Including self-care curricula to respond to PSTs' exposure to secondary trauma

Including selfcare curricula for PSTs

Heather Bailie Schock and Yvonne Franco Department of Education, The University of Tampa, Tampa, Florida, USA, and Madelon McCall

> Department of Curriculum and Instruction, Baylor University, Waco, Texas, USA

Received 10 November 2023 Revised 31 January 2024 12 February 2024 26 February 2024 Accepted 27 February 2024

Abstract

Purpose – Most teacher preparation programs (TPP) provide little instruction on mitigating the stress-related consequences of teaching (Miller and Flint-Stipp, 2019). This study aims to provide empirical support for including a self-care unit in teacher preparation curricula to address the secondary trauma and stressors inherent to the teaching profession (Essential 2; NAPDS, 2021; Sutcher *et al.*, 2019).

Design/methodology/approach – This investigation occurred in an elementary TPP at a private southeastern US university and spanned two years, utilizing a mixed methods approach.

Findings – Findings suggest that after experiencing a 5-week self-care unit, preservice teachers exhibited a statistically significant increase in well-being and a newfound recognition of the need to prioritize self-care for effective teaching, suggesting its potential effectiveness in reducing burnout and attrition.

Research limitations/implications – While this study provided valuable insights into the implementation and impact of a self-care unit within the context of elementary education majors at a mid-sized private university in the USA, it is essential to acknowledge its limitations. One notable limitation is the relatively homogenous sample, primarily consisting of White female participants.

Practical implications – The implications of this study are critical for teacher education policy and practice, advocating for including self-care curricula to enhance teacher well-being and, by extension, prepare teachers with a skillset to support their career trajectory (Essential 3; NAPDS, 2021).

Originality/value — This recommendation underscores the collaborative efforts between TPPs and partnership schools to implement such initiatives effectively, representing a pivotal step toward better-preparing teachers to manage the demands of their profession while prioritizing their mental health (Essentials 4 & 5; NAPDS, 2021).

Keywords Teacher education, Self-care, Preservice teachers, Secondary trauma,

Teacher preparation programs

Paper type Research paper

© Heather Bailie Schock, Yvonne Franco and Madelon McCall. Published in *School-University Partnerships*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at http://creativecommons.org/licences/by/4.0/legalcode

NAPDS Nine Essentials addressed:

Essential 2: Clinical Preparation – A PDS embraces the preparation of educators through clinical practice.

Essential 3: Professional Learning and Leading – A PDS is a context for continuous professional learning and leading for all participants, guided by need and a spirit and practice of inquiry.

Essential 4: Reflection and Innovation – A PDS makes a shared commitment to reflective practice, responsive innovation and generative knowledge.

Essential 5: Research and Results – A PDS is a community that engages in collaborative research and participates in the public sharing of results in a variety of outlets.



School-University Partnerships Emerald Publishing Limited e-ISSN: 2833-2075 p-ISSN: 1935-7125 DOI 10.1108/SUP-11-2023-0050 SUP

Introduction

Contemporary PK-12 classroom teachers are inundated with stressors beyond teaching and student learning. Their responsibilities include monitoring students' health to coordinate synchronous and asynchronous instructional methods and extracurricular activities, supporting larger classrooms and more students with special needs, responding to school safety concerns, continuously facilitating district and state assessments and completing administrative paperwork and reporting, all with fewer resources and support (Erben *et al.*, 2023; Franco, 2015; Ingersoll & Tran, 2023). The teacher is also expected to become invested in understanding the student's identity, thus, developing the capability to effectively respond to their strengths, vulnerabilities, insecurities and needs.

