

Guiding Course Development: Trauma-Informed Rubrics for Asynchronous Online Learning Environments

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Systems Thinking

Online Learning Environments

Trauma-informed pedagogies

Trauma has a ubiquitous and deleterious impact on learning and engagement, impacting students in physiological and psychological ways and thus interfering with nearly every facet of the learning experience. Educators who are attuned to these effects can design trauma-informed courses that anticipate and attend to student needs. We contribute to the extensive research on humanizing and trauma-informed pedagogies in online spaces by focusing on instructional approaches that can be structured to enhance student safety, engagement, and learning outcomes within asynchronous learning environments. We propose two rubrics – one focusing on the instructor role and other focusing on course content – to provide guidance to instructors and course facilitators in their course development of trauma-informed content in online learning environments.

Introduction

Statistics suggest that up to two thirds of children have experienced some form of trauma (CDC, 2019). By adulthood, up to 90% of American adults report having experienced at least one traumatic event (Kilpatrick et al., 2013). Traumatic experiences are distressing events that can have short- or long-term impacts on a person's nervous system, impacting mental health and cognitive processes among other physiological impacts (Naparstek, 2004). Traumatic events can include individual experiences of abuse and neglect, widespread community trauma such as natural disasters or shootings, and broader national trauma such as the impacts of COVID-19 and continued racial violence. Indeed, prior to the COVID-19 pandemic, as many as 40% of learners reported an impact on their learning as a result of traumatic experiences (Carr-Chellman, 2022). This percentage has likely increased, as nearly every learner and educator in the world contends with the impacts of COVID-19 as a global shared trauma with far-reaching pedagogical implications (Harper & Neubauer, 2021).

Impacts of trauma on the brain are significant and influence attention, retention of material, and motivation to learn (Carr-Chellman, 2022; Naparstek, 2004; van der Kolk, 2015). The awareness of the impacts of trauma on how students learn and engage in education thus continues to grow out of necessity, as educators consider how to support learners who have histories and/or current experiences of trauma that impact their learning (Raptis, 2022; Thompson et al., 2022; Wuest & Subramaniam, 2022). Educators and pedagogical scholars have therefore turned towards exploring how

education systems can be adaptive to the needs of students experiencing short or long-term impacts of trauma (Brown et al., 2021; Brunzell et al., 2016; Dombo & Sabatino, 2019; Venet, 2021).

Resulting research and conceptual models indicate that educators can adopt trauma-informed pedagogy (TIP) to mitigate the adverse impacts that trauma has had on learning (Cannon et al., 2020). This pedagogical approach bears similarities to other approaches that center on the learner's needs, including Universal Design for Learning (UDL; Carr-Chellman, 2022). We view UDL as guidelines and recommendations for creating equitable learning artifacts. The shift to online learning during the pandemic has only increased the need for educators to be attuned to equity-focused online education approaches, which consider learners from a holistic perspective to ensure equitable access to content and equal opportunity to achieve learning outcomes (Kelly & Zakrajsek, 2021; Venet, 2021). Adapting these approaches recognizes trauma's effect on learners and seeks to integrate specific pedagogical approaches that will minimize adverse effects.

Though there are models for TIP, a need still exists to position trauma-informed education within fully online learning environments. Such modalities present unique challenges and opportunities for educators to consider how to enhance learning through an awareness of trauma and its impacts. In this paper, we will situate a consideration of equity-focused online education through systems thinking and then offer a conceptual framework for instructors to consider how to mitigate the consequences of trauma on learning in asynchronous online environments. We anticipate that our framework will be beneficial to instructors in reviewing current online courses and applying strategies for ongoing improvement.

