously generated concern about the existing pipeline of research, as the transition had the potential to result in the loss of postprofessional graduate students who generate original research as a requirement of their curriculum.[4] However, athletic training educators have identified the transition of the professional degree to the graduate level as an opportunity to reimagine the scholarly activities in which students have the opportunity to participate.[5] Students in graduate professional athletic training programs must now minimally be able to search, interpret, critically appraise, and apply the findings of the available body of evidence to meet requirements for evidence-based practice and health care informatics, but program administrators are hoping to exceed those minimum requirements by including more research opportunities in their respective curricula.[1,5]

Athletic training educators have expressed a desire to incorporate a meaningful form of scholarship into their professional athletic training program and have indicated specific mechanisms to do so.[5] In addition to creating learners that are consumers and appraisers of evidence, educators hope to develop meaningful experiences in their graduate programs that might include traditional theses, group-based original research projects, and practice-based point-of-care research.[5]

Peer professions that have previously included research opportunities in didactic programming have cited a lack of available, qualified mentors, a lack of available time and funding, a lack of available courses to support and train students through the process, and students' lack of ability to translate research into meaningful decisions as barriers to incorporating research and scholarship into their curricula.[6–8]

Many transitioning athletic training programs that are seizing the opportunity to reinvent the inclusion of scholarship or research in professional curricula will face similar challenges and require additional resources and strategies to adequately implement scholarship into a master's level professional athletic training curriculum. Therefore, the purpose of this investigation was to explore the barriers that program administrators face when attempting to incorporate scholarship into their professional level athletic training programs and to identify resources needed to overcome the perceived barriers.

## METHODS

### Design

Consensual qualitative research (CQR) tradition was selected and used due to its previous use in athletic training research and its robust process of analysis.[9–12] The CQR tradition allows the research team to reach a consensus after repetitive analysis of multiple cases and allows for a comprehensive representation of the data.[13] Consensual qualitative research emphasizes the use of multiple perspectives, opinions, and levels of awareness to approximate the truth and reduce researcher bias.

### Participants and Setting

Institutional Review Board approval (Indiana State University) was obtained before any data collection. As athletic training programs, regardless of degree level have demonstrated engagement with scholarship, we recruited program directors from all professional bachelor's and master's programs (n = 382) via email. Emails contained an invitation to participate in an interview and a link to an electronic survey to document informed consent and to collect demographic information about the participants. We sent an initial email on a Tuesday at 10:00 AM EDT and sent a follow-up email 1 week later (Tuesday at 10:00 AM EDT). The recruitment survey was closed a week and a half later, the following Friday.

As participants responded, interviews were conducted by L.E.E.. With CQR, it is recommended to have 10 to 15 participants to achieve data saturation.[9,10] We achieved data saturation after conducting 17 interviews. Eight (47.1%) of the participating programs were from doctoral-granting universities, 7 (41.2%) from master's granting universities, and 2 (11.7%) from other. Participants were employed at 11 (64.7%) public institutions and 6 (35.3%) private institutions and taught in 12 (70.6%) professional bachelor's programs, 3 (17.6%) professional master's programs, and 2 (11.8%) institutions that supported both professional bachelor's and master's programs. Participants consisted of 11 (64.7%)

females and 6 (35.3%) males from professional programs (age $= 45 \pm 7$ years), with $13 \pm 7$ years as an administrator. Programs reported an average of $3 \pm 1$ (range $= 1$–5) core faculty supporting $37 \pm 21$ (range $= 3$–96) students, with $3 \pm 2$ (range $= 1$–8) faculty involved in scholarship activities of their students. Additional characteristics of each program director and his or her respective institution have been previously published.[5]

To minimize bias for this qualitative study, we intentionally did not collect information about the formal preparation (ie, highest degree earned) among our participants or the core faculty of the respective programs. Historically, the research doctorate (ie, PhD) had been obtained by scholars wishing to become stewards of the discipline. However, as higher education has continued to evolve to meet the needs of a variety of stakeholders, so has the degree preparation of educators who hold degrees outside of the research doctorate (eg, EdD, DHSc, DAT). Therefore, to assume that only faculty who hold a research doctorate have the preparation or expertise to engage students in scholarly activities would be a disservice to educators who have become scholarly academicians or scholarly clinicians through nontraditional routes. Furthermore, with an emphasis to contribute to the greater body of knowledge via scholarly activities that fall into all of the scholarship domains defined by Boyer (scholarship of discovery, teaching, integration, and application),[6] it is implausible to capture the ability of a faculty member to mentor a student through a scholarly experience solely based on degree preparation of the faculty.

### Instrumentation

Due to the lack of available evidence on the topic, the research team used the purpose of the study to guide the development of the semistructured interview script. The semistructured interview approach allows the interviewer to ask follow-up questions to probe for deeper meaning and clarify the participants' responses. The interview script, available in Table 1,[5] included 12 questions. Three athletic training educators ($21 \pm 4$ years of experience) reviewed the interview script for content and clarity. We made minor grammatical and clarity edits after the review.

### Data Collection Procedures

Participants were contacted with the electronic survey via e-mail, and at the conclusion, interested participants entered their contact information for the interviews. Individual interviews were scheduled with each participant, and each interview was conducted using teleconferencing software (Zoom, Version 3.6; zoom.us; San Jose, CA). At the start of the interview, participants were instructed to answer questions from a programmatic perspective rather than speaking about their own personal experiences. Each interview lasted approximately 35–40 minutes, and after each interview, an audio file was automatically saved to the interviewer's computer. The files were sent to a professional transcription company (Dictate2us Transcription Service; Manchester, United Kingdom). The research team deidentified all interview transcripts, removing names and places of employment before beginning the member checking and data analysis process.