Research indicates students are strongly aware of when a teacher cares for them and their learning (Northwest Evaluation Association (NWEA), 2014). As a result of this awareness, a synergetic relationship may form, grounded in trust, respect and a love for learning by the student that fuels the teacher's love for teaching. However, the complexities and vulnerabilities of the current state of education threaten this relationship, as teachers become less emotionally available to their students rather than needing to respond to their own mental health and stability. In addition, teachers must monitor students' home conditions, including available resources, health concerns, needs, traumatic events and more (Diliberti et al., 2021; Erben et al., 2023; Franco, 2015; Zamarro et al., 2021). As teachers support students through hardship, they may internalize student hardships as their own. Research suggests that when teachers become immersed in the challenges of students' daily lives, they risk experiencing secondary trauma (Miller & Flint-Stipp, 2019). Miller and Flint-Stipp (2019) defined secondary trauma as the duress experienced from learning about a traumatic event from someone with whom a meaningful relationship exists.

In their first years, novice teachers are often overwhelmed by the responsibility of both teaching and learning to teach, all while navigating unfamiliar problems of practice related to the needs of their new learners and their lives (Burkman, 2012; Feiman-Nemser, 2001; McCaughtry *et al.*, 2005). These unfamiliar problems of practice may result in secondary trauma characterized by increased stress levels, anxiety and exhaustion. The outcome, commonly referred to as teacher burnout, often leads to high turnover and poor retention rates currently characterizing the teaching profession (Bedir, 2023; Forst, 2020; Sutcher *et al.*, 2019).

Consequently, the Association of Teacher Educators (2008) and the Council for the Accreditation of Educator Preparation (CAEP) have charged teacher preparation programs (TPPs) with responding to the complexities of contemporary classrooms with more effective teacher preparation practices (CAEP, 2022). As a result, there is an urgent need to understand the pedagogical practices necessary to prepare teachers for the secondary trauma that may shorten the trajectory of their careers. This mixed methods study outlines the pedagogical practices implemented in a TPP to support preservice teachers' (PSTs) skill development as they manage secondary trauma and stressors in their Professional Development School (PDS) clinical settings and, subsequently, their future classrooms. Further, it provides insight gained through the application of evidence-based pedagogical methods focused on a self-care curriculum in a TPP.

Literature review

Teacher preparation programs have a responsibility to effectively prepare preservice teachers (PSTs) to succeed in the classroom, given knowledge and awareness of the contemporary demands and realities of the profession. In fact, the National Research Council (2010) and the National Association of Professional Development Schools (Essentials 4 & 5;

Including selfcare curricula for PSTs

NAPDS, 2021) both advocate for researched experiences between partner schools and universities as a collaborative practice, ultimately resulting in effective teachers and "a shared commitment to reflective practice, responsive innovation, and generative knowledge" (NAPDS, 2021, p. 5). Informing current university accreditation requirements (CAEP, 2022), this perspective presents a broader mission for preparation, whereby teacher education programs must view preparation as their continued responsibility beginning with the program entry through induction. In accordance, preparation programs must provide evidence of completers' impact on PK-12 student learning throughout their first two years of teaching, and induction programs must ensure ongoing mentoring and professional development opportunities to program completers, as needed (CAEP, 2022).

The teacher–student relationship is of paramount significance to the success of teachers skilled in effective teaching and learning practices (Birch & Ladd, 1997). Although PSTs must prepare to skillfully nurture these essential relationships, they must also be ready to navigate the underlying risks of potential secondary trauma (Hendershott & Hendershott, 2020; Miller & Flint-Stipp, 2019). Ballin (2023) defined trauma experienced by learners to include "chronic bullying; unstable living conditions (homelessness and multiple foster care situations, family drug addiction); witnessing violence; experiencing violence, abuse, and neglect; and dealing with loss or extreme fear of separation or loss, among other stresses" (p. 94). Researchers have suggested the likely probability that one in four children in every classroom has experienced trauma, with those in lower-income schools experiencing it at disproportionately higher rates (Brunzell *et al.*, 2015; Crosby, 2015). Educators experience children's trauma as their own (Ballin, 2023; Miller & Flint-Stipp, 2019). Consequently, we should anticipate that most teachers are susceptible to the burdens of secondary trauma during their careers (Fowler, 2015).

