

# The Effects of the COVID-19 Pandemic on the Experiences of Entry-Level Master of Athletic Training Students

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**Context:** The COVID-19 pandemic affected the delivery of higher education during the 2020 spring semester. Specifically, various components of the anticipatory socialization process for professional master of athletic training students, such as in-person and hands-on learning, were abruptly halted as a result of the COVID-19 pandemic.

**Objective:** Develop an understanding of the effects of the COVID-19 pandemic on the educational experiences and mental health of entry-level master of athletic training students.

**Design:** Qualitative phenomenological study

**Setting:** Higher education institutions with professional master of athletic training programs

**Patients or Other Participants:** Fourteen students (9 female, 5 male; average age =  $26 \pm 4$  years) who were enrolled in a professional master of athletic training program during the 2020 spring semester participated in our study.

**Data Collection and Analysis:** One-on-one virtual Zoom interviews were conducted using a semistructured interview guide. Interviews were recorded and transcribed after their conclusion, and transcripts were analyzed using a phenomenological approach. Credibility was achieved through peer review, data saturation, and multiple-analyst triangulation.

**Results:** Three themes emerged from the data, showing the effects of the COVID-19 pandemic on clinical education, participant learning environment, and delivery of classroom instruction. Specifically, a loss of clinical experience resulted in decreased clinical confidence, the distance learning environment allowed for increased distractions and decreased motivation and flipped-classroom-style instruction proved to be beneficial for information synthesis and mental health, according to students.

**Conclusions:** Distance learning presented challenges for students, such as communication barriers, decreased motivation, and work-life balance guilt. It also highlighted the potential benefits of providing breaks in education for student wellness and success. These findings should be considered as programs continue to transition to entry-level master's programs that use clinical immersion and distance learning.

**Key Words:** Distance learning, socialization, synthesis

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# The Effects of the COVID-19 Pandemic on the Experiences of Entry-Level Master of Athletic Training Students

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## KEY POINTS

- When clinical opportunities were unavailable during the COVID-19 pandemic, athletic training students lost their confidence in their clinical skills.
- Distance learning was perceived to create challenges with communication with professors and peers, as well as negatively impact motivation and work-life balance.
- The distance learning modality did, however, have a positive impact on information synthesis as it allowed for more time for learning.

## INTRODUCTION

The COVID-19 pandemic has resulted in a change to normal life for many.<sup>1-3</sup> One of the greatest consequences has come with mental health issues<sup>3</sup> as sequelae to the isolation that has accompanied the mandated quarantine implemented in March of 2020. The abrupt transition to at-home learning for students and educators of all ages has significantly affected the mental health of those involved in the education sector.<sup>3,4</sup> The COVID-19 pandemic, and especially the subsequent quarantine that was enforced, has been shown to have amplified students' anxiety and stress because of lack of in-person interaction and social interaction in general.<sup>3</sup> Virtual instruction, coined as distance learning, allowed for education to continue amid a pandemic but presents with its own unique challenges.<sup>3,4</sup>

Distance learning, in which educational instruction is delivered via online videoconferencing, was adopted by primary, secondary, and higher education institutions to adapt to the circumstances of the COVID-19 pandemic.<sup>3,4</sup> The request of faculty to have courses quickly adapted online could have the potential to affect the delivery of course content and materials. Athletic training curriculum, for example, requires hands-on learning of clinical skills. Responding to inquiries from various athletic training programs, the Commission on Accreditation of Athletic Training Education (CAATE)<sup>5</sup> published a statement in March of 2020 to provide guidance to their stakeholder institutions. Namely, they discussed that programs should use creativity to continue fostering learning opportunities for students amid their institutions' newly enforced travel restrictions.<sup>5</sup> Distance learning may limit the hands-on experience, in that a student may not have the opportunity to perform skills while gaining feedback from trained faculty or staff. Moreover, clinical education was either halted or simulated through telehealth,<sup>5</sup> which can possibly limit learning and skill application for the student. Along with these challenges, research by Mazerolle et al<sup>6</sup> analyzed program directors' perceptions of the effect of clinical immersion on the athletic training student, finding that using virtual methods to facilitate didactic education for off-campus students resulted in feelings of isolation based on student feedback.<sup>6</sup>

Currently there are few empirical data on how the COVID-19 pandemic has affected students in higher education.<sup>3,4</sup> What is

available demonstrates that students report difficulty concentrating on coursework due to the distractions of home life and the internet (ie, social media, video games), lack of accountability, and decreased motivation due to a monotonous lifestyle.<sup>3</sup> Diminished ambition and inability to focus also affected academic performance for over 80% of participants.<sup>3</sup> These barriers to learning in a distance learning format heightened anxiety for students, which resulted in depressive thoughts and changes to sleeping and eating patterns.<sup>3</sup> Medical and nursing students, much like the general student body, were affected by the COVID-19 pandemic and distance learning.<sup>3,4</sup> Feelings of emotional detachment from loved ones, along with a decline in academic performance due to a reduction in studying, have been reported among medical students.