**Table 1.   Semistructured Interview Script**

| Questions |
| --- |
| 1. Tell me about the status of your program. |
| 2. Please discuss your thoughts on the inclusion of student scholarship or research activities throughout professional athletic training programs. |
| 3. What value, if any, do you feel student scholarship or research activities have on the overall professional experience for a student? |
| 4. Please discuss how your program implements student scholarship or research activities into your program. What are the resources necessary? How much and what kind of faculty support is necessary? |
| 5. How have you structured the scholarship or research activities? What influenced that structure? |
| 6. Are there any approaches to implement scholarship or research activities that you have tried that were unsuccessful? |
| 7. Which approaches do you believe are most successful for implementing student scholarship or research activities into your professional athletic training program? |
| 8. Please discuss your level of satisfaction with your current implementation approach of student scholarship or research activities within your professional athletic training program. |
| 9. What changes, if any, would you make to your current approach? |
| 10. Are there any scholarship or research activities you would like to incorporate but are currently unable to? |
| 11. What strategies do you feel will be useful to educate educators and preceptors for implementing student scholarship or research activities throughout didactic and clinical education curricula? |
| 12. What resources could the Athletic Training Clinical Education Network or other professional organizations provide you to be successful at implementing student scholarship or research activities into your program? |

### Data Analysis and Trustworthiness

Member checking was used after the recordings were transcribed to ensure that what participants intended to say was conveyed accurately from their perspective. Participants were instructed to review the transcript of their interview to verify that their words were accurately captured and were allowed to reflect and clarify their responses as needed.[11,14]

The data analysis team initialized the data analysis process by reviewing 4 transcripts using an inductive approach. The data analysis team consisted of the primary investigator and 2 other research team members (C.W.B., S.E.W.) with various levels of experience with the CQR tradition. One additional member (J.M.C.) also served as an external auditor. Each member of the team independently read 2 transcripts to develop a domain list reflective of the data and then met to compare notes and come to a consensus on the domains and conceptualize the core ideas, creating the initial codebook.[10,11] To ensure that the initial codebook was reflective of the data, it was then applied to 2 of the original transcripts and 2 new transcripts.[10,11] The team met again to confirm the consensus codebook, which was then applied to the remaining tran-

### Table 2. Frequency of Participant Cases per Category

| Theme or Category | Frequency | No. Cases per Domain |
|---|---|---|
| **Current challenges and shortcomings** | | |
| Culture | Typical | 12 |
| No clear expectations | Variant | 7 |
| Time intensive | Typical | 14 |
| Faculty load or expertise | Typical | 15 |
| Buy-in from stakeholders | General | 16 |
| **Resources needed and strategies for scholarship** | | |
| Institutional support | Typical | 14 |
| Collaborative research | Typical | 14 |
| Publicly available examples or resources | Typical | 15 |

scripts, whereby each of the 3 members of the data analysis team coded 4 or 5 transcripts. Those coded transcripts were then confirmed by 1 other member of the data analysis team, and any diverging opinions were discussed to reach consensus.[10,11] Finally, we constructed cross-analyses of multiple participant interviews to ensure those core ideas were accurately placed in categories. After the data analysis process, the interview script, consensus codebook, the cross-analyses, and coded transcripts were shared with the external reviewer. The external reviewer provided feedback on the codebook and coded transcripts, which were minor and did not result in changes to the codebook or coding frequencies. Triangulation of the data was ensured and trustworthiness was established by the use of multiple researchers, participant member checking, and an external auditor.[10,11]

Lastly, frequency counting was performed. Frequency counting presents the occurrence of a given code across the whole sample of participants.[10,11] Categories were assigned as *general* if identified in 16 or 17 participant transcripts, *typical* if identified in 8 to 15 transcripts, *variant* if identified in 4 to 7 of the transcripts, and *rare* if only identified in 3 or fewer transcripts.[10]

## RESULTS

Four themes related to implementing student scholarship within a professional athletic training program emerged from data analysis. These themes included: (1) perceptions of scholarship, (2) mechanisms of scholarship, (3) current challenges and shortcomings, and (4) resources needed and strategies for scholarship. The first 2 themes and participant demographics were presented in a previous publication,[5] and for this manuscript, we focused on the third and fourth themes identified. Each theme was further broken down into multiple categories, and representative participant quotes were included for each category. Frequency counts per theme and category are displayed in Table 2.

### Current Challenges and Shortcomings

Data related to current challenges and shortcomings were further reduced into 5 categories: culture, no clear expectations, time intensive, faculty load or expertise, and buy-in from stakeholders. Participants felt that it was difficult to develop a siloed programmatic culture of research within an institution that lacks that culture throughout. Buy-in from stakeholders was necessary to attempt to build a culture of research. Participants identified that research is time intensive, and those educators that work at a university where research is not required of their job description felt that research was difficult to include in a program because the faculty may not have the available time, load, or expertise to support such aims. Quotes supporting each category are provided in Table 3.

**Culture.** Participants identified that, if their institution did not promote a culture of research and scholarship, it was particularly challenging to try to build such a culture in the program. Participants also recognized that the differences in university culture exist in part based on institutional philosophies that differ in focus on either teaching or research, and some suggested that this impacts the ability to even attempt to require a student to participate in certain types of research. Lastly, participants identified that, institutional culture notwithstanding, the role of the student and preceptor are significant contributors to the development and maintenance of a culture of scholarship. A lack of preceptor and student interest in research was a deterrent for some programs to even require research activities. Our participants felt that, without preceptor and student interest, the cultural void was difficult to reverse.