Background Literature

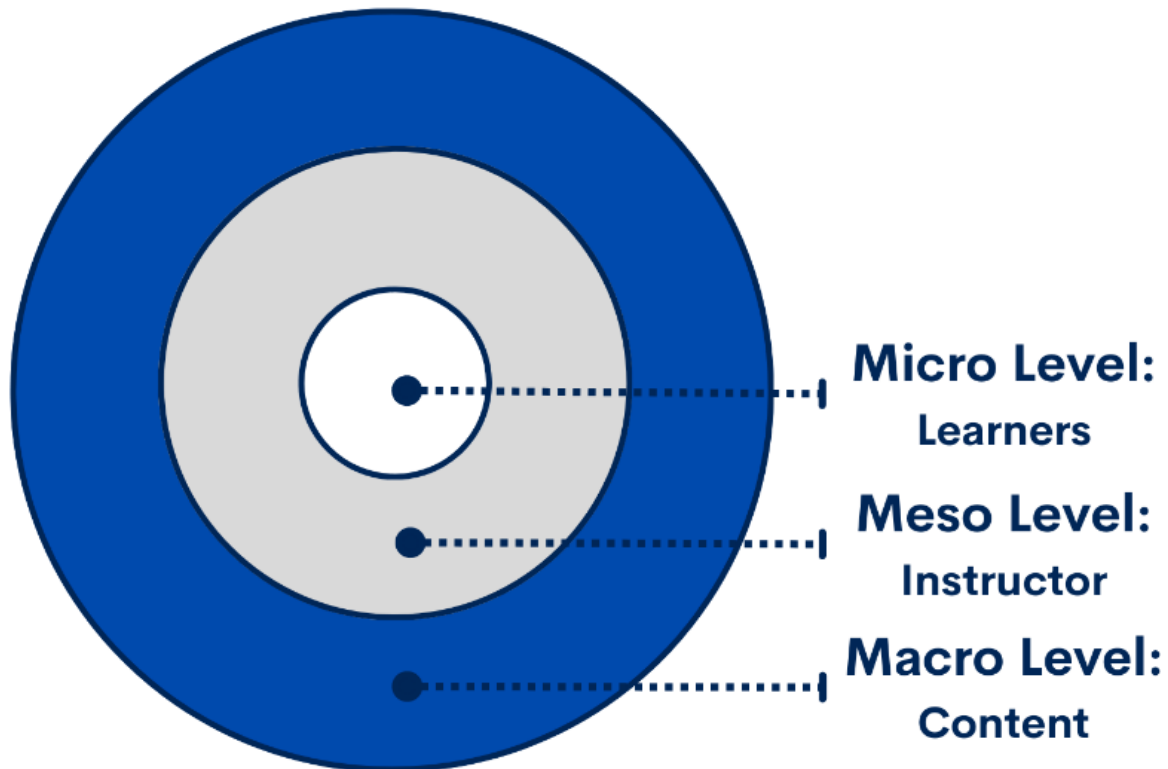
Systems Thinking

Higher education is a complex system with interconnected relationships, and systems thinking is a helpful way to understand these relationships (Bond et al., 2021; Cabrera & Colosi, 2008; Moore, 2022; Peck, 2019; Powers & Moore, 2023; Sockman et al., 2019). A benefit of a systems thinking approach is that we can isolate the specific relationships within the larger system that we want to focus on. This examination of relationships can lead to a better understanding of the system and how to impact meaningful change within the system (Bond et al., 2021; Moore, 2022).

Typically, systems thinking examines the relationships among embedded levels of the system (Sockman et al., 2019; Staggenborg, 2002; Zawacki-Richter et al., 2009). These embedded levels are referred to as micro (individual, relational), meso (organizational, community), and macro (national, cultural) (Moore, 2022; Sockman et al., 2019). This paper focuses on the online learning environment and specifically how a trauma-informed approach can be applied to create a more inclusive learning environment. Mao and Shearer (2019) suggest that three levels of user, design, and infrastructure are critical for online environments. We have adapted their work and the micro, meso, and macro levels to present a systems-thinking approach to trauma-informed online learning environments (Figure 1).