In the athletic training field, there are no published data regarding how the COVID-19 pandemic has affected students. Although it has been suggested that distance learning during clinical immersion may result in feelings of isolation for students, there is currently no published research regarding experiences with distance learning through the lens of the athletic training student, specifically during the COVID-19 pandemic. Research has highlighted the importance of clinical education within athletic training,<sup>7-9</sup> as well as the integral role that socialization plays in a student's development.<sup>10-12</sup> Therefore, it is pertinent to understand if and how the COVID-19 pandemic and subsequent transition to distance learning have affected athletic training students. The purpose of this study is to investigate the influence of the COVID-19 pandemic on the socialization process and general health and wellness of current athletic training students. The study seeks to gain a better understanding of the effects on students' personal and professional development because of the pandemic. The research questions that guided this study include:

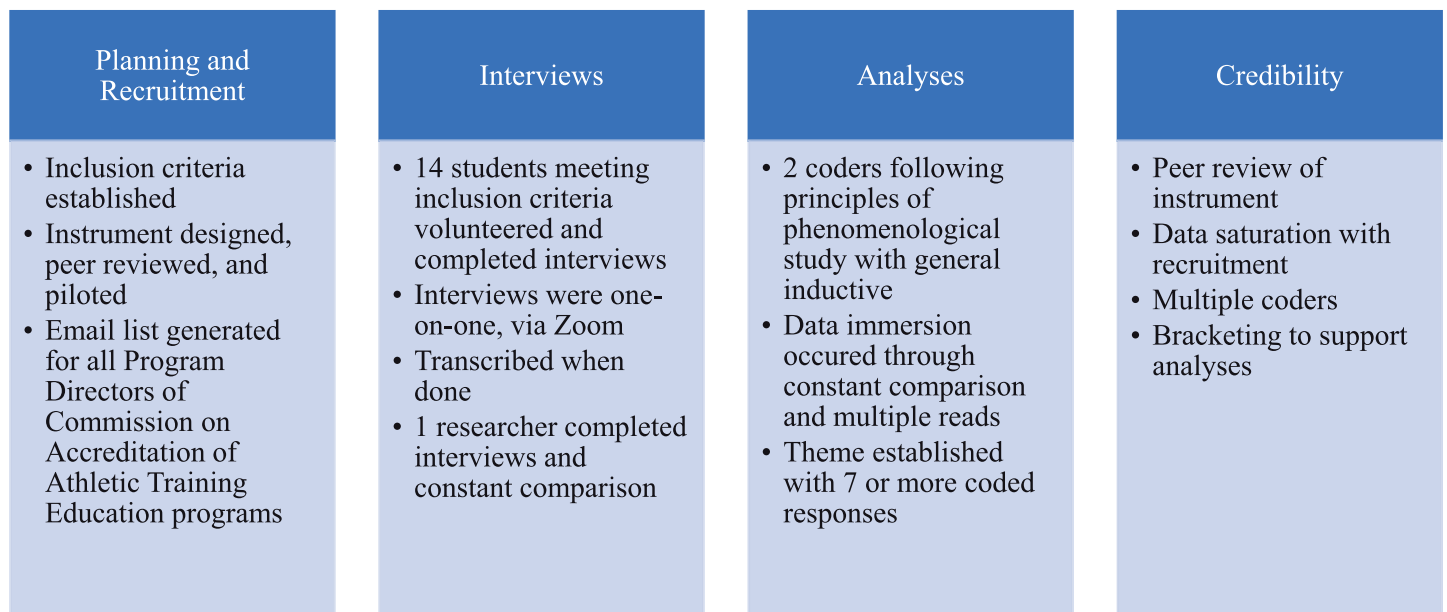
1. What challenges have professional master's athletic training students faced throughout the course of the COVID-19 pandemic regarding their socialization into the profession (ie, clinical, didactic)?
2. Do professional master's athletic training students identify any benefits to distance learning?

