

Athletic Trainers' Perceptions of the Structure and Barriers to Online Continuing Education Clinical Documentation Modules

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Context: Athletic trainers (ATs) appreciate the accessibility of web-based continuing education (CE) opportunities. ATs describe needing more CE opportunities related to clinical documentation, but the effectiveness of CE in this content area has not been studied.

Objective: Obtain ATs' perceptions of their experiences accessing web-based CE specific to clinical documentation.

Design: Qualitative study.

Setting: Web-based audio interviews.

Patients or Other Participants: Twenty-nine ATs, averaging 36.2 ± 9.0 years of age, including 16 women and 13 men who represented 8 different clinical practice settings.

Data Collection and Analysis: Participants previously completed 1 of 2 web-based CE modules specific to clinical documentation, a personalized learning pathway (PLP) or passive reading list (PAS). After completing the modules, 1 investigator interviewed each participant regarding their experiences accessing and completing the modules. Following the Consensual Qualitative Research approach, 4 investigators (3 primary coders and 1 internal auditor) inductively analyzed the interview transcripts. We completed 5 rounds of consensus coding and finalized themes and supporting categories.

Results: We identified 2 themes: (1) structure and (2) barriers to completing the modules. Although both groups were satisfied with the content of the modules, PLP participants were more satisfied with the structure and experience of accessing the resources than the PAS participants. PLP participants enjoyed the engagement of the variety of resources included, whereas PAS participants inconsistently accessed reading materials based on personal preference. Both groups described time as a barrier to completing the modules, and some participants experienced technology barriers.

Conclusions: ATs value web-based CE opportunities that compile information related to a topic. Learners find a variety of learning formats, including videos, case studies, knowledge checks, and reflection prompts, to be more engaging than only reading materials. Although time continues to be a barrier to completing CE, offering accessible and engaging learning opportunities improves satisfaction with completing CE.

Key Words: active learning, passive learning, web-based learning, professional development

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KEY POINTS

- ATs enjoyed web-based CE opportunities that compiled guidance related to clinical documentation, particularly when resources remained accessible after completing the CE module.
- Participants prefer a variety of learning formats, including videos, case studies, documents, and opportunities to actively engage in the platform via reflection prompts and knowledge checks.
- When provided a list of reading materials, participants will inconsistently access materials based on personal interests, preferences, and job setting, resulting in an unregulated learning experience.
- Although time continues to be a perceived barrier to completing CE, ATs must make time to complete meaningful learning activities to fill professional practice gaps, regardless of their interest in the material.
- Providing clear instructions and multiple ways of accessing materials can reduce technological barriers to accessing web-based CE.

Continuing education (CE) is important for helping clinicians maintain competence with current practice standards. The Board of Certification requires athletic trainers (ATs) to complete CE to maintain their certification.¹ CE has been shown to increase ATs' knowledge and confidence in several areas, including evidence-based practice and the management of exertional heat illness.^{2,3} ATs have a generally positive perception of CE and perceive it as a valuable resource for maintaining competence.⁴⁻⁶

Traditionally, formal CE is offered through in-person workshops and conferences.⁷ These events typically offer several CE opportunities on different topics in a short period of time. Formats include lectures, hands-on workshops, and discussions regarding various topics related to clinical practice.⁵⁻⁷ However, many ATs describe barriers surrounding traditional CE offerings, including the cost and distance to travel.⁴⁻⁶ These synchronous offerings also limit their availability to ATs with different schedules. CE is also offered in more accessible formats, such as asynchronous lectures, readings with knowledge assessments, and serving as a preceptor.⁴⁻⁷ Although these offerings improve accessibility, some ATs are less satisfied with these events as they are perceived to be less engaging and do not allow for hands-on learning that is highly valued for clinical skills.^{5,6}

Technological developments have allowed for the recent emergence of web-based learning that provides more opportunities for engagement and active learning without requiring synchronous participation. Online CE opportunities, including video recordings, have been effective at increasing knowledge and performance in health care.⁸ Web-based CE in the form of a personalized learning pathway (PLP) provides the opportunity for participants to watch videos, read case studies, reflect, and

receive real-time feedback on their knowledge development in an asynchronous web environment.^{9,10} Internet platforms also allow for the posting of various resources that participants can access at their convenience.⁸ Web-based educational experiences have been shown to increase knowledge regarding the use of evidence-based practice in athletic training.^{2,11} Although web-based CE is frequently used as a format for professional development, few studies have examined the effectiveness of web-based CE in athletic training.