Figure 1

Systems thinking view of a trauma-informed online learning environment (Adapted from Sockman et al., 2019).



In keeping with the core principles of trauma-informed pedagogy, we have placed the learner at the center – at the micro level. To take a trauma-informed approach means that instructors not only acknowledge potential sources and symptoms of trauma, but also commit to designing an inclusive learning environment to mitigate the effects of that trauma. We put the instructor in the meso level, representing the bridge between the macro level (the course content) and the micro level (the student). At the macro level, the impacts of the trauma-informed approach are operationalized and influence the overall learning experience. The instructor works at the meso level to make infrastructure and management decisions. These decisions include the types of assignments, how they are submitted and evaluated, and how the learners will interact and engage with each other and the content. Placing the content at the macro level also reflects the ways in which learners tend to interact and engage with their instructors. These interactions are course and content related.

Viewing a course through the lens of systems theory can thus provide a framework for considering multiple levels of intervention and impact. Instructors who understand how trauma can impact a student's online experience can adjust course components to attend to and minimize these effects.

Trauma-Informed Pedagogy (TIP)

A holistic view of students involves acknowledging trauma's mental and physical consequences on student learning (Pica-Smith & Scannell, 2020; van der Kolk, 2015; Venet, 2021). This is because brain and body responses to trauma can make it difficult to learn using traditional didactic instruction, given the impact of trauma on language and processing (Naparstek, 2004; Pica-Smith & Scannell, 2020; van der Kolk, 2015). Exposure to traumatic events, whether singular or continued, can thus result in marked physiological changes that impact cognition and behavior (Dombo & Sabatino, 2019). Hypervigilance, or the elevated sensory experience of constantly being on high alert to identify potential threats, can reduce a person's comprehension and focus to a significant degree (Wilson, 2020). Additionally, the physiological

impacts of trauma on the brain have been associated with the impairment of language centers and complex reasoning, thus impacting verbal expression and processing (Dombo & Sabatino, 2019; Wilson, 2020).

Increasingly, researchers and educators are becoming aware of trauma's ubiquitous and deleterious effects on learning and engagement. The physiological and psychological impacts of trauma can be observed in the academic setting in several significant ways. Post-traumatic stress disorder (PTSD) and acute stress disorder (ASD) can be observed in memory impairment, difficulty with language, poor test performance, frequent absences, and lower academic engagement including dropout rates (Dombo & Sabatino, 2019). Exposure to trauma and post-traumatic stress disorder also shows comorbidity with attention deficit disorder, conduct disorder, and placement in special education courses, which can complicate the identification of the need for a trauma-informed approach to the classroom (Dombo & Sabatino, 2019). Rates of singular and repeated trauma exposure are higher for racial and ethnic minorities, people with disabilities, sexual and gender minorities, and women, thus making trauma-informed pedagogy an issue of equity as well (Brown et al., 2021).

In addition to these equity issues, national and international crises can also contribute to the overall trauma response in learners. Research on the effects of the COVID-19 pandemic, for example, demonstrates a loss of connection between students, instructors, friends, and communities. This loss of connection can be detrimental to students' social-emotional development and academic achievement (Wuest & Subramaniam, 2022). And while some of these shifts have been jarring, they have also presented opportunities to reflect on and improve our instructional practices, particularly in online environments (Hodges et al., 2020; Korkmaz & Toraman, 2020; Roitsch et al., 2021). Educators must thus take a more human-centered approach to the design and delivery of courses with an emphasis on centering learners' needs and providing opportunities for learners to interact and engage with each other in collaborative learning environments (Carr-Chellman, 2022; Raptis, 2022; Thompson et al, 2022).

However, despite the impacts of trauma, taking a deficit perspective ignores resilience characteristics and precludes consideration of how pedagogy can be adjusted to maximize student safety and engagement (Brown et al., 2021). Understanding how trauma impacts a person, particularly in terms of learning, can enable educators to design curricular experiences that attend to student needs and well-being. Given the widespread nature of traumatic exposure, employing trauma-informed pedagogy is essential to meet the needs of a significant and growing percentage of students.