## METHODS

### Research Design

A qualitative research design was used to gain an understanding of the effect of the COVID-19 pandemic on athletic training students, using the Consolidated Criteria for Reporting Qualitative Research checklist<sup>13</sup> to document rigor. Specifically, a phenomenological framework was used, as it allowed for a true understanding of the participants' experiences as a student during the COVID-19 pandemic. Please refer to the Figure for a representation of the study's procedures.

Figure. Study procedures.



### Recruitment and Study Sample

The study gained institutional review board approval, and then students who were enrolled full time in a professional master of athletic training program during the spring semester of 2020 were recruited. These inclusion criteria were chosen because the COVID-19 pandemic had a potential to affect the professional socialization of the athletic training student. Nonaccredited program directors were excluded from being emailed. Program directors of all CAATE-accredited professional master of athletic training programs were emailed directly as a gateway to potential participants, as a database does not exist for students. Program director emails were found via the CAATE website, through searching for accredited programs with the filters “professional” for program type and “masters” for degree type. The email asked them to (1) share the initial email they received with individuals from their program who fit the inclusion criteria, and/or (2) share the email addresses of individuals from their program who fit the inclusion criteria. To be included, the student must have been a full-time professional master of athletic training student who was enrolled in their academic programs during the spring of 2020.

Using saturation as the guide,<sup>14</sup> 14 professional master of athletic training students (9 female, 5 male) participated in this study. It was after the 14 interviews that saturation was determined to have been met, via constant-comparison approach. Participants were an average of  $26 \pm 4$  years old, with one outlier (44 years). All participants were in the final year of their program at the time of the interview except for one; the remaining participant was already working clinically in the athletic training profession. Though this participant was in her final semester during the time of interest for this study, her perspective was like the rest of the responses collected from participants. Each participant studied at a different institution, accounting for 14 colleges and universities throughout the United States. Representing both public and private entities, participant institutions spanned all 3 National Collegiate Athletic Association divisions and included 3

different Carnegie classifications: very high research activity, high research activity, and liberal arts.<sup>15</sup> Further demographic data of participants can be found in Table 1.

### Data Collection Procedures

**Instrumentation.** A semistructured interview guide created by the research team was used to guide virtual one-on-one interviews. Research questions were used as a guide when developing questions in the interview guide; after the first draft of questions, an individual who fit the inclusion criteria for the study was consulted for peer review and suggested 2 more questions that she felt were important to include based on her experience. The semistructured interview guide provided a shared foundation for each interview, while simultaneously allowing for organic conversation to occur.<sup>14</sup> All one-on-one interviews began with demographic questions (ie, age, gender, preferred pronouns, race, institution, and year in program). These were succeeded by a variety of open-ended questions, each of which was designed to prompt the participant to recall their experiences with the COVID-19 pandemic and the transition to distance learning, specifically surrounding their mental and physical health. Before data collection, the interview guide was peer-reviewed by 2 athletic training educators who specialized in qualitative research and 2 graduate students who were trained in qualitative methods, 1 of whom completed her professional athletic training degree during COVID-19. Reviewer notes included improvement of question order, edits regarding question wording to allow for better synthesis from participants, and suggestion of 2 questions that were important to ask about the professional master’s student experience during the 2020 spring semester. All edits were made by C.B.H. and finalized by the research team. The complete interview guide is presented in Table 2.

**Procedures.** A pilot interview was conducted in September of 2020, before participant interviews, using the final interview guide; the pilot participant fit the inclusion criteria for the study. The purpose of piloting the interview guide was to ensure that its content was comprehensible for the target

**Table 1. Demographic Data of Participants**

Pseudonym	Gender	Age	Ethnicity	NCAA Division	Geographic Region
Betty	F	30	White	I	South Central
Inez	F	24	White	II	Northeast
James	M	23	White	III	Midwest
Rebekah	F	22	White	I	South Central
Abigail	F	23	White	I	Southeast
Taylor	F	24	White	I	South Central
Bill	M	23	White	III	Mid-Atlantic
Juliet	F	24	Korean	I	Northeast
Mary	F	25	White	II	Great Lakes
Karlie	F	23	White	I	Southeast
Gigi	F	22	White	III	Mid-Atlantic
Drew	M	23	White	I	Northeast
Stephen	M	44	White	I	Rocky Mountain
John	M	27	Pilipino	II	Pacific

Abbreviations: F, female; M, male; NCAA, National Collegiate Athletic Association.

participants, and that thoughtful responses would be given because of their understanding. After the pilot study, the wording of 1 question was edited to allow for better delivery. Because of this, the pilot participant's data could not be included in the final analysis for this study. C.B.H. then conducted all one-on-one interviews during the remainder of the 2020 fall semester through the Zoom videoconferencing platform. Interviews lasted anywhere from 18 to 54 minutes, based on participant responses to questions. C.B.H. transcribed all interview audio recordings using the transcription website Otter. After transcription, C.B.H. reviewed and edited all transcripts before sharing them with S.M.S., to ensure that the final transcripts were identical to the interview recordings for data analysis purposes.