**Buy-In From Stakeholders.** It was noted by many participants in our study that buy-in from stakeholders was a challenge, one that precedes the challenge of attempting to build a culture of scholarship, as the culture cannot be developed without buy-in. Buy-in, as described by our participants, is the commitment to complete the entirety of the project, the motivation to actively participate in the process, and an appreciation for the impact or relevance of the findings of the activity. Participants identified a need for the buy-in of the importance of scholarship and research from students at all points and preceptors in cases where scholarly activities are assigned to occur at clinical sites. Buy-in has been sought from students and preceptors by reframing the idea of research and scholarship from the perspective of its influence on patient care. Specifically, participants felt that if they could tie research that the students were required to perform to their clinical experiences, then preceptors would become interested in participating because the benefit to the patient might be more visible. Some of our participants did note that buy-in from preceptors specifically seemed to be influenced by the age or experiences of the preceptor: younger or more recently graduated preceptors were exposed to more evidence-based practice and research in their professional programs, but older or more experienced preceptors were

**Table 3.  Results: Participant Quotes to Support the Current Challenges and Shortcomings Theme**

| | Current Challenges and Shortcomings | | | |
|---|---|---|---|---|
| Culture | No Clear Expectations | Time Intensive | Faculty Load or Expertise | Buy-In From Stakeholders |
| "Last year, we tried to start our projects in the fall so that the students could submit and present at the state meetings and things like that. What we found is that the students really aren't interested in doing that, and that, again, speaks to the culture. We don't have much student participation in our state meetings, in they're scared to death so, making them go present someplace. They are intimidated by what we're asking them to do, and so to try to encourage them to do that, they just get afraid." ~Elsa | "I think, in some ways, a proposed timeline might enable a faculty member to think about, 'Well, is this something that I can adopt over the course of our curriculum? How would this be best implemented?' I think it would also be helpful to provide some guiding questions that departments can pose to one another whether it's a faculty retreat, a departmental retreat, in the way that we have to do our competencies where we look at, where would this competency best be taught? How are we going to assess it? Are we going to teach it? How are we going to reassess it? You have to do that with any overarching skillset, I think." ~Fillmore | "You know, I think, for us, it was trying to do things on a larger scale, things that were going to cross multiple semesters because of the need to involve multiple faculty in that. Students' time management, so to speak, in that they seem to. . . even if you have intermediate deadlines, it's the day that the deadline is due that they're trying to put something together. That's horrible." ~Merida | "The other thing is just having expertise in statistics because that is one of my weakest areas, and we don't have people available on campus. We don't have those resources unless we want to pay lots of money. So having another person with us with this background would be awesome." ~Ariel | "I think informing people that there are a lot of different types of scholarly activity and that it doesn't all have to be this huge process or product. I think starting small, especially with those people who are really resistant, is important because you still hear a lot of people talk about even just evidence-based practice, continuing education, and how horrible that is. Well, it's really not. It really should be probably more than what it is, but it's because they equate it with research. Scholarly activity is way more than that and how it. . . tying it to how it benefits the patient, how it. . . how it can change how you care, provide care in whatever practice setting you're in." ~Merida |

**Table 3. Continued**

| | Current Challenges and Shortcomings | | | |
| Culture | No Clear Expectations | Time Intensive | Faculty Load or Expertise | Buy-In From Stakeholders |
|---|---|---|---|---|
| "I know that, for our program specifically, they don't see a lot of that role modeled by many of the preceptors, and so it's strictly didactically us trying to get them into pulling information out to apply to clinical practice. I think that our students don't see the value in the beginning of the [research] process, but after the year-long process is over, I feel like there's more respect and more appreciation for scholarship and its value." ~Goodwyn | "I think we're trying to develop our... for lack of a better term, our matrixes for clinical education, didactic education, and research, and so we've identified research as a separate area that needs its own matrix in our professional program. So what needs to be taught first as far as methodology, analysis, or whatever? What needs to be taught first? What needs to be taught second? How can we build within our professional program our research content?" ~Gill | "I think one of the things that our faculty learned pretty quickly was not to jump in too deep with a student, that a progression was necessary because of the time commitment." ~Collette | "Just knowing those who have been successful in collaborating with students on scholarship, it's often been faculty familiarity with the process, enough release time or reduced instructional load that would allow and value collaboration with students. So there doesn't necessarily need to be a supporting grant, but the institution may have a 3:3 load or a 2:2 load. I'm in an institution where the normal load is a 4:4 load, and then as a department chair, I get release, but scholarship is an assumption, not necessarily valued with tangible time." ~Fillmore | "The younger preceptors we have that have went through [athletic training] programs in the last 4 or 5 years, they love it. The older, more traditional practitioners are the ones that are not very invested. They do it because they realize that it has a purpose, but there's not a ton of investment outside of, okay, I'll supervise you in doing this." ~Mack |
| "... think we see great value in it, especially if you have a scholarship mind, but I don't know that the students value it at the time because they don't see the greater picture, and they're not in a clinical practice, and I do think that also, sometimes, the relationships that they have with their preceptors who may not always use the evidence or did not have programs that emphasized or stressed or talked a lot about the research." ~Megan | "I haven't thought that far yet. I haven't. I would like my students to perhaps perform some original research, and maybe they can go to an athletic training site in [state] or [district] or something and present it. You know, that's something more I think I'm looking at for the master's degree to see, but yeah, that's something that, you know, are definitely thinking about incorporating, but other than that, I haven't honestly taken time to talk to [fellow faculty member] and assess it yet." ~Eve | "... but because this is a professional program, I think, one of the challenges is that, you know, it's very common for graduate students not to always finish their research on time. I mean, that's why there's continuing thesis, continuing dissertation classes, and our biggest concern was that we didn't want that holding up their certification." ~Jasmine | "Our scholarship is supposedly 30% of the evaluation system for faculty here, and I'm not sure if we can do that given our workloads in teaching without having student assistance. So we really need to make those students work for us and with us to advance not only their own academic matriculation, but to help junior faculty as well." ~Gill | "Well, I would like to see us figure out how to get our clinical staff modelling what we want our students to do in that capstone experience. Again, I'm not trying to make our staff into researchers, but they need to understand the value and the benefit of analyzing their own practice. We're trying. We're not strong-arming it by any means, but you know, as we talk about things in classes, we kind of try to bring our clinical staff in the loop and saying, hey, this is the project that I'm having them do." ~Collette |