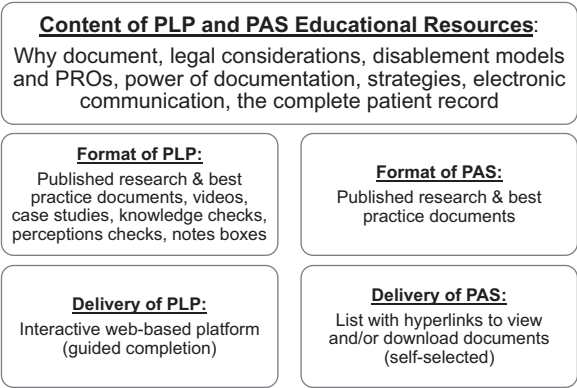
ATs have described a need for more CE opportunities related to athletic training clinical documentation.¹² Welch Bacon and colleagues created different web-based CE opportunities centered around clinical documentation in response to this need.^{10,13} Quantitatively, they found that these educational modules increased ATs' knowledge of clinical documentation.¹³ Specifically, knowledge increased after completion of a PLP and after reading documents related to athletic training clinical documentation (passive reading list [PAS]). Although more significant knowledge increases were noted with the PLP group, the PAS group also significantly increased their knowledge compared with the control group.¹³

In addition to observing the knowledge changes after completing CE, it is also valuable to learn about participants' experiences with these educational modules. Qualitatively obtaining individual perspectives on CE provides valuable insight into ATs' experiences and preferences in accessing CE, which can help shape further CE offerings.⁶ Thus, this study aimed to further examine participants' experiences completing documentation educational modules using a qualitative lens.

METHODS

We used a Consensual Qualitative Research approach within a sequential explanatory mixed-methods design to examine participants' experiences with different CE modules for clinical documentation.^{14,15} Participants completed 1 of 2 CE modules over 1 month: (1) PLP or (2) PAS. Both modules covered the same content, but the format and delivery varied (Figure 1). After completing the modules, participants were interviewed to obtain their perceptions of the educational resources. The detailed methods of this study have been published in previous papers, including the development of the PLP, mixed-methods approach, and qualitative design.^{10,13,16} The focus of this paper is the reporting of the remaining qualitative results of the study. Twenty-nine ATs participated in the study, including 15 from the PLP group and 14 from the PAS group. Participants had 12.5 ± 8.5 years of clinical practice experience and represented 8 different clinical practice settings. Additional participant demographics relevant to the findings presented in this study are presented in Table 1. The consolidated criteria for reporting qualitative research (COREQ) were used to assess the comprehensiveness of reporting the study details.¹⁷

Figure 1. Comparison of the educational resources. Abbreviations: PAS, passive reading list; PLP, personalized learning pathway.



RESULTS

Five themes emerged from the data analysis. This manuscript describes 2 of these themes: (1) structure/components and (2) barriers/challenges. Table 2 displays the frequency of each theme and category for PLP and PAS participants.

Theme 1: Structure and Components

This theme included 5 categories: (1) overall structure, (2) accessibility and functionality, (3) engagement with resources, (4) approach to resources, and (5) variety of learning resources (Figure 2).

Category 1: Overall Structure. One category that emerged from the data was participants’ general thoughts about the overall structure and experience with the educational resources. Participants of the PLP group were complimentary about their experiences completing the module. Charlie said,

I thought the PLP was really quite outstanding. I think it’d be a fantastic CEU option for especially younger professionals with how litigiously heavy our society is now. I think it’s something that would be very beneficial for those who feel they have a gap, or maybe do have a gap that’s very present in their documentation. I think it gave a lot of good ideas as far as peer reviews and those types of things, so I think it was very strong.

Ari echoed Charlie’s sentiments that the PLP should be a common CE format:

It was good, it was definitely good. Honestly, it should be like a continuing education option like on the NATA [National