Few school districts offer programs or professional development to provide teachers with the skills and support necessary to manage secondary trauma (Sutton, 2007). As a result, PSTs are unlikely to witness mentor teachers effectively handling secondary trauma during their clinical placements. Exposure to secondary trauma, however, leaves PSTs "feeling overwhelmed, ineffectual, confused, withdrawn, and hopeless" (Benson, 2017, p. 41), resulting in physical, mental and emotional consequences that compromise their personal health. The outcome of prolonged secondary trauma includes high-stress levels and increased anxiety and exhaustion, which is commonly known as teacher burnout (Bedir, 2023; Forst, 2020).

The responsibilities of the contemporary classroom further threaten teachers' mental health and stability, making them even less emotionally available to effectively nurture the teacher-student relationship. According to research, contemporary stressors, including school safety concerns, larger classrooms comprised of more students with special needs, ongoing assessment, inadequate facilities, low compensation and added responsibility for caring for students, all while relying on fewer resources and support (Diliberti et al., 2021; Ingersoll & Tran, 2023; Zamarro et al., 2021), further compound the secondary trauma experienced by educators. In addition, the COVID-19 pandemic exacerbated these stressors by adding students' health to educators' daily concerns and requiring teachers to adapt to unknown circumstances for the purpose of ensuring high-quality learning opportunities (Erben et al., 2023). Ingersoll and Tran (2023) found that the result has been a rise in teacher attrition, which in turn has placed additional responsibility and stress on the educators who remain. This complex, intensive workload, alongside lacking support, has increased teachers' stress to an unprecedented level, making our profession vulnerable and susceptible to the current teacher turnover and widespread shortages experienced throughout the nation (Carver-Thomas & Darling-Hammond, 2019; Goldberg, 2021; Ingersoll & Tran, 2023; McMakin et al., 2022; Zamarro et al., 2021).

Hendershott and Hendershott (2020) argued that educators must intentionally implement self-care strategies as the first step to managing the negative impact brought on by experiencing secondary trauma, along with added stressors in the classroom. The World Health Organization (2022) defined self-care as "the ability of individuals, families, and communities to promote their own health, prevent disease, maintain health, and to cope with illness and disability with or without the support of a health worker" (para 1). Specifically, self-care responds to one's health through nutrition, exercise, leisure activities, culture, faith, support and an overall sense of control (Everly *et al.*, 2013). Given that teacher education programs rarely include curricula regarding secondary trauma or model the importance of intentional self-care during clinical placements, PSTs are frequently left without a working knowledge of how to remain resilient and manage their well-being (Brown *et al.*, 2022). As a result, teacher educators face the challenge of mitigating new teacher attrition by advancing curricula encompassing self-care methods, informed by research and shown to support new teachers when managing stressors, including those associated with experiencing secondary trauma (Keubel, 2019; McKay, 2019; Schmidt & deCourcy, 2022).

Study context

Located in a mid-sized, private university in the southeastern USA, the TPP collaborated with district partnership schools on initiatives related to research, retention and renewal of innovative teaching practices, professional development programs and quality field placements for PSTs. Through this partnership, PSTs gained access to a comprehensive array of resources and support mechanisms, including participation in district-run professional development opportunities, access to requisite data for effective instructional planning and student assessment and the utilization of the district's instructional curriculum resources designed for classroom teachers. By collaborating, PSTs received a comprehensive educational experience that combines theoretical knowledge developed in university courses with practical application in public schools. This, in turn, helped them acquire the essential skills and nurtured the resilience required for a successful teaching career.

The elementary teaching baccalaureate program under study consisted of four semesters of university coursework alongside simultaneous clinical experiences conducted in collaboration with partnership schools. These clinical experiences progressively increased in both duration and the level of responsibility assigned to PSTs as they advanced through the program. During their third semester, PSTs attended a weekly, 1-hour Instructional Laboratory course, which took place immediately after working at their school placement site. In the subsequent semester, students completed their final clinical experience within the program.

In compliance with CAEP's (2013) accountability measures, our TPP initiated an exit survey in 2020, inviting program completers, district partners and clinical field supervisors to participate. The survey offered these stakeholders' perspectives on areas we adequately covered in the TPP, as well as those where our preparation fell short. Using the compiled data, we designed the curriculum for a one-credit-hour Instructional Laboratory course tailored to respond to the identified gaps.