**Table 3. Continued**

| | Current Challenges and Shortcomings | | | |
| Culture | No Clear Expectations | Time Intensive | Faculty Load or Expertise | Buy-In From Stakeholders |
|---|---|---|---|---|
| | | "I'm a firm believer that I think one of the challenges as we move forward is this balance of scholarship and the hot topic of immersion, like can we really develop clinicians that are/have an appreciation for the scholarship if we're also simultaneously trying to make them effective clinicians through engagement and being. . . almost being consumed by the role of fully practicing, you know, if you do the immersion-type model?" ~Megan | "I think, if you are going to put research projects into master's degree programs or professional programs, then they absolutely have to feed into the faculty member's line of scholarship, so that it's a you-scratch-my-back-I'll-scratch-yours kind of thing." ~Belle | "[I] think we see great value in it, especially if you have a scholarship mind, but I don't know that the students value it at the time because they don't see the greater picture, and they're not in a clinical practice, and I do think that also sometimes the relationships that they have with their preceptors who may not always use the evidence or did not have programs that emphasized or stressed or talked a lot about the research. . ." ~Megan |

resistant to evidence-based practice or research because they might not have been as comfortable with it. Some also noted that student buy-in appears to be influenced by the culture of the institution, which was already identified as another challenge because, if students were not seeing research being conducted by faculty and other graduate students, they were reticent about having to participate themselves.

**No Clear Expectations.** Participants indicated a lack of clear expectations as to what constitutes scholarship as a challenge that they face in incorporating it into their curriculum, especially considering that not every student has the same capabilities to meet high research expectations, such as independently conducted complete research projects. A few of the program administrators we spoke with were still teaching at the bachelor's level and were planning to incorporate more scholarship once they elevated to the master's level, but still had not identified a clear expectation for what their scholarship requirements would be.

Overall, our participants felt that there were expectations of the program to deliver scholarship outcomes in a tangible way, but without explicit requirements from either their institution or the accrediting body on an outcome, this became a challenge. The educators we spoke with interchangeably discussed scholarship and research as synonymous activities and did not identify with one type of activity or the other. Typically, our participants indicated that, despite a desire to include scholarly activities in their program, they had no clear plan for how to do so, thus could not relay clear expectations to their faculty and students.

**Time Intensive.** Some of the program administrators that we spoke with clearly recognized that to implement scholarship into a professional program was going to take time on the part of the program and faculty and that scholarship done well could not be accomplished in a single semester. Both time in the curriculum and faculty time were typical issues identified during our interviews. Multiple participants noted that, at the master's degree level, scholarship expectations needed to increase and that students might struggle to meet those time-intensive deadlines. Participants already at the master's level felt the 2020 Commission on Accreditation of Athletic Training Education curricular content standards included many new standards that will take more curricular time and limit available time to include scholarship or research. Other participants pointed out the time commitment of the faculty to participate in scholarship with the students was prohibitive, and most faculty were already operating on a full load. Overall, the time in the curriculum and the time spent by faculty to mentor and guide research projects were highlighted as challenges that programs face or expect to face at the master's degree level.

**Faculty Load or Expertise.** Our participants acknowledged that, in addition to faculty time, there is a challenge associated with finding faculty who have expertise in conducting research or scholarship, and even if you do have the expertise, those faculty may not have the availability in their assigned teaching load to oversee multiple projects. Participants also pointed out that, even if you have faculty expertise, faculty are already loaded with other job requirements, so the addition of mentoring students through a project almost had to occur within the faculty member's research area to make the project mutually beneficial. Some

agreed that it was challenging to find faculty with the expertise and available workload to mentor and oversee the amount of scholarly activity that is necessary for a student to become proficient at understanding and completing a research process. It is important to note, relative to this theme, that participants responded based on the experience and expertise of their program as a whole, not just their own experience in conducting scholarship. There also appears to be some connection to this theme with the availability of time as well as a need for a culture of research within the institution.

## Resources Needed and Strategies for Scholarship

Participant responses were grouped into 3 categories regarding resources needed and strategies for scholarship within professional athletic training programs: institutional support, collaborative research, and publicly available examples or resources. Our participants identified that, to address the challenge of developing a culture of research, institutional support was vital. They also felt that opportunities for collaborative research, both within and external to their institution, might address the challenges associated with faculty time, load, and expertise. Lastly, participants were hopeful that other programs would share success stories and outcome examples of completed research activities to aid in overcoming the challenges of time and culture. Quotes supporting these categories are presented in Table 4.

**Institutional Support.** Institutional support was suggested as a potential resource to address the challenges of culture, stakeholder buy-in, and faculty load and expertise. As mentioned within the challenges section, participants noted that institutional focus on teaching or research has the potential to affect the amount of support of scholarship that a program can expect, as well as the students' access to mentorship and expertise. Library services provided by the institution were also identified as quintessential resources for completing scholarship projects. Our participants primarily acknowledged that institutional support was imperative when it comes to overcoming the challenge of faculty load and expertise, especially in the case of pretenure faculty or when there may not be enough tenure-track faculty. Overall, institutional scholarly expectations, the hiring of qualified, trained faculty, and the provision of mentorship and adjusted faculty workload were forms of institutional support resources that our participants felt would be the most useful in implementing scholarly projects into their curriculum.

## Collaborative Research

In the absence of an existing culture, institutional support, or both, participants felt that increased opportunities for collaborative research would be another strategy to overcome the challenges of implementing scholarship within their program. Participants were open to ideas of collaboration from other institutions or other health care programs within their institution. Additionally, many of our participants felt that collaborative projects would be most likely to help them overcome the challenge of preceptor and student buy-in, specifically if scholarship addressed issues of patient care and if intentional collaboration could occur between the preceptors and students. Our participants felt that collaboration across programs within their institution and external to their

institution might be mechanisms by which they could achieve their program's scholarship goals.

## Publicly Available Examples or Resources

Our participants continuously stated their interest in obtaining publicly available examples of successful student scholarship models and products. Participants requested examples such as what has worked and what has not worked for programs, while others desired to see examples of how educators are fitting these types of projects into their curricular timeline. Public information might also develop potential networks and collaborations on projects or studies. These types of available examples may even go some way to address the challenges of faculty load and time. Overall, participants felt that readily available, Web-based examples of the types of scholarship, as well as the mechanism and timeline by which the scholarship is completed would be useful resources to aid them in overcoming the challenges of incorporating scholarship into their curriculum.