### Data Analysis

The general inductive process, as described by Creswell<sup>16</sup> and Thomas,<sup>17</sup> was used to complete data analysis. We used the inductive approach blended with the framework of a

phenomenological design. The intention of this analysis process was to discover the dominating themes within the data and relate them back to the research questions of the study. Data immersion was achieved through constant-comparison analysis; C.B.H. conducted all interviews as an initial interaction with the data and simultaneously took field notes to aid in data immersion. C.B.H. then edited the audio transcripts from all interviews, as produced by the website Otter. Editing transcripts to match the audio recordings served as a first reading of the data for C.B.H., and after the editing process, she reread the finalized transcripts 3 more times to ensure full immersion of and connection to the data. Finalized transcripts were shared with S.M.S., to allow the other member of the research team to become immersed in the data. This was done with multiple reads of the data. Codes, also known as label assignments,<sup>14</sup> were developed by each member of the research team during the initial readings, and then grouped together. Themes were then identified based on the code groupings and shared with the other member of the research team. For a theme to be considered significant, at

**Table 2. Sample of Interview Guide**

1. What was your initial reaction to the announcement of the transition to distance learning?
2. Where did you complete the remainder of your semester (eg, family home, own dorm or apartment)?
  - a. Was this a change from your learning environment prior to the pandemic?
3. Can you describe your distance learning experience in that environment (ie, were there distractions, were you comfortable)?
4. Were there any positive aspects academically of distance learning?
  - a. If yes, what were they?
5. Did you face any challenges academically during distance learning?
  - a. If yes, what were they?
6. Do you feel that the semester played out the way you anticipated it would when classes started in January (ie, grades, workload, effort put forward)?
  - a. *Second-year students only:* Did the changes to your spring semester impact the schedule for your 2020 summer and fall semesters?
7. What was your clinical education assignment for the 2020 spring semester? What type of clinical education experience was it (immersion or traditional)? How did that setting manage COVID-19?
8. What take-home messages did you gain from your time engaged in clinical education during the pandemic (ie, skill sets, knowledge, new experiences)?
9. How did your program help support or create opportunities for learning related to clinical education during COVID-19?
10. Overall, how did you feel about your clinical experience during the 2020 spring semester?



least half of participants (n = 7) needed to address the concept in their responses. The research team communicated about established themes to ensure that members had a consistent understanding of the data, and therefore all themes were agreed upon.

### Data Credibility

As part of the reflexivity process, the research team discussed potential biases before data collection. One member was a certified athletic trainer pursuing her graduate degree and was affected by the COVID-19 pandemic. To ensure that her experiences did not bias the process, several credibility strategies were used throughout, including (1) a peer review, (2) multiple-analyst triangulation, and (3) data saturation. Our peer review was completed with 2 athletic training educators specializing in qualitative research as well as 2 doctoral students currently studying qualitative methods. We asked the peers to review the interview guide to ensure instrument validity, as previously discussed, which in turn allowed for content validity within participant responses. Using multiple-analyst triangulation to analyze the data also helped establish rigor and reduce bias in the final presentation of the findings. Although bracketing is a common credibility strategy used to combat researcher bias, it was not used for this study. The experiences of C.B.H. as a master's student during the 2020 spring semester differed from those of participants because of the nature of their programs compared to hers (professional and clinically based versus postprofessional and research based, respectively). Bracketing, therefore, was not an appropriate credibility strategy to implement to overcome biases. Before analyzing the data, we discussed the steps to code, and then after our individual analysis, findings were shared and discussed to ensure consistency in coding. We were in agreement with the coding. During the coding process, emerging themes were clear based on participant transcripts and the similar responses to various questions from the interviewer. A theme was considered major if at least half of the participants discussed the experience at length during their interview.

## RESULTS

The data we analyzed revealed that the COVID-19 pandemic presented both challenges and benefits for the professional master of athletic training student. Participants expressed disappointment in their loss of clinical experience, resulting in decreased clinical confidence. Increased distractions and decreased motivation also stemmed from the transition to distance learning. The online format, however, did prove to be beneficial for information synthesis and mental health, according to students. Each theme is presented in further detail in the following section, with supporting quotes from participants, who are identified via pseudonym.