The 2020–2022 program completer surveys reported that over 70% of PSTs experienced indicators associated with secondary trauma and teacher burnout while participating in their clinical experiences. The results disclosed a significant increase in stress levels than in prior years, potentially exacerbated by secondary trauma associated with the COVID-19 pandemic. Of further significance, we found that all faculty and clinical supervisors working in partnership schools conveyed a steady increase in the number of PSTs challenged to cope with the heightened anxiety encountered during clinical experiences. As teacher educators, we were charged with designing the curriculum for the Instructional Laboratory course to

of their contemporary classrooms. We determined that the first step was to leverage the sustained collaboration with our partnership school. One of our teacher educators, who held a dual role as a clinical supervisor within the same context and served as a dedicated liaison to foster a robust connection between the university and the clinical setting, facilitated this collaboration. Additionally, it is worth noting that the principal of the partnership school actively contributed by teaching a section of the course each year and demonstrating a strong commitment to the curriculum's design. Through this collaboration, effective communication and a comprehensive understanding of students' field experiences were guaranteed, facilitating the informed and unanimous decision-making process for curriculum course adjustments with the support and input of all course instructors involved. Immediately, we began developing self-care content delivered using inquiry-based pedagogy with targeted real-world connections and applications. The intentional collaboration with the partnership school supports NAPDS Essentials 3 and 4 by addressing an identified need of both PSTs and

in-service teachers with continuous professional learning (NAPDS, 2021). Our instructional methods aimed to encourage active learning that was personally meaningful, differentiated and transformational. Table 1 outlines the developed five-week curriculum as it unfolded during class sessions. Further, during the five-weeks, PSTs engaged in one self-care practice weekly and submitted evidence of the experience. The PSTs compiled all evidence in a final project, which took the form of a vision board assignment. The vision board served as a

investigate and learn ways to prepare program completers with skills to navigate the realities

Including selfcare curricula for PSTs

Week	Instructional practice	Description
One	Introduction to Self-care	The students completed Forst's (2020) Self-Care Assessment Quiz (preintervention) and read literature, leading them to realize that the application of self-care methods was essential to the longevity of their professional careers. Further, during a Zoom discussion, students conversed with two recent program completers currently in their first year of teaching. This conversation emphasized the importance of teachers adopting self-care practices while also underscoring the potential for secondary trauma in teaching and the crucial role of self-care strategies in mitigating burnout, particularly among preservice teachers
Two	Self-care is Not Selfish	PSTs learned why self-care is not a selfish endeavor and the community benefits of altruism as a self-care method. Students circulated the room, writing traits they admire about their peers on a large piece of chart paper bearing another student's name written at the top. Afterward, they read the notes and discussed their feelings, emphasizing that engaging in altruistic acts for others can be a form of self-care contributing to personal well-being
Three	Finding Time for Self-care	Students were given examples of a teacher's schedule and were challenged to identify a 10–20-min window for self-care within the constraints of the school day, highlighting the scarcity of available time slots. It underscored the need for teachers to prioritize the intentional scheduling of self-care practices, often outside of school hours
Four	Self-care through Movement	The professor and students jointly attended a yoga class as part of an endeavor to investigate the role of physical movement in fostering self-care practices
Five	Mindful Listening	In this activity, students enhanced their mindful listening skills by participating in a consultation line where they answered various thought-provoking questions in pairs. Afterward, they practiced recalling their partners' responses, emphasizing the importance of mindful listening and its role in supporting others, especially teachers. The students completed Forst's (2020) Self-Care Assessment Quiz (post-intervention)

Table 1. Week-by-week selfcare curricula tangible reminder of intentional yet realistic ways the future teacher might engage in selfcare, as well as a promise to pursue it throughout their career (McKay, 2019).