## DISCUSSION

### Current Challenges and Shortcomings

**Culture.** Participants identified that the lack of research culture at their institution created a challenge to the implementation of scholarship within their curriculum. Our participants described professional development in research and scholarship for faculty and support and encouragement for student involvement in research and scholarship as necessary to build an institutional culture. This aligns with findings in emergency medicine education programs, whereby Bandiera et al[15] noted that universal challenges were repetitively identified. Specifically, insufficient training of faculty in research design and methodology, inadequately protected time from other institutionally required responsibilities, lack of funding, and lack of mentorship for faculty were barriers to integrating scholarly activity in medical education programs.[15]

It has also been found for nursing and pharmacy faculty and university hospitalists that those who received mentorship and support from their institution had increased scholarly productivity compared with those who did not receive adequate mentorship and research training.[16–19] Very similar to our participants, nursing faculty identified that an institutional climate of scholarly productivity was necessary for support within their program. Nursing faculty specifically identified perceived support, job satisfaction, mentorship, and organizational efforts to facilitate their research as the seminal components of an institutional climate that facilitated research production.[16]

The Hanover Research Group has developed a best practice guideline to address the specific issue of building a culture of research.[20] The Hanover group identifies that a culture of research is necessary for faculty productivity and success and that culture begins from the top down. Some recommendations guide the building of such a culture, and these necessitate institutional and department level leaders to set clear expectations for research for faculty and students, communicate those expectations clearly and consistently, and develop

**Table 4. Results: Participant Quotes to Support the Resources Needed and Strategies for Scholarship Theme**

| Resources Needed and Strategies for Scholarship | | |
| --- | --- | --- |
| Institutional Support | Collaborative Research | Publicly Available Examples or Resources |
| "Now, with our new dean, all faculty are expected to have some level of scholarly activity productivity every year. Well, so get the students involved in that. I think it makes it easier to implement in a curriculum when there's the expectation of that on the faculty's part as well." ~Merida | "I think that collaboration with other professionals and institutions is a great starting ground because many people have already made a lot of mistakes. We can learn from those mistakes if we have a good cohort of people that you work with that are likeminded and are interested in mobilizing the idea of student scholarship and research." ~Mack | "I think it could be as simple as some tutorials or some articles about how to, how to on a continuum, I think some models or examples of success and varying levels of scholarly activity inclusion in curriculums from didactic curriculum to clinical education, clinical experience. Here are some things that have worked. Here are some things that haven't worked. Have you considered kind of pieces?" ~Merida |
| "It's part of the structure of being in an R1 [research 1] institution. We have access to doctoral students. One of the things that we've implemented in the research methods class is that the groups have a PhD mentor, and often the mentor is assigned based on the topic they select, so you know, also very acutely aware of the strengths that we have at our institution." ~Megan | "Just being with a school [of] health professions would be nice so that they can see other people's research and appreciate that because, right now, it's just, well, this is what I'm doing and this kind of what they're exposed to in this very tiny bubble." ~Elsa | "Well, I think probably what people are looking for are examples for what has worked. You know, one of our faculty members gave a presentation a couple years ago at educators' conference, and he talked about how he was implementing undergraduate research across the curriculum. That was really well received. . . So I think, as we all kind of launch through this process and can share what's working and what's not working, I think that's probably what people are most open to. Certainly, more formalized research studies from a student's perspective and defining outcomes and measuring those outcomes are important as well, but I think people really want to just see examples of it." ~Colette |
| "We're littered with clinical professors and clinical staff and have a very small tenured group. So I would say, if I could add another tenure line, then I think, you know, my philosophy then is, if you go hire someone. . . You know, I draft for the best player available, right? So instead of saying I want someone to come in and do this kind of research, I would say let's open this up and see who shows up our door. . . I would have another person to draw upon to, you know, continue to impart this philosophy, and I just think the more people who you have doing research like that, the more it sort of bubbles up." ~Gideon | "So I think we're less than satisfied with our current approach to it. I think, if we can build some teams, and we do have some recent hires that are very interested in working with athletic training students and in a sports medicine health care type of research line that are not athletic trainers. So I think we have some potential collaborations and not from within the program, but from within the larger department, and that could be beneficial." ~Gill | "If there was this. . . the clinical research network, if there was weekly blogs or newsletters that went out that was of contemporary research or things that people are discussing or new information is coming out in the athletic training research arena, that would be helpful. If there were potential, like, financial scholarships for students to do research or to present research at places, I think that would be beneficial, and just to expand my contacts with other professionals who are doing this type of research at the student level I think would be beneficial. So keeping. . . opening a network for me, offering updates on contemporary research and maybe some financial scholarships for the students, I think those would be my 3 items." ~Mack |

**Table 4.  Continued**

| Resources Needed and Strategies for Scholarship | | |
|---|---|---|
| Institutional Support | Collaborative Research | Publicly Available Examples or Resources |
| "But for all of our courses, we have a library liaison that is just dedicated to our department, and they come in and do training sessions, and they have drop-in hours just for our students. They contact the students, so they have a research librarian that helps them, and that they have those resources." ~Alice | "I think the kind of research that needs to happen to keep moving us forward needs to be this partnership between the academic and the clinical side of things. So the better equipped they are at asking questions and saying, 'Okay. This is what needs to happen. Let me find somebody that can help me answer it because it's more meaningful to my practice,' it's just going to, I think, make them more likely to pursue that in the future in terms of reaching the other." ~Colette<br><br>"More of the patient outcome research type where it's directly related to patient care, and start from there, and that will increase the buy-in from the preceptors I think." ~Winnie | "I think that obviously time is the most valuable commodity that we all have, right, and the most difficult thing for tenure track athletic training faculty members is balancing programmatic administration stuff with our scholarship demands, so how-to videos on research, anything that saves time in the upfront where students could go to a resource watch this video." ~Hans |

an accompanying mechanism of evaluation to determine achievement of research goals. The report goes on to recommend that, if research is a clear goal and expectation of faculty, then job descriptions and teaching expectations should be adjusted to accommodate this workload accordingly.[20]

Of particular note, the questions posed during the interview portion of this study specifically asked about the inclusion of scholarship, and almost all of our participants equated scholarship to research. It seems highly plausible that the challenge of building a culture of research stems from a lack of understanding from many athletic training educators that scholarship does not have to be done in the form of research, especially if the institutional structure is not one that facilitates research.