Table 1. Participant Demographics

Pseudonym ^a	Years Certified	Work Setting	Time Spent on Modules (Hours)
PAS Group			
Eleanor	9	Secondary school	2
Ross Bob	2	Secondary school	4
Rebecca	16	College/university	1
Marie	12	College/university	1
Liam	19	Clinic	4
George	21	Hospital	2
Bella	5	Secondary school	3
Lucas	14	College/university	2
Greg	11	Secondary school	5
Lynn	9	College/university	3
Rinna	7	Secondary school	3
Janie	15	Club/rec sports	1
Mircalla	2	Secondary school	6
Brooke	11	Industrial/occupational	4
PLP Group			
Austin	21	College/university	6
Linus	10	College/university	9
Derek	9	Secondary school	5
Jazzy	9	College/university	8
John	4	Military	8
Roger	2	Secondary school	5
Han	13	College/university	4
Mark	36	Secondary school	4
Jenny	6	College/university	2
Ruthie	31	Clinic	5
Michelle	6	Secondary school	8
Hot Gobbler	29	Secondary school	5
Ari	13	College/university	4
Pam	7	College/university	4
Charlie	13	Secondary school	3

^a Participants were allowed to choose their own pseudonyms.

Table 2. Frequency of Each Theme and Category

Theme	Category	Frequency ^a	PLP (n = 15)	PAS (n = 14)
Structure and components	Overall structure	Typical	13	13
	Accessibility and functionality	Typical	9	11
	Engagement with resources	Variant	6	5
	Approach to resources	Variant	0	12
	Variety of learning resources	Typical	10	5
Barriers	Time	Typical	11	8
	Technology concerns	Variant	6	3

Abbreviations: PAS, passive reading list; PLP, personalized learning pathway.

^a General, would apply to all cases; typical, applies to half or more cases; variant, applies to 2 or 3 but less than half of cases.¹⁴

Athletic Trainers' Association] website. It really gives you a lot of detail, and a lot of the personal experience of how [other ATs] do something and why they do it. Honestly, I think, will be very valuable for students to watch it just because it does have athletic trainers giving their insight of what they're doing and why they're doing it. It's not just the chapter in the book that you skim through as a student, you can see someone's face and hear their stories, so I thought it was very valuable.

Michelle described the PLP as “a fun way of getting CEUs and learning about a topic.” She went on to compare the PLP to other CE formats:

Instead of just being talked out in a session or just watching a video of someone talking in a monotone way just reading off the PowerPoint it was a better way of learning. I think it's my learning style, is seeing it and being told, like the hands-on approach of stuff, and so that was really helpful for me.

Participants, including Michelle, talked about the “hands-on” nature of the PLP, even though it was a web-based educational module. Han had similar comments about the applicability of the material:

I thought it was great. Loved the approach and the structure of the sessions, as you worked your way through. I thought it

was great approach to give different solutions to common problems that athletic trainers have because some of those were things that here at my new job, we are going through. And so a lot of it was tangible because there are topics that we are trying to implement in real time.

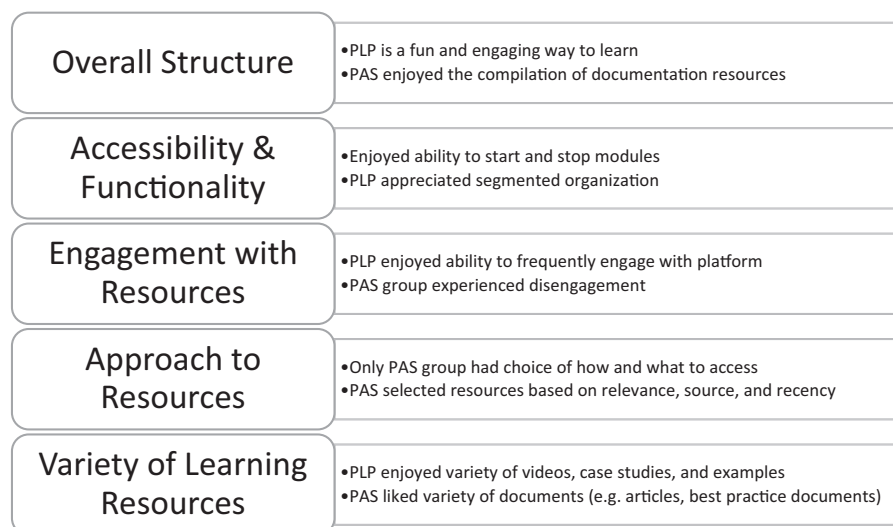
Although PAS participants' comments reflected the different structure of their resources compared with the PLP participants, several PAS participants spoke positively about the resources provided. Numerous participants, including Janie, appreciated that multiple documentation resources were compiled in 1 place:

They were great because, to be honest, I didn't know there was that much out there [related to documentation] to look over and to provide for us, so it was nice to see that there was and somebody had compiled it all into 1 place for people to read and either brush up on their skills or further advanced their skills in documentation.