Purpose of the study

This study served two critical purposes. First, it aimed to advance teacher preparation through the design of a curriculum that supports the management of PK-12 secondary trauma and stressors experienced in a PDS setting. Second, it provided insight gained through evidence-based pedagogical methods focused on self-care curriculum in a TPP (CAEP, 2022; Keubel, 2019; McKay, 2019; Schmidt & deCourcy, 2022).

The following research questions guided this study:

- RQ1. To what extent does undergoing a focused five-week self-care program influence how pre-service teachers incorporate self-care into their teaching practice?
- RQ2. How do PSTs describe the relationship between self-care and teaching?
- RQ3. What are the long-term implications of providing self-care instruction to new teachers one year after they graduate?

Methodology

The researchers utilized an explanatory sequential mixed methods design due to its structured two-phase approach. Initially, quantitative data were gathered, followed by the subsequent collection of qualitative data. This methodological choice ensured a thorough and holistic comprehension of the research inquiries.

Undergraduate preservice teacher participants

In the initial quantitative phase, the researchers administered Forst's (2020) Self-Care Assessment Quiz to measure well-being among 77 preservice teachers before and after a five-week self-care curriculum intervention across four semesters. This phase utilized a Likert scale, including 20 targeted scenarios to quantify changes in well-being. Although Forst (2020) asserts the quiz is not an official psychological screener, the instrument was validated for use in her study of 195 teachers. Findings were used to offer implications for the field of education as they relate to supporting self-care methods for teachers in the profession. At the time of our study, limited research on self-care meant limited data collection sources were available to teacher educators, thus, making our access and use of this particular instrument critical to our study.

In the qualitative phase, the researchers gathered additional data through various qualitative methods such as student reflections, semi-structured interviews, end-of-semester vision boards, faculty evaluations and completer reflections. Reflections tracked how PSTs practiced self-care and their reasons behind it. Interviews explored the link between self-care and teaching, strategies for integrating self-care into their teaching careers and their advice for future PSTs. End-of-semester vision boards assessed the curriculum's impact on professional development, while faculty evaluations offered insight into the effectiveness of content delivery, pacing and the teaching environment. These qualitative data sources allowed the researchers to explore the reasons behind the changes in well-being, the impact of the self-care curriculum on professional development and the perspectives of the preservice teachers. Integrating both quantitative and qualitative data collection methods sequentially enhanced the depth of understanding, providing a more comprehensive explanation of the research findings.

Novice teacher/graduate student participants

To delve deeper into the long-term implications of integrating a self-care unit within the curriculum, we incorporated the perspectives of ten program completers who had previously completed the self-care unit during the first and second semesters of integration. Notably, these individuals had transitioned into roles as graduate students concurrently engaged as classroom teachers. Their dual roles as both program completers and current graduate students teaching in real-world classroom settings provided a unique and multifaceted perspective. We sought to harness their insights into the lasting effects and practical applications of the self-care unit within the teaching profession. Specifically, completers engaged in self-reflection by addressing two pivotal questions: (1) To what extent did your exposure to a targeted five-week self-care curriculum during your teacher preparation influence the self-care practices you currently employ in your first year of teaching? and (2) What valuable insights and advice can you offer senior interns to enhance their self-care practices in the coming year? By involving these participants, we aimed to gain a more comprehensive understanding of how the self-care unit continued to impact their teaching practices and overall well-being as educators, thereby enriching our study with valuable long-term considerations and informing the third research question guiding this study.

Including selfcare curricula for PSTs

Data collection

Researchers collected data from a total of 77 PSTs who completed a five-week self-care unit throughout four independent semesters. Quantitative data sources included Forst's (2020) Self-Care Assessment Quiz. This quiz was delivered pre-and post-intervention and inquired into candidates' satisfaction with work, school, friendships, time for hobbies and family, sleep, efficacy as developing teachers and more (see Appendix A). Final ratings, resulting from totaled points, indicated if the PST was "seriously struggling with self-care," "likely struggling with self-care," "likely practicing self-care" or "likely practicing strong self-care" (Forst, 2020).