It is clear from our findings that a culture of research is necessary for athletic training programs to adequately incorporate research components into their curriculum, and this culture clearly must begin higher in the institutional administration. Faculty who teach within athletic training programs at institutions that more highly value teaching or service in the evaluation of faculty for promotion or tenure will likely continue to face this challenge until such a culture is adopted across their respective institutional administrations. Programs at those institutions might be better directed at considering forms of scholarship that do not fall under research specifically.

**Buy-In From Stakeholders.** Our participants identified that buy-in, primarily from preceptors and students, was a substantial challenge that they faced. Relative to preceptor buy-in, the program administrators we interviewed specified that preceptor age was a contributory factor to the level of respective buy-in on scholarly activities being conducted by students at their clinical sites. Previous research noted similar

findings in nursing preceptor buy-in, citing the age of nursing preceptors as the cause for the lack of buy-in, and attributing the lack of buy-in to the nonexistent research requirements and concepts of evidence-based practice in the curricula from which they graduated in the past.[21] This sentiment can be found in physical therapy and athletic training literature, both identifying that these continue to be barriers to the inclusion of evidence-based practice into clinical practice.[8,22] Recommendations to overcome this barrier include providing access to journals and other resources to preceptors and attempting to bridge the gap between research and practice to make the research outcomes more relevant to clinicians.[8,22]

In addition to the challenge of getting preceptor buy-in, our participants struggled to get student buy-in to the research or scholarship process as well. Students in medical education have previously cited lack of time allotted in the curriculum, unreasonably high expectations, lack of mentorship or faculty oversight, and a paucity of acknowledgment for their contributions as the rationale for their negative perception of research or scholarly activity.[7] When asked after completing a research project, medical students often had positive characterizations of their experience; they concluded that the experience benefitted their clinical practice and contributed to the achievement of their career goals.[7] Much like our participants, the struggle of buy-in consistently appears before the start of a research project, but might be overcome by the time of completion. Programs could benefit from having students nearing the completion of a research project speak to incoming students about the positive attributes of their experience, and that may increase initial buy-in.

A lack of trained faculty mentors may also contribute to the lack of student buy-in. Medical education had found that students are motivated to participate in research projects by the prospect of increased faculty interaction.[7] Those findings are further supported by the Hanover Research Group's

recommendations for building a culture of research. The Hanover group explicitly identifies that student involvement in research is imperative to develop an institutional culture, but that student involvement requires faculty mentorship and guidance to develop student confidence and research abilities.[20] This sentiment is echoed by another study in medical education that determined that faculty supervisors were necessary to encourage and motivate students to participate in research.[8] Additionally, a study in athletic training education found that the requirements of a thesis or structured research requirement were correlated with higher first-time Board of Certification pass rates, and although this study was conducted on a small number of graduate-level professional education programs, this could serve to motivate buy-in for faculty and students.[23]

Student and preceptor buy-in might also be influenced by the confusion surrounding the interchangeable use of research and scholarship. Programs including research projects or theses might see better student buy-in due to structured and clear expectations. Because scholarship can take many forms, this may contribute to the challenge of not having clear expectations, but might also eliminate the negative connotation that students and preceptors can at times have toward research and the impression that it is not relatable to clinical practice.[5]

**No Clear Expectations.** Our participants felt that, although some form of scholarship should be a component of their curriculum, they struggled to pin down what the appropriate outcome of that experience would be. Diamond et al[24] characterized the challenge of expectation as a struggle for this current time in academia, in that more mainstream adoption of Boyer's[6] model of scholarship successfully increased the view of what scholarship is, making it tangible to those who struggled to meet the more narrow definition of original research, but it also made the target outcome of that model vaguer and less definable.

Connolly et al[9] pointed out that, similar to the 2020 Commission on Accreditation of Athletic Training Education Standards, standards for accreditation in physical therapy require components of evidence-based practice throughout entry-level curricula, but the standards do not have an explicitly stated minimum outcome. As mentioned previously, our participants used scholarship and research interchangeably and synonymously when discussing program requirements; therefore, it would stand to reason that, if program administrators and educators were not differentiating between the two, it would be difficult to expect students to as well.

Participants in our study also indicated that deciding at which point the student's participation in a project is sufficient for a scholarly activity to be considered completed can be a challenge; this uncertainty has also been documented in the existing literature. An early study of graduate-level professional athletic training programs identified that 91% of the programs studied required either a thesis or structured research project before graduation, but only 9% of those programs required a presentation of the project's findings at a professional venue.[23] Educators in pharmacy presented a similar dilemma in deciding if publishing a manuscript should be a required outcome. What happens to the student's ability to complete the program if the revisions take more time than

the student has left in the curriculum or if the manuscript is rejected?[25]

To address the challenges surrounding expectations, we should refer back to the Hanover Research Group's recommendation. In the context of building a culture of research at an institution, that institution, department, and programmatic leaders must set clear and concise research goals and communicate those effectively to faculty and students.[20] It is important to note that, historically, accrediting bodies of health care programs have not identified requisite outcomes concerning the incorporation of scholarship or evidence-based practice into curricula, so it falls to the institution to do so.[1–3,8] As a result, faculty should exercise this freedom to consider which aspects of scholarship align with their programmatic goals and use the opportunity to include forms of scholarship that address challenges at their particular institution. Specifically, this is an opportunity for faculty to examine the benefits of activities such practice-based research or quality improvement to meet the scholarship goals they have established.