Bella made a similar comment about the compilation of materials:

I thought it was number one very helpful to see them all in 1 specific location. Which is great, because I downloaded them all on my work computer, so I have access to them all at once

Figure 2. Structure and components of the educational resources. Abbreviations: PAS, passive reading list; PLP, personalized learning pathway.



again. It was interesting to see how many actual peer reviewed articles there were about documentation as well.

Several participants, including Lucas, described that they had not looked for resources on documentation, so they appreciated the organization of existing materials: “Documentation, you kind of put on the backburner so I haven’t really looked for information, so it was good to know that there is actually a lot of information out there.” Brooke also appreciated the assembly of information:

The fact that I didn't really know where to find these before. I don't feel like documentation is something that's really put out there very much, so I like the fact that I have these resources in my database now so I know where to go if I have any questions.

Category 2: Accessibility and Functionality. For our participants, accessibility and functionality of using the educational modules emerged as a key finding. Participants of both groups were happy with the accessibility of the materials using the Qualtrics platform (Provo, UT). Given the straightforward nature of the PAS resources, these participants had brief comments, including “They were easily available when I clicked on the links . . . I didn’t have any issues” (Lynn), “No [issues], all of it was able to be downloaded and read. I actually printed out 3 of them and shared those with my staff” (Marie), and “Entering the system was easy every time. I was able to come back where I left off and get into it” (Janie). George elaborated on the accessibility of the PAS resources as well:

It's nice that you know where to find it. [I liked] that you can bring up at any time, like you just had that page where it just had a list of 5 of the top articles. It's been a reference that I could go back and look at if there were questions on things. I could just go back to 1 generalized site and have it just right there, rather than having to have it in a file or in a box somewhere.

Regarding accessibility and functionality, PLP participants elaborated on the segmented organization of the PLP. Jazzy said “I liked that it was broken up into smaller sections. Just because I think that’s easier to digest.” Similarly, Roger enjoyed the smaller units of videos and resources presented in the PLP:

Normally I think 1 of the downfalls with continuing [education] videos is a lot of them are like okay, watch this 25-minute video and then answer a small quiz about it, and then there's another 25-minute video. I think it's a lot more difficult to digest that way, but I didn't run into any problems with your guys' PLP, no. I liked the 5-minute videos. Nice, short, to the point, and then I can do a couple clicks and watch the next video.

A key characteristic of the segmented organization of the PLP was the ability to start and stop as needed. Several participants, including Derek, commented positively on this feature:

The ability to work on it for a period of time and then leave it and then come back to it was helpful. And the way it was segmented, it had natural breaks in it. So I thought that was helpful because I might have spent 1 long day on it, but then I think I had like 2 or 3 other shorter sessions on it. So I thought that was the other thing that was really good about it.

Category 3: Engagement with Resources. A third category, engagement with resources, emerged from the data, where participants spoke of their engagement, or lack thereof, with the educational resources. For the PLP group, participants enjoyed the opportunities to engage in the materials through knowledge checks, perceptions checks, and integrated notes boxes on each page. Ruthie commented,

I liked the combination of not only watching those videos but also reflecting in the journal part or just taking notes while the video is playing so that you could reflect back on that. So that was that was very helpful to me.

Roger made similar comments and specifically discussed the helpful structure that included the knowledge checks and notes boxes:

The fact that you guys do mini quizzes or knowledge tests after each section, and the fact that the whole thing was very organized when it was put together, like you watched a couple small videos that range anywhere from 30 seconds to maybe 10 minutes. It helps break up the continuing education so it's a lot easier to digest each part. And I love the fact that you guys had a note-taking section on the side, which I heavily used because I always take notes whenever I do continuing education courses. But I always have to use a third-party source, so it was nice to just have it right on the same websites that I was doing the PLP on, and then I thought it was helpful when you guys just emailed me a copy of all my notes, so I didn't have to use third party.

The PAS group had several comments that emerged under the engagement with resources category, but, in contrast to the PLP participants, these comments were generally negative. Several participants spoke about not engaging with the materials because they perceived that the content was not relevant to them. For example, Eleanor, an AT practicing in the secondary school setting, discussed,

I feel like some of the [resources] weren't applicable to me. I vaguely remember some of them being more specific to the secondary school setting versus the college setting or industrial setting or whatnot.