To mitigate the impacts of trauma on student learners, Brunzell et al. (2019) states that the instructor should aspire to build classroom relationships, increase psychological resources for well-being, offer timely feedback, and state clear goals and rules for tasks. Additionally, the instructor should provide a predictable environment that employs strategies such as mindfulness and de-escalation (Brunzell et al., 2016) which are not always options in an asynchronous course. Brown et al. (2021) recognizes the use of the Trauma-Informed Care (TIC) framework that identifies 6 principles: (1) safety, (2) trustworthiness and transparency, (3) peer support, (4) collaboration and mutuality, (5) empowerment, voice, and choice, and (6) cultural, historical and gender issues. Other studies support that the instructor ensure a connection with the students, be flexible, and have consistent expectations and communication (Brunzell et al., 2016; Pica-Smith & Scannell, 2021).

Research on trauma-informed strategies identifies the modalities that are more equitable for students who have or are experiencing trauma including community-based learning, creative and art-based assignments, and flexible policies for attendance and engagement (Bliss et al., 2021; Carr-Chellman, 2022; Naparstek, 2004; Pica-Smith & Scannell, 2020; van der Kolk, 2015). Other strategies that are mentioned include clarity around elements of the course such as information, explanations, and directions about tasks and procedures, specific goals and objectives, and flexible options for student assignments/assessments (Brunzell et al., 2016; Davidson, 2017). Davidson (2017) also mentions the need for welcoming and respectful materials, readily available contact information, and the need for flexible options for instructor meetings. Additionally, it is also recommended that the instructor provide opportunities for the student's strengths and skills to be recognized in the course (Brunzell et al., 2019; Davidson, 2017).

Despite the valuable contributions to trauma-informed pedagogy, few frameworks focus specifically on online learning environments or discuss tangible ways for instructors to apply the strategies. While Pate (2020) lists several strategies

and examples for trauma-informed distance learning, their recommendations are for synchronous courses rather than the asynchronous format we are targeting.

Problem Statement

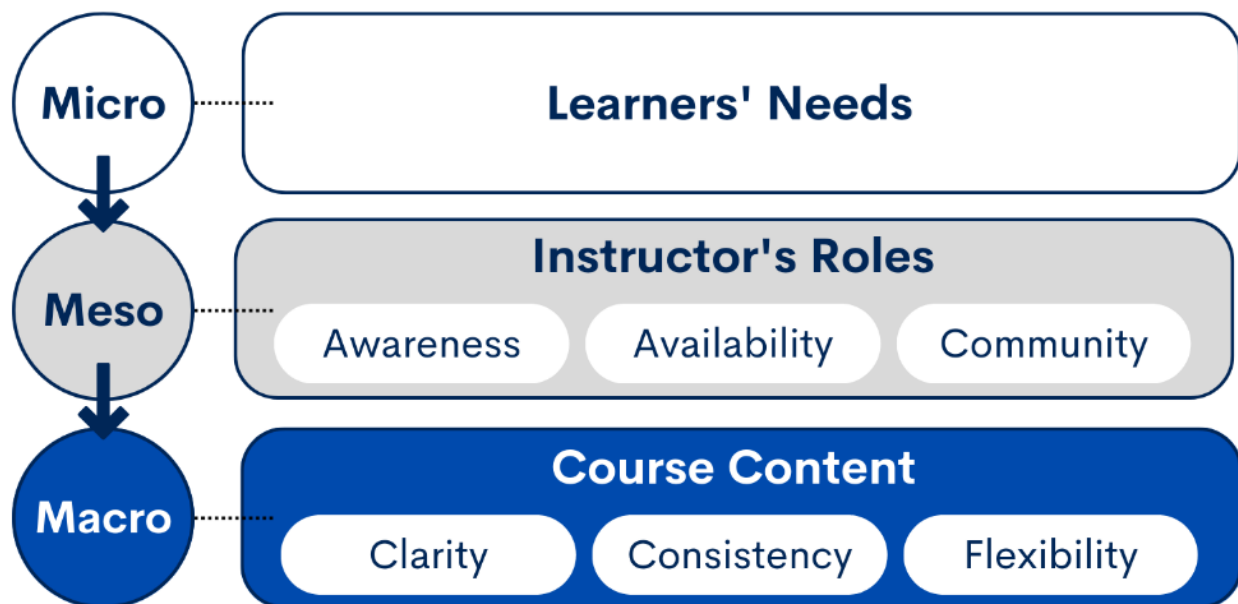
Based on the above literature, we recognize that there are limited resources to help an instructor design an asynchronous online learning environment for students impacted by trauma, despite the prevalence. We propose to address this gap by presenting a rubric for instructors to evaluate an existing course and implement new changes to support the trauma-impacted learner.