Additionally, PSTs completed weekly reflections to identify how the learner chose to implement self-care each week, why the method was selected and how it demonstrated intentionality. In addition, semi-structured interviews were conducted to gain insight into PSTs' perspectives regarding the relationship between self-care and teaching, by what means they anticipated incorporating self-care practices during the challenging first years in the classroom, the advice they had for future PSTs and how faculty and administration could support them in implementing self-care. Students presented their end-of-semester vision boards to each other, as well as completed anonymous teaching evaluations to highlight ways the instruction and self-care curriculum unit was or was not significant to their professional development and suggestions for improvement. Lastly, reflection questions from ten program completers in their first-year teaching at partnership schools informed the final research question explored by this study.

Data analysis

Researchers compiled pre- and post-intervention data, collected utilizing Forst's (2020) Self-Care Assessment Quiz. Subsequently, SPSS statistical software analyzed imported quantitative datasets to identify descriptive statistics, variability, skewness and kurtosis, facilitating the assessment of the distribution of scores. Additionally, as the sample size used in this study was more than 50 (n = 77), we conducted a Kolmogorov–Smirnov test of normality to derive additional information necessary to adequately assess the appropriateness of using a dependent samples t-test to analyze the dataset (Field, 2018). This analysis conclusively confirmed that the data set was normally distributed and met the four assumptions of a dependent samples t-test (Laerd Statistics, 2021). Finally, after setting

the statistical significance at 0.05 for inferential analysis, researchers executed a dependent samples *t*-test analysis to explore the score differentials between the pre-intervention and post-intervention scores (Salkind & Frey, 2020).

Additionally, researchers coded qualitative sources separately by applying Saldana's (2013) three cycles of manual coding to each source, inclusive of first-cycle coding, secondcycle coding and post-coding throughout the semester, to gain comprehensive insight into each of the research questions under study. For instance, to gain insight into how undergoing a self-care program influenced ways PSTs incorporated self-care into their teaching, we coded their reflections weekly using open coding to track how they practiced self-care and their reasons behind it. At the start, descriptive codes highlighted in yellow included "feeling weak," "unable to cope," "dreading work" and "crying" surfaced. We collapsed and categorized these codes into the category "Acknowledgement of neglect," while codes such as "being my personal best," "best version of myself" and "showing up better for my students" comprised the category "Prioritizing mental health and wellness" and were highlighted in blue. Likewise, researchers transcribed semi-structured interviews and analyzed them line by line to identify and label codes that captured ways PSTs practiced self-care and their rationale for their selection. We then compared the codes generated from semi-structured interviews with codes from students' reflections to substantiate or refute potential insights gained between the data sources. With a different inquiry intent, we analyzed reflections and transcripts again to pursue an understanding of how PSTs described the relationship between self-care and teaching. Categories that surfaced from the data sources included, "Redefining the identity of teachers," "Setting boundaries" and "Prioritizing mental health and wellness." Once categories were established for the second research question, axial coding allowed us to analyze the data for relationships among all established categories to make sense of it and organize the findings as they informed each research question. End-ofsemester vision boards and teaching evaluations served as secondary data sources to substantiate or refute students' claims by providing visual images of self-care methods used and anonymous perspectives about the self-care curriculum experienced in the course. Only one new category surfaced from the course evaluations. "Awareness of significance." We compared all categories documented from these secondary sources to those that surfaced when analyzing the primary sources in this study, for the purpose of corroborating our findings and ensuring credibility and trustworthiness. Finally, researchers coded and memoed the program completers' reflections during three coding cycles and further compared the results with submissions made by the individuals during their semester as PSTs. This provided insight into their professional development and self-care methods over time. Finally, we merged quantitative and qualitative data to engage in data triangulation, enhancing our understanding and substantiating our findings regarding the research questions at hand (Denzin, 2012; Patton, 1999).