Greg also had an issue with perceived relevance, but still found value in the content:

Illinois athletic trainers can't bill for services yet, so there was some stuff that wasn't super relevant to my practice. But I think it would still be smart to know because, hopefully, we're going in that direction in the future.

Other PAS participants disengaged from the content due to the length or format of the materials. Eleanor said, “I clicked through each one of them, and a lot of them were very, very long. So I feel like in terms of like taking time to read them, it wasn’t accessible.” Lucas talked about the format being a challenge for him to engage in the materials, “Obviously with the challenges of just reading, just taking into account people are different learners. I think a variety [of resources] might improve people’s ability to catch their attention.”

Category 4: Approach to Resources. One category, approach to resources, emerged only from the PAS data. In this category, participants talked about their strategies for

approaching the resources provided. Some participants, such as Bella, selected resources to help fill gaps in their knowledge: “The titles that struck me as oh, maybe I need to look at this because I’m not familiar with that, so unfamiliarity with the subject matter was a primary driver for which articles I read.” Similarly, Brooke talked about spending more time reading resources that she felt less confident in:

I would say there were some that I felt like I was a little more confident in. I skimmed through them just to make sure that I felt confident with that one. But then there were some that I actually sat down and read in detail, there were some that I read the abstract just to get an idea of what I was about to read, to make sure that I was preparing for what I was going to get into. I knew, okay I don’t really know this as well, so I’m going to need a little extra time with this one.

Other participants considered several factors when selecting which resources to access. Marie described, “The newest stuff was the most important for me to read, and then it was the length of the document. So it was one of those things that time was probably the most important and then it was probably length after that.” Lucas also described considering several aspects when selecting resources:

Depending on the topic, sometimes I’m like oh yeah this seems more interesting when you click this or it’s a NATA position statement so you’re like all right, well, let me read what the NATA says about this. As you know, that’s more of a general consensus, so I think those were kind of more the factors of why I read them, or what applies to me in my setting.

These findings demonstrate that when given a list of resources, participants will use varied approaches to determine which information to review and how to review it. By contrast, this finding did not emerge for PLP participants because the module presented information in a sequential order consistent for all participants.

Category 5: Variety of Learning Resources. Participants of both PAS and PLP learning groups discussed a variety of learning resources provided within the educational modules. For the PLP group, participants talked about enjoying the variety of formats provided. Pam discussed the value of the videos:

I liked the video format. It made it more personal and it made it feel like you’re having a conversation with another athletic trainer, so it was cool that it was pretty much all athletic trainers who are presenting. It made it a lot more relatable, but there was still a wide range of settings that they were coming from so you were getting a lot of things I wouldn’t even think about. I think that was awesome.

John also enjoyed the variety of perspectives shared in the videos:

I thought it was beneficial to see how people completed documentation in a variety of settings. There were a lot of testimonials included throughout the course and everyone had a slightly different perspective or point that they thought was beneficial. And I thought that was definitely worthwhile.

Additional learning formats, such as Doodly and Renderforest videos, were included throughout the PLP. Hot Gobbler commented on these, stating, “The drawings were kind of

fun, the person drawing the little sketches. It made me concentrate a little bit more for some reason.” Roger also appreciated that examples for several strategies were provided: “I love how you guys described [each strategy] and gave examples of how to do each one, so I could type up those examples in my notes and practice along the way.”

PAS participants also discussed the variety of reading resources provided. Several individuals, including Mircalla, praised the varied type of readings:

I definitely thought it was a great mix of resources. I love that some were research articles, some were from legal departments, and some were position statements. I loved where everything came from, so it was a very well-rounded picture of everything.

Similarly, Greg commented on the variety of sources provided in the readings:

They are thorough and well organized into a bunch of different categories that covered pretty much all aspects, why we document, what the standard is how does documentation fit into BOC [Board of Certification], NATA, CAATE [Commission on Accreditation of Athletic Training Education] ethics and then what happens when you don’t [document]. So it’s not just standards in research, it’s also news articles and practical applications.

Although PAS participants appeared satisfied with the variety of sources provided, some did make comments about the lack of variety of learning formats. Mircalla said, “I loved where the content came from, I just wish there were more formats.” She went on to say,

I accessed them all, I just don’t know how much actually sank in, especially like I said there wasn’t even at the end, like a key points review sheet, to make sure you had hit or actually comprehended the information that was expected of you. I was expecting since it said learning module that it would be more like a school format, where you would get a PowerPoint that would highlight things you might also get additional resource materials, if you wanted to dive deeper and there would be a voiceover on the lecture so someone who’s more auditory like me would have been a better way to go in that.