Framework

We situate our exploration of trauma and the design of online learning environments from a systems thinking approach. This approach to the design will allow instructors to consider the relationship between the learner, environment, and themselves. Taking this systematic approach, and using the framework outlined in this paper, will allow the instructor to apply a trauma-informed approach to their asynchronous online courses. The framework in Figure 2 shows the learners' needs as the micro level, providing input to the instructor's role in the course, which then provides input to the course content at the macro level.

Figure 2

Framework for trauma-informed strategies



For this framework, we organize our pedagogical strategies to meet the learners' needs through instructor's role and course content. We describe what role the instructor can take to mitigate the impacts outside of the design and how they can structure and design their course to meet the needs of the trauma-impacted learner. Using this framework will allow the instructor to mitigate the consequences of trauma listed in Table 1.

Table 1

Consequences of Trauma

Anxiety about deadlines, exams, group work, or public speaking

Decreased concentration

Decreased language processing

Frequent absences

High drop-out rates

Inability to form positive peer and adult relationships

Impulsivity and poor decision making

Lower academic engagement

Memory impairment

Poor test performance

Learner Needs

Aligning with TIP, we have placed the learner in the center of the framework. This framework aims to meet the learner's needs through the role of the instructor and course content. Some consequences of trauma impact the student directly, not only in the classroom but outside as well. However, consequences of trauma can be mitigated by the course content itself or the instructor's role in the course and are also specific to the asynchronous online learning environment.

In the context of trauma-informed pedagogy, it is crucial for teachers to develop a thorough understanding of the needs of their students to effectively meet those needs. This can entail a range of tactics, such as soliciting student feedback, carrying out needs analyses, and giving students the chance to reflect on and pinpoint their own needs. Additionally, teachers can use TIP's guiding principles to help with course design and content selection. For instance, teachers can place a high priority on establishing a secure and encouraging learning atmosphere and include material that is interesting and relevant to students who have experienced trauma. Teachers can work to create a learning environment that serves the specific requirements of their students and fosters their overall success by putting the learner at the center of the framework and aligning with TIP principles.

Instructor Roles

The instructor plays an important role, not only as the course content expert, but as the liaison between this content and the learner. This direct contact with the learner provides an opportunity for the instructor to create and build relationships that are beneficial to the trauma-impacted learner (Brunzell et al., 2016; Brunzell et al., 2019; Imad, 2022; Pica-Smith & Scannell, 2021). When the instructor comes to the course with awareness, availability, and focuses on community, they can greatly impact the trauma-impacted learner.

Awareness

When it comes to trauma-impacted learners, many symptoms manifest in learning environments. It is essential for instructors to be aware of the impacts of trauma on learning and the signs (Brown et al., 2021; Imad, 2022). This information can allow the instructor to be prepared to accommodate the learner who may be struggling. To become

familiar with the impacts of trauma, instructors can take advantage of any training or resources available to them through the institution or other online resources, such as those provided by the Centers for Disease Control and Prevention or the Crisis Prevention Institute (CDC, 2022; CPI, 2023). Online web training platforms or mobile apps, such as LinkedIn Learning or Coursera, offer numerous opportunities for instructors to develop professionally in this area.