Findings

The initial data obtained from the Forst (2020) pre-intervention assessment revealed that over 90% of the students were struggling with self-care, citing issues like crying about school-related matters, working on weekends, self-doubt as teachers and dreading work. PSTs admitted to neglecting basic needs to complete assignments, which left them feeling drained. The post-intervention analysis revealed a statistically significant improvement in PSTs' perceptions of self-care after experiencing the five-week self-care unit. During qualitative interviews, PSTs emphasized a need to prioritize health for optimal teaching, acknowledging the challenges and intensity of the profession. They discussed the importance of setting boundaries, separating work and personal life and focusing on self-care. Additionally, course evaluations highlighted PST's understanding of the significant role self-care played in

becoming an effective teacher. Feedback collected from recent graduates in their first year of teaching underscored the significance of achieving a balance between work and personal life, along with the cultivation of self-compassion within the teaching profession. These insights suggest that including a five-week self-care unit could have beneficial and enduring effects on teacher well-being and effectiveness.

Including selfcare curricula for PSTs

Impact of experiencing a five-week self-care curriculum

In this study, the pre-and post-assessment questions in the Forst (2020) quiz assessed various aspects of self-care, with responses ranging from 0 to 2, where higher scores indicate better self-care practices. Pre-assessment quantitative data indicated that over 90% of our students were "seriously struggling with self-care". Among the highest selected responses include:

- (1) I cry about school-related issues.
- (2) I do schoolwork on both Saturdays and Sundays.
- (3) I don't feel like I am a good enough teacher.
- (4) I dread going to work.

Post-assessment quantitative data analysis revealed a significant difference between preand post-assessment scores, t (76) = 6.25, p = 0.001, with a large effect size (d = 1.251), indicating that the results hold statistical significance (Laerd Statistics, 2021). These findings convey a measurable and meaningful improvement in the respondents' self-reported behaviors and attitudes related to self-care after completing the five-week unit. Consequently, this data suggests the intervention had a positive impact on PST's well-being and that their perceptions of personal self-care notably improved, leading them to adopt the practice as their own.

In addition, before experiencing the five-week self-care unit, PSTs verbally expressed neglecting essential needs, including sleep, eating, bathing and connecting with non-work friends, in lieu of using the time to complete assignments. As a result, they felt too weak, tired and disempowered to cope with any new stimuli presented in courses and in the clinically based setting.

After experiencing the self-care curriculum, PSTs explicitly identified the need to prioritize health and mental wellness to be their personal best for learners. One stated, "I want to be the best version of myself," while another specified, "When we as teachers take better care of ourselves, we show up for our students as better teachers." Having been assigned to practicums where they experienced the intensive schedule of teachers first-hand, PSTs also felt they would have to make a cognizant effort to care for themselves, as outsiders overlook the deep, potentially draining risk of losing oneself to the work of teaching children. One PST said,

From the outside, teaching looks as if it's a 9-month job for 8 hours a day. Being in the field, you know that it really is 24/7, 365 days a year. It is so easy to lose yourself in teaching because you are in charge of 30 tiny humans!

Offering the greatest insight into the impact of the self-care unit on students' well-being were comments from course evaluations. Comments highlighted the PSTs' understanding of the significance of implementing self-care into their practice. These include:

- (1) The self-care aspect of this class was 100% needed! She really had us think about what we needed to do to be healthy teachers.
- (2) I learned self-care methods and because of this, I know I can do it.

PST's perceptions of the relationship between self-care and teaching

Through this self-care unit, PSTs redefined the work and identity of teachers, as well as their identity as students of teaching. One PST expressed this sentiment, saying, "I think we often see over-working as a characteristic of being a good student or a good teacher when really the self-care is what makes us better for our students." Another PST grappled with her definition of teaching, openly feeling, "We may need to remind ourselves that teaching is not our identity, it is our occupation. We need to consciously make an effort to separate home life and work life." Indeed, many lifelong educators are aware of the challenges associated with this sentiment.

Preservice teachers in the study felt that teaching needed to be intricately intertwined with self-care practices. To them, the relationship between teaching and self-care meant:

- (1) being able to let go of the secondary trauma and hardships that you experience at work, even if it is just for a few moments.
- (2) being able to take a few minutes of the day to focus on yourself without stressing about work.
- (3) prioritizing yourself and limiting the amount of work that you bring home with you.