### Clinical Education: Lack of Experience Resulting in Decreased Learning and Clinical Confidence

Clinical education is a primary socializing factor for athletic training students, and in the spring semester of 2020, clinical education was halted because of the nationally mandated quarantine that resulted from COVID-19. The lack of clinical experience was identified by the majority of our participants, with 11 of the 14 students expressing feelings of disappoint-

ment and concerns over their confidence as clinicians because of their loss of clinical time. Betty had the opportunity to gain experience in a physician's office during her final rotation of her program; she expressed her disappointment in the loss of clinical site due to COVID-19, as she believed it affected her chance to learn more. She shared,

*I was really sad to not be in my clinical site. I felt like I still had a lot to learn from these people, because they're all much smarter than I am. And they've been doing it a long time. I also, you know, missed out on the opportunity to watch additional surgeries with that physician, which was something that I was really excited about.*

Loss of learning and gaining knowledge was also discussed by Inez and James. Inez described feelings of discontent when discussing her spring clinical assignment termination, saying, "The preceptor that I had, she was one of our best high school preceptors, and I missed out on that opportunity [to learn from her]." James quantified his lack of clinical experience, sharing that he "missed out on 200 hours' worth of clinical hours and skill checks and whatever else I may have done there [at my clinical site]." James elaborated when asked how this affected him as a student; he said he "felt like I got behind more than anything, just losing out on hours."

The idea of loss in learning also affected the students' confidence in their clinical skills. Drew summarized the situation well, as he shared,

*That first fall, I felt like it was a lot of learning the processes and gaining that confidence. And then in the spring, I feel like I was in a setting where I got to use my skills a lot more and I felt very useful and helpful and I was gaining valuable experience, and then I did indeed feel slighted by having that experience truncated, you know, at 50% or so.*

Abigail shared similar concerns, specifically those affecting her confidence as a clinician, when she stated:

*I still feel like I'm a first-year...I lost half a semester of hands-on stuff, and I needed that time to build confidence in myself as a clinician. And I didn't have that. And that's my biggest struggle, that I'm just not confident in myself.*

Karlie reported similar feelings surrounding her confidence as a clinician, and the effect that missing an extensive amount of clinical experience had on its development:

*I was on the incline. And one thing that I think I've always just tried to change every semester is the confidence that I have. And so, I felt like the clinical site that I was at, I loved it...my confidence was going up...Then when everything got shut down...It's just one of those things where it's an opportunity taken away from you, of putting things into practice that you're learning in class, and again, gaining that confidence of practicing on the kids at your clinical site.*

Clinical education during the 2020 spring semester was significantly affected by the COVID-19 pandemic. This loss of experience disappointed many of our participants and lowered their confidence upon return to in-person clinical education, creating a perceived setback among participants.

## Distance Learning Environment: Increased Distractions and Decreased Motivation

Learning from home, whether it be a school apartment or a family home, presented another academic obstacle for students: increased distractions. Half of our participants (n = 7) discussed a myriad of distractions that accompanied distance learning, as well as how the change in environment led to a decrease in educational motivation.

When asked about academic challenges, John said,

*Not getting distracted by everything around you [was challenging]. You can easily pop up another browser and tune out for a few minutes, or you have your phone right there. So, it was a challenge to not have that out.*

Bill offered similar remarks when asked the same question, saying,

*Paying attention. That was something that's been really, something I don't really get with online learning because there's so many ways you can just look at something else and just like tone things out.*

Abigail spoke to the distraction of her new environment as a whole, saying that it was “a little harder to focus and do class because I didn't have my own space.” Inez found herself in a unique situation with quarantining in her hometown:

*It was hard. I do not have a workstation setup at home. Also, when I'm home, I'm kind of back and forth between 2 houses, because I helped to take care of my younger cousin. When the pandemic started, my aunt was working from home, and she is technologically illiterate. So, I was doing classes at her house while watching him to help her out.*

Inez went on to discuss not having her own space and how that affected her didactic education, along with her drive to complete schoolwork:

*Not having a routine was really hard. I went from having a routine every day to, I'm home now, so I'm going to binge-watch Netflix when I'm not doing anything. So, my motivation was pretty down, I feel like not having a good place to work was challenging.*

Like Inez, other participants also experienced a decrease in motivation, and subsequently in overall effort, while completing distance learning. Drew addressed this while discussing his academic challenges:

*I think I put less effort in. I think it was hard to always find the motivation. I think if I always knew that I was going to be in basically the same room for the whole day, that's tough, mentally, especially for me. I'm someone who really enjoys being outdoors and interacting with a lot of people.*

James noted similar feelings of educational amotivation, especially in his first 2 to 3 weeks of distance learning:

*I did struggle, I struggled a lot. Just trying to motivate myself, because at that point, it's all on me...I didn't really have to put in nearly as much effort as I did in person...that was a lack of just my own self-motivation, but also just, you know how COVID just came out of nowhere.*

Taylor also admittedly lowered the effort put toward her didactic education once her program transitioned to distance learning, attributing this to the virtual delivery of content as well as the noneducational atmosphere of her home environment as a whole:

*[Video lectures] can be a negative, because sometimes when you have the video lecture, you don't feel as motivated to actually sit there and take notes, because you're like, “Oh, I can always go back and see what they said.” I would say what you asked about effort, that's definitely the biggest one for me that, in person, I definitely put in more effort than online. Especially with in-class stuff, just sitting in class at home, on your couch, you know, it's not exactly an engaging environment. So, the effort put in during class I think was definitely lower than in person.*

Although some students were able to find or create an effective workspace during quarantine, half of our participants found it difficult to focus on their studies because of increased distractions in their learning environment. Participants also experienced a decrease in motivation surrounding schoolwork due to merging their academic and home lives.

## Didactic Education: Online Format Beneficial for Information Synthesis

Eight of our participants found online education to have some advantages for their education, as it slowed down time for learning and processing information. In a traditional in-person lecture, students typically take notes at the speed at which the professor presents the information. In some classrooms, professors take the time to thoughtfully respond to questions and repeat information, or try to deliver it in a different way, as needed. One participant recalled his experience during in-person learning, stating, “One of my professors will explain something in 3 different ways if he can.” This, however, is not always the case. Moreover, after leaving the classroom, students are often limited to their own notes and interpretation of the text to understand and synthesize the content presented. The online format of distance learning erased these limitations, allowing our participants to better understand and retain the content from their courses in the spring of 2020. With the change to online education, Juliet identified taking advantage of prerecorded lectures, something she did not have the opportunity to do during in-person education. She shared about a positive of online education,

*I liked that I could take the prerecorded versions again...Dr. [Smith]'s class was prerecorded, it was a therapeutic intervention class. So, there was a lot of foundational knowledge that I needed to understand. I was able to just take my notes after each session, and, you know, pause the video and take my notes and start it again, pause the video, and just repeat the stuff that I was having trouble understanding. So that was really helpful.*

Bill also shared that he favored the online method to allow for more time to process challenging information. Bill was quick to share his struggles with focus with in-person learning, so with the change in learning, he valued the time to learn:

*But I also think with being in online learning, I got an advantage because things are recorded, so if I didn't understand*

*something, I could just rewind and rewatch. So, I honestly prefer how it is now with professors recording their lectures and just learning on your own time rather than their time.*

Several other participants discussed the benefit of time that accompanied distance learning, by having more of it, working through material at their own pace, and completing lectures when they wanted to rather than at a set time of day. Abigail explicitly stated that, for her, simply having it was a positive aspect of distance learning:

*Time. I just had so much more time to work through the material and study and prepare myself for different tests. . . Because I was able to take the break that I needed, and then have time to process through the material and stuff.*

For Taylor, the advantage was in being able to take in the content at her own pace. Specifically, she said, “[Professors] had to record and do their video lectures. . . on one hand, it’s nice to have the video lecture, because you can pause it and you can kind of take your time, looking through stuff.” Stephen also went into detail about his feelings on and experience with the self-paced component of distance learning:

*For me, it was the self-paced aspect to it. Yeah, that was the big positive for me, being able to work at my own pace on some things. . . It also gave me an opportunity to look at outside resources other than just the materials we were provided for class. You know, find different ways of doing it.*

Betty and James each found contentment in their respective asynchronous classes, because the format allowed them to watch recorded lectures on their own time rather than someone else’s. Betty enjoyed “being able to take breaks whenever you want.” James, on the other hand, merely “enjoyed being able to watch [recorded lectures with PowerPoints] on [his] own time.”

Participants addressed challenges with long-term distance learning; however, the initial transition provided a mental health break for athletic training students with their busy schedules. Moreover, participants appreciated the online lecture format, as it allowed them to rewind and repeat the presentation as needed, allowing for a greater synthesis of information.