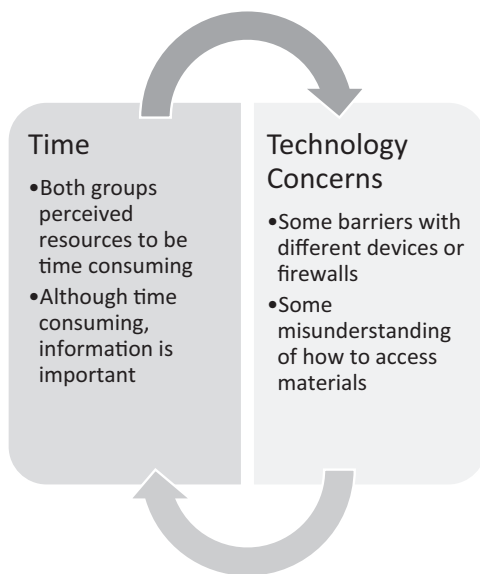
Theme 2: Barriers

Participants were asked to identify any challenges they faced while completing the documentation modules. Two categories of barriers emerged: (1) time and (2) technology concerns, described below (Figure 3).

Category 1: Time. Participants of both groups described that time was the primary challenge they experienced when accessing the educational resources. PLP participants self-reported spending 5.33 ± 2.05 hours on the modules, whereas PAS participants self-reported spending 2.93 ± 1.54 hours reviewing the materials. Participants of the PLP group, including Charlie, noted that the module was time-consuming to complete, but that they generally would not recommend cutting any information out:

It was time-consuming. It is really good information. I don’t think anything needed to be cut. The time constraint was

Figure 3. Barriers to accessing continuing education resources.



probably the biggest challenge but being able to go to it and then come back to it was extremely helpful to be able to do.

Similarly, Jenny commented on the time required to complete the PLP:

I think time was the biggest one, I think that will be a very common answer. But just having enough dedicated time to sit down and complete it. I did it at a weird time of day and my brain wasn't totally prepared so I wasn't listening well, but that was a very personal, self-inflicted challenge and not necessarily anything the program could have done better.

PLP participants also commented on the time required to review the documents provided. When asked if he faced any challenges, Greg said, “No, not really. Just finding time to sit down and review [the resources].” Liam stated that reviewing the documents was “overwhelming at times,” but that “there was plenty of time given which I loved. But it was making the time to do it. Just for me, I want to be in a clinic with a patient talking with them face to face versus reading an article.” For participants like Liam, prioritizing the time to review the documents was challenging at times. In other cases, such as Mircalla’s, the format of the PAS resources made completing the module more time-consuming than expected:

The problem is I'm a little bit dyslexic, and it was all written word. There were no other formats to learn from, and even though it said reading would take 2 to 3 hours, that definitely took me at least closer to 10, I wasn't tracking it, but it was it was a whole week of me doing it.

Category 2: Technology Concerns. In addition to time constraints, some participants also experienced technology issues as a barrier to completing the educational modules. The PLP included several videos, and some participants had issues viewing them due to computer settings or firewalls on work computers. Linus described, “There were a few times I couldn’t get videos to work like the first time, so I was trying to do it on my phone in some.” Similarly, Hot Gobbler said, “No, the only issue is my school computer wouldn’t do the video, so I had to bring in my personal one. It’s probably just

some stupid firewall on the school’s computer.” Jazzy also described some hesitancy with the platform, “With it being in Qualtrics, I was nervous if I closed out of it. If it was going to open back up to where I left off. So I just left that browser up throughout the entire process.” Even though the PLP introduction described that participants could exit and resume where they left off, some participants such as Jazzy were still unsure of how to use the platform.

For the PAS participants, a few described challenges trying to download some of the documents. Janie described, “I’m not hugely technology smart, so it may have been something on my end of hitting the wrong thing when I went to try to download it and it just didn’t work coming back up.” Likewise, Lucas described issues trying to access resources after submitting the survey, “I think I downloaded a couple, but then like looking back there was one I want to access again, but I didn’t have access to it again.” Some individuals such as Eleanor described challenges accessing the resources on their phone, “I think I may have tried it on my phone, and I think that stuff is a little bit harder to read on a device or a smaller screen device than on a laptop which, I think, maybe limited my ability to read through some of them.” These findings suggest that the resources could be enhanced by providing more instruction to participants about how to use the materials.