**Time Intensive.** Participants identified that research, especially done well, takes time and there were 2 particular areas of time commitment that were significant: time needs for the students and time demands for the faculty. The faculty we spoke with were concerned about the time it takes for a student to develop and complete a full research project and whether the 2-year master's curriculum is sufficient to accomplish that. This concern is not unique to athletic training education. Pharmacy faculty have specifically noted that one of the biggest challenges to completing a scholarly activity within their curriculum is the ability to select a project that can be completed in the time that a student is in the program, especially with the unpredictability of the time needed to complete institutional review board review and approval.[25] This same barrier has been cited in medical education, with more than 70% of medical students indicating that the lack of time specifically set aside to complete such projects was one of the largest barriers to completing research while in a professional education program.[7]

The time demands on faculty to mentor and motivate students through a scholarly activity were not lost on our participants. Multiple interviewees noted that they limit the number of students they accept into their program as a result of this challenge. The perception of this challenge is not unfounded, and it may influence the challenge of student buy-in as well. Although Al-Ghamdi et al[7] found that student time was indeed a barrier to student research participation, the lack of faculty availability for supervision and mentorship was the number 1 barrier to student desire to complete a research project as a component of their professional education. Many educators across multiple professions have identified time as one of the largest barriers to promoting and supporting research activities among their students, and time is a barrier to completing research in general.[21,26,27–30]

The Hanover Research Group states that reduced teaching loads must be implemented if an expectation of scholarly production is a component of faculty expectations.[20] Fairweather[31] said that, "for most faculty members, generating high numbers of student contact hours diminishes publication rates and vice versa." Bland et al[32] echoed that finding, stating

that faculty with fewer teaching hours tend to produce more research. The barrier of time availability for faculty is one best mitigated by institutional policy and practice, and addressing this barrier will likely allow faculty to further address the issue of time for students as a result.

**Faculty Load or Expertise.** Not surprisingly, our participants acknowledged that, in addition to faculty time, there is a challenging barrier associated with finding faculty, across all program faculty, who have expertise in conducting research or scholarship. They also noted that, for the faculty who do have the expertise, the time barrier does once again come into play, as the limited faculty with research expertise cannot be expected to oversee entire cohorts worth of projects, especially if those projects do not contribute to the faculty member's research agenda.

The barrier of finding faculty with expertise to supervise student scholarship has been identified in other health care education programs. In medical education, nearly 85% of medical students identified the lack of capable professional supervisors as the primary barrier to conducting scholarly activities while in education programs.[7] The lack of well-trained, research-active, mentors in health care education is one of the most pervasive barriers cited by students as a limiting factor to their ability to complete research activities during their professional education programs.[7,8,15] Students identify the mentorship from expert faculty members as the most motivating factor in their desire to participate in research.[7,15] This highlights the need for not only the training of faculty to be prepared to mentor students but the release in load to increase their availability to conduct such mentorship. There is a documented inverse relationship between teaching load and scholarly productivity for faculty, so if there is a programmatic expectation of scholarly productivity of students under faculty mentorship, it stands to reason that the faculty member's teaching load must be reduced to accommodate that.[15,20] The findings of our study are consistent with the existing literature; our participants perceive a need to develop skill and expertise at conducting and mentoring research projects, and they recognize the need for an adjustment in teaching load to complete such activities.

As professional athletic training programs transition to the master's degree, programs will be required to have a minimum of 3 core faculty members, an increase from the previous requirement of 2 core faculty.[1,33] Some of our participants stated that their programs were specifically looking for faculty members that could aid in the distribution of student scholarship mentorship. It stands to reason that many programs that will be hiring a faculty member to meet this minimum may consider hiring faculty based on their competence and expertise to mentor students through scholarly activities. Bandiera et al[15] had previously noted that, for scholarship requirements to be successfully achieved in medical education, accumulating a critical mass of faculty scholars is essential. This may be amplified even more in master's athletic training programs because such programs will typically span 2 academic years, and this will require faculty accustomed to completing projects in a timeframe much shorter than a typical dissertation project. Doctor of Nursing Practice (DNP) programs have discerned this exact challenge in attempting to have DNP students complete a scholarly activity in a relatively short timeframe as compared to the typical PhD student dissertation project. Such DNP programs have determined that the ability of faculty to conduct such projects is instrumental to the success of the students.[16] If athletic training programs do not have existing faculty researchers or do not have a culture of research institutionally that supports the development of faculty researchers, then they may need to consider this need for future programmatic hiring decisions.

It has also been identified that students in health care programs who are successfully mentored through a scholarly activity are better prepared to do the same for students they oversee in the future, and those who enter into faculty or mentorship roles without research training are ill-prepared to guide students through that process.[34] Athletic training programs that invest in research-trained faculty or who invest in the development of existing faculty to create active experts in conducting and mentoring scholarly activities may have long-lasting impacts on not just the use of evidence-informed clinical practice, but the generation and dissemination of future practice-based research. By allowing expert faculty to mentor student scholarship activities, those students who graduate from such programs will likely be more prepared to conduct scholarly activities and supervise students conducting such activities within their own clinical practice in the future.

The Hanover Research Group recommends that institutions support the mentorship and continuing education of faculty to best promote a critical mass of expert faculty scholars who can then mentor and educate their students in a similar way.[20] Faculty at athletic training programs that are planning to implement scholarship opportunities for students should seek continuing education opportunities to develop their research and mentorship abilities.