The instructor should be aware of resources available to the student that the respective institution provides, and they can make these resources readily available (Brunzell et al., 2019). In addition to these resources, instructors are encouraged to learn how the language used in the course can affect the learner that has been impacted by trauma. The course language should represent all those in non-traditional situations, such as changing the wording from “parent” to “caregiver.”

Availability

In addition to awareness, instructors can ensure they are available to students. While a set amount of time available to meet with students is often required by the institution, instructors could also offer additional flexible meeting times and locations. These locations can utilize online web tools like video conferencing software, phone calls, or email and messaging platforms. This flexibility allows the student to pick the location and time in which they are most comfortable. Not only is the flexibility valuable, but it is beneficial for the instructor’s contact information to be in a readily available location in the eLearning management system such as the homepage of the course (Davidson, 2017). This location can contain a QR code or link to an online business card or even an appointment booking software. The instructor should include instructions for how the student can reach out to them in multiple ways (for example, the instructor is available on a specific platform during a specific time, via text message and/or email anytime, or by phone during specific hours). The instructor could also commit to responding within a specific range of time, and this response time can be included with the instructor’s contact information.

Community

Community is essential to the student impacted by trauma (Brunzell et al., 2016; Brunzell et al., 2019; Imad, 2022; Pica-Smith & Scannell, 2021), so the instructor should create a welcoming and respectful environment for the student online. To do this, the instructor could create a welcome message for the student on the online course’s homepage. This welcome message can be a video or a short paragraph with a welcoming image. In addition to this welcome message, all assignments can be created with positive language that is sensitive to trauma.

Another technique that instructors can implement is creating opportunities for students to develop positive online relationships with the instructor or others in the course (Brunzell et al., 2016; Brunzell et al., 2019; Imad, 2022; Pica-Smith & Scannell, 2021). Instructors can foster the development of these relationships with frequent check-ins with the student. Another strategy to engender positive online relationships is integrating opportunities for students to recognize their strengths and skills. Instructors could choose to have students start the course with a skills assignment in which students can recognize or discover their specific strengths. This allows the student to gain confidence, and instructors can encourage students to use this skill and approach future assignments from this perspective.

Course Content

Through the course design and structure, instructors can mitigate some of the consequences of trauma. Several pedagogical strategies are included in this framework and can be utilized throughout the course. Including strategies such as clarity, consistency, and flexibility throughout the course provides specific and actionable items that could result in a positive experience for the students.

Clarity

Some consequences can be mitigated by providing clarity throughout the course. Specifically for online courses, clarity is crucial to the learner (Ralston-Berg et al., 2015). Understanding expectations can help the learner navigate the course content and easily tackle assignments and assessments. Clear, specific goals and objectives, directions, explanations, and information about tasks and procedures are beneficial to the trauma-impacted learner (Brunzell et al., 2016;

Brunzell et al., 2019; Davidson, 2017; Imad, 2022). Knowing what is expected for each lesson, assignment, or assessment can reduce anxiety and increase engagement in the course. Reducing this anxiety and increasing engagement may also help reduce circumstances that can cause frequent absences and high drop-out rates (Wang & Fredericks, 2014). When designing the course, include this clarity throughout while maintaining consistency. For example, the instructor could include video, text, and/or audio instructions embedded into the eLearning software or platform. This included element should be concise and clearly state the goal or objective of the assignment and provide clear instructions for completion.