DISCUSSION

Structure and Components of Web-Based CE

Participants in both groups spoke positively of the resources provided, frequently commenting that they were previously unaware of the variety and extent of information available regarding clinical documentation. This finding suggests that these CE resources helped address ATs’ perceived need that more CE related to clinical documentation is desired. Developers of CE content should obtain input from ATs regarding what areas of CE should be created. Assessing clinical practice gaps is another way to approach the development of CE to ensure that adequate learning opportunities are made available in areas where knowledge gaps exist.^{5,6}

Both groups of participants also spoke about the importance of accessibility and functionality of the CE resources. Participants enjoyed the ability to access the CE modules at their convenience, including starting and stopping the PLP as they desired. PLP participants liked the ability to download materials for later use as a resource. Overall, these participants spoke positively of the web-based format. This contrasts with previous research, which has found that ATs prefer synchronous learning, even when web-based, as it provides more engagement.⁴⁻⁶ However, aligned with previous research, our participants enjoyed the convenience of the asynchronous web-based resources.¹⁸ These findings suggest that asynchronous, web-based learning is a useful format for CE. Similar to the experiences in higher education, asynchronous, web-based learning is seen as most beneficial when the course or content is designed to be delivered through this type of modality. Developers of web-based CE should keep in mind that ease of access, along with intentionally designed delivery of content, is important to participants.¹⁹ Developers of web-based CE should keep in mind that ease of access is important to participants.

Although PLP and PAS participants had similar positive experiences with the content and format of the resources provided, their experiences did deviate when it came to their engagement with the interventions. PLP participants praised the innovative format of the PLP, particularly in their enjoyment of the variety of resources provided and multiple opportunities for engagement with the platform. Many desired the PLP format to be applied to other content areas of CE. The PLP format included several elements that relate to adult learning theory, including fostering engagement with the materials, providing feedback, and helping the learner relate the content to their daily life.^{20,21} Targeting learning opportunities to the appropriate audience (eg, adult learners) can improve the satisfaction and effectiveness of learning interventions.⁵ Integrating frequent knowledge checks (eg, quizzes) and opportunities for reflection helps increase engagement in a learning experience and can be accomplished asynchronously.²¹ Our findings also demonstrate that asynchronous, web-based learning can be a fun, engaging, and effective way of learning. Developers of CE should consider using the PLP format as a mechanism to deliver CE in a variety of athletic training content areas.

Although the PAS group found value in the number and variety of documents provided, many found the experience of accessing the resources to be unengaging. Many participants became frustrated with the large number of resources and the fact that they were in only 1 format, specifically readings. This led participants to incompletely review the materials, either by skipping some resources or skimming most. Additionally, 1 of our participants mentioned that their dyslexia made navigating the PAS documents particularly challenging. Previous research has demonstrated that learning without interaction, such as by reading and home study, does lead to disengagement and lack of knowledge transfer.^{22,23} Studies in athletic training have shown that ATs desire CE opportunities that are interactive but also offer the convenience of online access.^{4,5} Our finding suggests that although providing documents to read provides some value and improved knowledge, it is not the desired format of CE. Educators, including CE providers, should offer a variety of learning formats to promote engagement and inclusivity in the learning process. Drawing from adult learning theory and concepts of universal design for learning, providing a variety of learning options can facilitate accessibility to and satisfaction with learning.²⁴

Our PAS participants liked that a variety of documents (eg, best practice guidelines and research articles) were provided. If CE providers are creating learning opportunities in this format, participants may benefit from a variety of resources. Additionally, providing objectives, summaries, and other guidance may help focus participants' learning and improve their enjoyment and learning. These findings are not limited to CE; educators in other settings (eg, professional and post-professional education) can integrate the principles of PLPs and active learning into other web-based learning.⁹

Another benefit of the PLP is that due to the guided, sequential nature of the modules, all participants reviewed the same materials to complete the intervention. By contrast, few PAS participants stated that they reviewed all of the documents provided. PAS participants often chose to access resources that they were interested in based on document titles, sources (eg, professional organizations), recency of publication, or perceived

relevance (eg, setting). This resulted in PAS participants obtaining inconsistent information, and some participants may not have met all objectives of the CE experience. CE providers should keep in mind that when participants are offered more choices in their learning, they may get more variation in what participants actually complete and learn from the experience. Knowledge assessments should thoroughly evaluate the breadth of information covered in the educational resources so both CE providers and participants are aware of the knowledge gaps that remain after completing a CE activity. This finding also demonstrated that ATs place value on resources provided by professional organizations (eg, NATA, BOC, and CAATE). Professional organizations should keep this in mind when creating content and addressing the needs of ATs.