## Resources Needed and Strategies for Scholarship

**Institutional Support.** Our participants felt that several of the barriers identified, such as faculty time, load and expertise, and the lack of a culture of research within the institution, could be addressed through institutional support mechanisms. This finding is echoed in medical education, in which the enablement of the ongoing success of scholarly endeavors pointed to supportive administrators, including department chairs and mentors, the provision of faculty development programs, and the administrative support of faculty through protected time, financial support, and access to expert assistance.[15]

Especially in institutions that emphasize teaching aptitude in the hiring and promotion process, it has been well established that faculty with little to no research experience will require training and support to become proficient.[20,35] Additional protected time and load is also necessary if faculty are expected to relay that expertise to students' scholarly experiences.[20,35] Development of faculty scholars is quintessential to developing scholarly activities in health care education programming that students partake in and benefit from.[7,8,15]

Our participants specifically identified library resources as another component of the resources needed and used to facilitate student scholarship, specifically identifying the

librarian's expertise in teaching the process of searching online indexes and abstracts to their students. One study of a university library found that more than 90% of graduate students use the library *sometimes* or *often*, but only about half of them ask the librarian for help or information.[36] A study on data information literacy found that graduate students had not received much, if any, formal training in data mining or data management and were left to their own devices to figure out mechanisms of literature review and data analysis.[37] Programs attempting to incorporate scholarly activities should seek out library support services as institutional resources available to students and encourage students to take advantage of librarian expertise and availability during the scholarship process.

**Collaborative Research.** Our participants felt that collaborative research was a mechanism by which they might overcome the challenge of faculty load and expertise. Specifically, they felt as though collaborative research opportunities, both within their institution and across institutions, would allow for a better spread of expertise and student mentorship load, which might make scholarly activities more attainable. The Hanover Research Group indicates that an important component of an institutional culture of research is the establishment of intentional collaborative relationships among faculty members.[20] Bland et al[32] found that research productivity within an institution is influenced by the provided availability of a vast network of colleagues with whom they have substantive research interactions.

Associated findings show that, institutionally, improved collaboration on research projects corresponds to improved collaboration in other areas as well.[20] The supposition could be made that, by demonstrating collaborative scholarly activities to students during their professional education, this could improve upon collaboration in clinical practice areas as well, although this has yet to be proven. Participants alluded to this prospect when they spoke about creating point-of-care research activities to promote buy-in by both students and preceptors. This concept is reiterated in medical education research which suggests that the student, faculty mentor, and any other parties involved in conducting the research project sit down and discuss project ideas that they are passionate about, which in turn influences that enthusiasm with which such projects are completed. However, this study did not include preceptors, nor did it measure collaboration in clinical practice.[38]

A few of our participants felt that students might benefit from collaborating with students from other programs if their mutual requirements and expectations were similar. It should be noted though that, in surgical education programs, additional challenges arose from attempting to conduct collaborative research projects with students. Participants of collaborative projects felt that the variability in institutional review board coordination and a variety of institutional research cultures made it challenging for faculty and students to conduct collaborative research projects.[39]

**Publicly Available Examples or Resources.** Lastly, our participants felt that having the opportunity to view publicly accessible examples of what other programs have successfully achieved in terms of scholarly activities would be beneficial to their program pursuits. In emergency medicine, the recommendation has been made to promote and encourage the use of networks, digital or in person, that allow for the championing of innovative techniques or to help education programs answer important education questions.[15] This has the potential to not only increase collaborative opportunities but allow for programs to identify mechanisms that other programs have found to be successful.

One such mechanism would be through the use of *Athletic Training Education Journal* education technique manuscript submission.[40] The author's guide indicates that this type of publication should "explain the advantages and disadvantages of the technique in comparison with other techniques," which might achieve the outcome our participants desired. Other mechanisms to publicly disseminate successful integration of scholarly activities within an education program might include educators' conferences, Web-based learning communities, and purposeful, cross-institutional collaborative partnerships.[15]

The lack of clarity for our participants as to the difference between research and scholarship gives greater strength to the need for public examples of all types of activities. As program faculty are determining whether to include research or scholarship, this might be an ideal opportunity to consider quality improvement activities that would be considered scholarship but that also influence clinical practice. In that same vein, a more thorough consideration of practice-based research is warranted for programs seeking to overcome the barriers of buy-in from preceptors and students. Resources are publicly available that describe some of the scholarship options that align with practice-based research.[41]

## LIMITATIONS AND FUTURE RESEARCH

Our study sought the opinion of a sample of program administrators and therefore may not be generalizable to all athletic training programs. Participants were from both undergraduate and graduate programs, so determining which barriers and resources might translate into all graduate professional programs is not possible per this research project. Findings from our study suggest that a lack of faculty expertise is perceived as a barrier to implementing student scholarship in professional programs. While it is outside the scope of qualitative research to make associations between 2 variables (eg, degree preparation, perceptions of mentoring student scholarship), it is possible a relationship exists. Future research should explore the role faculty degree preparation has on perceived abilities to mentor students through a variety of scholarly activities. Future research should also aim to evaluate how programs have successfully overcome identified barriers to implement scholarly activities into their curriculum and which resources have proven useful to achieve that. Faculty development of all areas and domains of scholarship as well as contemporary expertise as required for accreditation should also be evaluated. We should aim to solicit student perceptions about scholarly activities within their professional curriculum, specifically focusing on which aspects of scholarship promote student buy-in. Lastly, we should make an effort to revisit the types of scholarship that programs are successfully implementing for their students once a critical mass of graduate programs has been established.

## CONCLUSIONS

Our participants identified that several barriers exist that prevent them from effectively implementing research projects or other scholarly activities into their programs' professional athletic training education curricula. Many of the barriers identified were institutional, including the lack of a culture of research that snowballed into additional barriers, such as a lack of faculty expertise to facilitate mentored student projects and faculty not having protected load or time to complete such activities. Program administrators felt that institutional resources were necessary to overcome these barriers but also agreed that other beneficial resources could extend beyond the institution and other programs finding public mechanisms to share their successful tactics. Institutional administrators seeking to promote a culture of research among faculty and students should consider consulting existing best practice documents for guidelines on how to do so.

There is a clear need for continued education across the profession on the differences between original research opportunities and other types of activities that are defined to be scholarship. Program faculty should review the options available both in original research activities and those that fall within the broader definitions of scholarship. The viability of the varied practice-based research mechanisms to overcome many of the challenges identified by our participants should be considered when developing and adopting requirements for athletic training students.

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