Consistency

It is valuable to the learner to provide a consistent structure and design throughout the online course, specifically from one lesson to the next (Brunzell et al., 2016; Imad, 2022; Pica-Smith & Scannell, 2021). A uniform structure and design will allow the learner to be prepared for what the course will offer and know what to expect as the course progresses. Consistency allows for an increase in usability in the online setting. Easy course navigation can reduce anxiety about deadlines, exams, group work, or public speaking and increase engagement in the course (Davidson, 2017). For example, the learner can benefit from an online interactive syllabus that links content in the syllabus to content in the course.

Flexibility

Flexibility is important to the learner for several reasons. As identified in the literature, the trauma-impacted learner benefits from flexible policies for attendance and engagement and flexible assignments and assessments (Brunzell et al., 2016; Davidson, 2017; Imad, 2022; Pica-Smith & Scannell, 2021). The asynchronous online design allows for flexible options for attendance; however, the instructor can deliberately design flexible engagement opportunities, assignments, and assessments. Various educational technology tools such as e-portfolios, online timelines, infographics, and online presentations allow the student to use creative/nonverbal modalities that also help bypass the limitations of trauma on language centers. For example, the instructor can allow the learner to do an artistic project, blog, poem, or video rather than a paper or discussion board post.

TIP Rubric

We have adapted previous research and created two rubrics that course facilitators can use to identify ways to implement trauma-informed pedagogical approaches into their online courses. We designed these rubrics for instructors or course designers to support their efforts to ensure their course content is sensitive and uses trauma-informed teaching strategies.

Instructor Role

The rubric in Table 2 lists the strategies that will allow the instructor to employ best practices concerning the learner impacted by trauma.

Table 2

Instructor Role Rubric

Awareness	Excellent (3)	Proficient (2)	Satisfactory (1)	Unsatisfactory (0)
Awareness of the impacts of trauma on learning	Instructor is aware of all the possible impacts of trauma on learning	Instructor is aware of most of the impacts of trauma on learning	Instructor is aware of some of the impacts of trauma on learning	Instructor is not aware of the impacts of trauma on learning

Awareness	Excellent (3)	Proficient (2)	Satisfactory (1)	Unsatisfactory (0)
Awareness of the signs and symptoms of trauma	Instructor is aware of all the signs and symptoms of trauma	Instructor is aware of most of the signs and symptoms of trauma	Instructor is aware of some of the signs and symptoms of trauma	Instructor is not aware of the signs and symptoms of trauma
Trauma support resources are available and easily accessible to the learner	Instructor provides readily available trauma support resources to the learner	Instructor provides some readily available trauma support resources to the learner	Instructor provides some trauma support resources not readily available to the learner	Instructor does not provide readily available trauma support resources to the learner
Availability	Excellent (3)	Proficient (2)	Satisfactory (1)	Unsatisfactory (0)
Instructor availability	Instructor is readily available to the learner	Instructor is available to the learner	Instructor has limited availability	Instructor is not readily available to the learner
Flexible options for learner/instructor meetings (email, phone, online video conference)	Instructor has more than 2 flexible options for learner/instructor meetings (email, phone, online video conference)	Instructor provides 2 flexible options for learner and instructor meetings	Instructor provides only 1 option for learner and instructor meetings	Instructor does not provide any options for learner and instructor meetings
Community	Excellent (3)	Proficient (2)	Satisfactory (1)	Unsatisfactory (0)
Online course has a welcoming and respectful environment	Instructor creates a welcoming and respectful environment	Instructor somewhat creates a welcoming and respectful environment	Instructor creates either a welcoming or a respectful environment	Instructor does not create a welcoming and respectful environment
Opportunities to build online relationships	Instructor creates many opportunities to build online relationships	Instructor creates some opportunities to build online relationships	Instructor creates few opportunities to build online relationships	Instructor does not create opportunities to build online relationships
Opportunities for learners to recognize their own strengths and skills	Instructor creates many opportunities for learners to recognize their own strengths and skills	Instructor creates some opportunities for learners to recognize their own strengths and skills	Instructor creates few opportunities for learners to recognize their own strengths and skills	Instructor does not create opportunities for learners to recognize their own strengths and skills

Course Content

The rubric in Table 3 lists the strategies that will help the instructor assess the overall course structure and design.