Barriers to Completing CE

When obtaining participants' experiences completing the CE modules for clinical documentation, we also wanted to learn about any barriers that participants faced. Both groups described time as a barrier to reviewing the educational resources. Time has been identified as a barrier to both completing and implementing changes after CE.^{4,6} Time has also been identified as a key barrier to completing proper athletic training clinical documentation.²⁵ Interestingly, time was a barrier for both PAS and PLP participants, even though PLP participants spent nearly twice as much time completing the modules. Some PAS participants noted that they incompletely accessed materials because of the amount of time they were spending on the learning experience. This contrast between groups provides further support that structured CE that guides participants through learning experience may be more effective at having participants thoroughly complete an asynchronous CE experience. Despite the shared experience of perceived time barriers, PLP participants were still required to review all of the materials, unlike the PAS participants.

Although time is a barrier to both documenting patient care and completing CE related to clinical documentation, ATs still need to ensure that they are making time for this important aspect of patient care. High-quality clinical documentation is essential for legal protection, effective communication with other providers, management of patient care, and demonstration of the value and effectiveness of athletic training services.^{26–28} Although previous research has shown that ATs prioritize other aspects of patient care over documentation, both in their daily practice and selection of CE, clinicians still need to ensure that they are meeting professional practice standards and addressing knowledge gaps.^{5,29}

In addition to time limitations, participants also described technology as another barrier to completing the CE modules on clinical documentation. Most of these technology barriers were due to individual issues rather than those created by the web-based platform, such as limitations of employer internet firewalls, choosing to use a phone rather than a computer, and misunderstandings of how to use the platform. These challenges can be mitigated with more instructions to participants and flexible modes of delivery (eg, mobile-friendly) when providing web-based CE. Providers of online CE opportunities should attempt to make resources as accessible as possible and provide detailed instructions to participants about how to best access the learning experience. Overall, the technology challenges faced by our participants were limited,

Table 3. Recommendations for Continuing Education (CE) Providers

Create CE opportunities that address athletic trainers' interests and professional practice gaps.
Ensure that web-based resources are easily accessible and provide multiple options for use (eg, downloading materials).
Break up web-based resources into sections that can be completed in 1 or multiple sittings.
Provide a variety of ways to learn (eg, case studies, videos, and documents) to facilitate engagement in the content.
Provide opportunities for reflection and feedback.
Include practical suggestions for implementing content into participants' daily lives.
Implement a regulating mechanism to ensure that participants have accessed all required materials.
Provide instructions to participants about how materials should be accessed (eg, required technology).
Set up web-based modules to be accessible via a variety of devices.

and the benefits of the asynchronous, web-based modules outweighed the challenges faced. Recommendations for CE providers are displayed in Table 3.

LIMITATIONS AND FUTURE DIRECTIONS

Although we obtained perspectives from individuals who completed 2 different modules, they did not complete the same modules. Therefore, their ability to compare the details of the CE experiences is limited. Future studies may benefit from assessing the experiences of ATs who can directly compare 2 different CE formats.

CONCLUSIONS

ATs need CE opportunities specific to clinical documentation, and participants of both a PLP and PAS learning CE module found value in the compilation of resources regarding clinical documentation. CE providers should provide learning opportunities that meet practice gaps and the perceived need for CE to help ensure high-quality, well-rounded patient care. Although resources for CE were valued, participants of the PLP group had a more engaging and satisfactory experience with the learning modules. Grounded in adult learning theory and competency-based education, PLPs provide the opportunity for learners to engage with a variety of resources (eg, videos, documents, and case studies), reflect on their experiences, and receive feedback on their knowledge development in an asynchronous, web-based format. Although PAS resources, such as a variety of documents, provide useful information for learners, participants do not find this type of learning engaging, and they often incompletely access the information, leading to knowledge gaps. PLPs are a desired format for CE, and CE providers should consider developing PLPs and similar educational formats for CE in other content areas. PLPs can also be useful for other educational settings, including professional education. Despite time barriers, ATs should seek out CE in all areas of clinical practice, including clinical documentation, to ensure that they are providing well-rounded patient care.

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