## DISCUSSION

Students come to learn the ideals of the athletic training profession through the professional socialization process.<sup>11,12</sup> During their time in school, professional master of athletic training students undergo anticipatory socialization through a series of formal and informal processes, many of which use an in-person format, such as orientation sessions and social gatherings.<sup>12</sup> The use of formal processes (orientation sessions and introductory courses) appears to facilitate student socialization through the use of effective communication.<sup>12</sup> Meanwhile, informal processes (social gatherings and mentoring programs) are still pertinent, as they simulate the organizational socialization a student will experience when they enter the professional setting.<sup>12</sup> During the 2020 spring semester, these socializing agents, as well as the traditional educational experience, were taken away from students as a result of the mandated national quarantine.<sup>1</sup> Although the effect of the

COVID-19 pandemic on higher education has been faintly explored, there are no published data available regarding how the pandemic may have affected the professional master of athletic training student. Thus, we sought to understand what effect, if any, the COVID-19 pandemic has had on this demographic; specifically, we asked participants to discuss their experiences during the 2020 spring semester, which is when students initially transitioned to distance learning.

### Clinical Education: Lack of Experience Resulting in Decreased Learning and Clinical Confidence

The most discussed challenge among participants was the loss of clinical experience during distance learning. Eleven of our 14 participants (79%) reported a decrease in clinical confidence upon return to clinical assignments. These feelings resulted from lost field experience and/or lack of immediate feedback from professors when performing clinical skills that were taught during distance learning. Clinical education has been shown to be significant in the retention and professional commitment of athletic training students.<sup>9,18</sup> Dodge et al<sup>18</sup> report that clinical experiences provide athletic training students with opportunities to learn and develop clinical skills, which brings joy to students and aids in student retention. A study by Mazerolle and Dodge<sup>9</sup> similarly found that athletic training students value the ability to translate their skills from classroom lecture to clinical practice.

Research<sup>9,10,18,19</sup> also suggests that clinical experiences foster opportunities for athletic training students to gain confidence as clinicians, as they are afforded the chance for legitimization through feedback and mentorship. Specifically, mentorship from a preceptor plays a significant role in confidence development, as the relationship has been found to make students feel integrated into the profession.<sup>19</sup> Preceptors display exemplary behavior of how to serve as an athletic trainer, which helps the student understand and, in turn, enter the profession confidently.<sup>19</sup> As mentors, they also provide feedback and guidance to athletic training students when performing clinical skills, helping students to develop confidence in their clinical abilities.<sup>19</sup>

Our results align with the current literature surrounding the significance of clinical experiences for athletic training student retention and confidence development. The lack of hands-on learning and mentorship during the 2020 spring semester resulted in decreased learning and clinical confidence for students. Various programs supplemented clinical education during the COVID-19 pandemic by introducing telemedicine to students. Six participants spoke to the benefits of telemedicine, specifically noting the newfound appreciation for history taking that resulted from performing evaluations virtually. Despite the benefits of implementing telemedicine into the curriculum in place of clinical experience, it could not replicate the experiences of in-person clinical practice. The idea of telemedicine, however, should be explored as an addition to clinical education moving forward, as it is a valuable skill as a clinician and the future of medicine is always evolving.

### Distance Learning Environment: Increased Distractions and Decreased Motivation

A variety of strategies have been found to enhance athletic training education, including hands-on experience, authentic



treatment of injuries, use of clinical scenarios in didactic learning, and a positive educational environment.<sup>20</sup> Mensch and Ennis<sup>20</sup> identified positive student relationships with instructors and peers as pedagogic strategies for an enhanced learning environment, as they promote motivation and confidence, 2 factors that greatly affect student learning. Within the study, strong instructor-student relationships facilitated student motivation because instructors were able to pick up on nonverbal cues from their students and adjust their teaching accordingly to always foster a positive and motivating environment.<sup>20</sup>

Half of our participants (n = 7) spoke at length about the nature of their at-home learning environment, with emphasis on the increase in distractions that were present and the decrease in motivation to complete their assignments based on their surroundings. Our results coincide with the research of Mensch and Ennis<sup>20</sup> in that many of our participants were unable to foster strong relationships with instructors and peers because of the quarantine period that stemmed from the COVID-19 pandemic. The lack of real-time learning from instructors and subsequent inability for instructors to adapt their lessons based on their observations ultimately resulted in decreased motivation from students. Several participants also reported feelings of isolation while in quarantine, despite some students living with family members at home, simply because they were unable to spend time with friends and classmates in person. Conversely, many of the participants who did not address issues with at-home learning were living with students from their cohort and were able to build strong peer relationships. The camaraderie these participants experienced resulted in a stimulating and motivating learning environment, despite the physical location where learning occurred.