Table 3

Course Content Rubric

Consistency	Excellent (3)	Proficient (2)	Satisfactory (1)	Unsatisfactory (0)
Consistent structure and design	Course has a very consistent structure and design	Course has some consistent structure and design	Course has either a consistent structure or design, not both	Course has no consistent structure or design
Clarity	Excellent (3)	Proficient (2)	Satisfactory (1)	Unsatisfactory (0)
Clear explanations and information about tasks and procedures	Course contains clear explanations and information about all tasks and procedures	Course contains clear explanations and information about most tasks and procedures	Course contains clear explanations and information about some tasks and procedures	Course does not contain clear explanations and information about tasks and procedures
Clear specific goals and objectives	Course contains clear specific goals and objectives	Course contains some clear specific goals and objectives	Course contains either clear specific goals or objectives, not both	Course does not contain clear specific goals and objectives
Clear and readily available directions	Course contains clear and readily available directions	Course contains some readily available directions	Course contains clear directions that are not readily available	Course does not contain clear and readily available directions
Flexibility	Excellent (3)	Proficient (2)	Satisfactory (1)	Unsatisfactory (0)
Flexible options for assignments and assessments	Course contains flexible options for assignments and assessments	Course contains some flexible options for assignments and assessments	Course contains flexible options for either assignments or assessments	Course contains flexible options for assignments and assessments

Application

Using rubrics designed specifically for evaluating the use of trauma-informed pedagogical strategies can help instructors create a safe and supportive learning environment for students who have experienced trauma. The rubrics include specific criteria for evaluating the use of trauma-informed strategies, such as the instructor's ability to create a sense of community, offer choices and empowerment, and foster positive relationships with students. These rubrics can be used in several ways and can be valuable for the instructor and the course designer. The instructor can use the rubrics after the initial design of the course to evaluate the content, or the instructor could use this rubric as a reference while they are designing their online course. Each criterion could be assigned a score based on the degree to which it is met, allowing the instructor to identify areas of strength and weakness in their use of trauma-informed strategies.

While these rubrics will be helpful in analyzing courses, implementation will require the use of available tools and technology to ensure the strategies have been employed. There are many available tools and technology that meet the needs of each listed strategy. Incorporating this technology will help address the needs of the student that has been impacted by trauma. Tools such as surveys or polling software can help check the needs or status of the students throughout the course. Other tools, such as recording tools, help to clarify information located in the course content. Technology like e-portfolios, online timelines, infographics, and online presentations can provide flexible options for students to complete assignments or assessments. Online web resources, like LinkedIn Learning or Coursera, can

provide training on trauma-informed practices for instructors and students. Due to the high availability of these resources, instructors can get creative to incorporate a variety of technology into their courses while following this framework.

Conclusions and Future Work

Trauma has detrimental effects on learning, and it is evident that the instructor plays an important role in mitigating these effects. Although much has been written on these effects and strategies to use, they have not previously been fully captured for the asynchronous learning environment. Being mindful of a trauma-impacted learner in the design and delivery of an online course supports not just that impacted learner but all the learners in the course. While the strategies presented in our rubrics may improve the learning environment, some consequences may not be completely mitigated through the course content or by the role of the instructor. Additionally, not all trauma-impacted students will benefit from the incorporation of all the strategies. Some of the strategies will have a larger impact on some students than others. However, the asynchronous online learning environment designed around the trauma-impacted learner's needs provides many opportunities to mitigate these consequences. We saw a gap in the practitioner-focused literature regarding actionable strategies for trauma-informed pedagogies in online environments. We hope that the rubrics provided will be a helpful starting point, and we invite instructors and course facilitators to implement, adapt, and enhance our rubrics. Future work should focus on the implementation and evaluation of these rubrics as a tool for the instructor and the impacts they may have on the learner experience or engagement.

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