It is important to note that participants were not actively involved in clinical rotations during this time, meaning that they were not spending time at a clinical site, which would normally affect the time a student has to study and focus on their didactic workload. There were no follow-up questions asking if a participant would appreciate the flipped-classroom style while actively completing clinical assignments. Therefore, we cannot determine, based on available data, if students would have appreciated the flipped-classroom instructional method while being active in clinical assignments.

### **Didactic Education: Online Format Beneficial for Information Synthesis**

Despite the seemingly endless challenges that students faced while completing distance learning amid the COVID-19 pandemic, the new delivery method for didactic instruction appeared to be beneficial for more than half of our participants (57%). An up-and-coming method for educational instruction, referred to in literature as the flipped classroom, uses technology and other course materials to provide content to students before an in-person meeting so that they may review the information in a self-paced fashion.<sup>21</sup> Students then discuss the concepts they reviewed with an instructor to develop a greater understanding of the material.<sup>21</sup> After class, students complete an assessment to ensure they have an understanding of the concepts presented to them.<sup>21</sup> Research surrounding the flipped classroom has highlighted educational benefits for students, such as greater

long-term retention of information as well as a deeper understanding of concepts introduced didactically.<sup>21</sup>

Although the instructors of our participants did not adopt the full flipped-classroom instructional model, many of them used various components of this method during distance learning. Several participants explained that their professors provided recorded lectures to be watched asynchronously, with a follow-up assessment to be completed in an allotted timeframe, mimicking the foundation of the flipped-classroom teaching style.<sup>21</sup> The success of the instructional style referenced by our participants aligns with the limited athletic training literature that analyzes the effectiveness of the flipped classroom.<sup>22,23</sup> Participant feelings also paralleled findings from recent literature regarding the instructional method in athletic training courses.<sup>22,23</sup> Specifically, our participants expressed that they enjoyed learning at their own pace, appreciated the ability to rewind and replay content as necessary to understand the material, and overall found this style of teaching to be both valuable and helpful to their understanding of the concepts being taught. Responses from participants align with those from students in fields such as nursing or x-ray technicians.<sup>22,23</sup> These recurring subthemes within our data reiterate the findings of Bates,<sup>22</sup> as well as Bates and Ludwig,<sup>23</sup> suggesting that adopting the flipped-classroom instructional method in athletic training education may help students develop a deeper understanding of concepts taught didactically.

### **Limitations and Future Research**

Our study has several limitations that can have implications for the findings and give direction for future research. First, 12 of our 14 participants were White, so our results do not allow for generalizability to students of other ethnicities. Though ethnicity was identified for each participant through demographic questioning, no further questions were asked to understand the experiences of our participants based on their ethnicity. Future research should further explore underrepresented or minoritized populations (first generation) and the effect COVID-19 had on their learning, as well as access to resources for success in learning.

A second limitation is that we did not ask our participants about their previous experiences related to online, distance, or asynchronous learning. Past experiences could have influenced our participants' perceptions on the transition to online learning because of COVID-19. Future research should include this as a part of the effect of online learning on the athletic training student's professional development.

Thirteen of our 14 participants were first-year students in their respective programs, so the results of our study may not reflect the experiences of students who were preparing to graduate and enter the workforce. Thus, future research may be needed to better understand the effect of online learning had on those who are currently practicing clinically, yet had limited clinical education experiences.

Finally, our results centered primarily around difficulties with distance learning and its subsequent challenges both academically and clinically. Although these results are significant for athletic training educators to understand, mental health is also an important topic that needs further research. Therefore, future studies should focus more on how distance learning



affects the mental health and wellness of athletic training students.

## CONCLUSIONS

The COVID-19 pandemic was unprecedented and the transition to distance learning was abrupt. The experiences of our participants have allowed us to understand what aspects of distance learning went well and should continue in a post-COVID-19 world, as well as what could be improved. Though there was not much to be changed regarding clinical education based on the circumstances, our data emphasized the importance of clinical education and its effect on the athletic training student's confidence development. Our data highlighted the importance of the instructor-student relationship and the role that plays in student motivation. In the long term, adopting the flipped-classroom instructional method within athletic training education may benefit students as a student-centered approach to learning. Further research needs to be conducted regarding the effects of this instructional technique on information synthesis and emotional well-being for students. Overall, the COVID-19 pandemic underscored the need for adaptation and fluidity within the athletic training profession.

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