Another PST likened the experience of teaching to being a passenger on a distressed airline flight. Her personal motto is, "Put your oxygen mask on first before helping others." She further acknowledged how easily she might forget her own motto once immersed in her teaching practice. Two students thought of teaching as the filling of others' "buckets." These students expressed, "It is impossible to take care of others if your bucket is empty."

Additionally, the PSTs made a list of tangible ways they planned to set boundaries for their first years in the classroom. Among their ideas, the most common suggestion was "leaving work at school" at the end of the day. Other ideas included:

- (1) not losing track of what I love to do [outside of the classroom]
- (2) remembering that the weekends should be time to be people, not just teachers.
- (3) forcing myself to make a schedule with self-care time built into it at least once a day
- (4) making exercising a priority
- (5) taking an hour or two to...watch a show
- (6) being clear with parents about when working hours are so that I have time for myself
- (7) spending time with my students to journal or have conversations on a more personal level

Graduates' reflections on the long-term implications of self-care instruction

Surveys conducted among graduates in their first year of classroom teaching (n=10) provided valuable insights into the impact of the self-care curriculum on their teaching identity and attitudes. These novice teachers expressed a newfound belief that it is "ok to not take work home every day," recognizing that effective teaching also entails dedicating "the time to care for your body and mind". In addition, one teacher emphasized the importance of avoiding procrastination to create space for self-love when commenting to "love on yourself," one needs to "not procrastinate."

Moreover, these first-year teachers displayed increased kindness and self-forgiveness, understanding that the challenges they face in their teaching roles are not unique or personal to them. They acknowledged that teachers, like everyone else, are human and may occasionally fall short of their personal best, but they have the capacity for continuous

Including selfcare curricula for PSTs

improvement. One teacher explained, "Everyone struggles, not just you," while another stated the realization that "Not every lesson will be perfect," but "reflection is vital to bettering your practice." This finding implied an acceptance that challenges are inherent to all teachers' work, an understanding that they are not alone in experiencing them and the awareness that they have the skill set to overcome.

Furthermore, one graduate initially acknowledged the difficulty of setting boundaries in a real-world teaching environment. However, she emphasized the importance of staying connected with her cohort friends, recognizing the value of mutual support and accountability in prioritizing self-care when stating:

It is easier said from the outside than when I will be in the game. With that being said, I believe staying in touch with my cohort friends will aid to put each other in check and we can come together to do self-care.

This graduate's experience illustrated how an intentional focus on self-care during her first year of teaching has led her to prioritize and integrate self-care into her professional identity consistently. Overall, the data from these first-year teachers underscored the positive, long-lasting effects of the five-week self-care unit on their teaching identity and well-being, indicating the potential benefits of incorporating such a curriculum in teacher education programs.

Validity

In this study, achieving implementation validity carried substantial importance. Notably, the comprehensive participation of 77 preservice teachers in our research endeavors underscored the study's commitment to robust implementation validity. The fact that our entire preservice teacher population actively engaged in the study signified a meticulous effort to mitigate potential selection bias. This extensive participation not only bolstered the representativeness of our sample but also enhanced the credibility and reliability of our findings. This, in turn, enhanced the overall credibility of our study and reinforced the relevance of our findings within the specific context of preservice teacher education.

Significantly, we included additional data retrieved from 10 former preservice teachers enrolled as graduate students in the Master of Education program conducted at the research site. All 10 of these students willingly engaged in our research, further strengthening the implementation validity of our study. Their active engagement contributed valuable insights, introducing distinct experiential perspectives and specialized expertise into our research milieu. By incorporating the perspectives of these individuals who had completed the self-care unit of study, were currently teaching in the classroom and pursuing advanced degrees in education, we gained a comprehensive view that spanned both the preservice and graduate education phases. This not only enriched our findings but also underscored our dedication to inclusivity and thoroughness in our research design, further enhancing our study's overall validity and rigor.

Additionally, by integrating self-care into the course curriculum in such a comprehensive manner, implementation fidelity was upheld, ensuring that students had the opportunity to learn about self-care and actively incorporate it into their lives. This approach promotes the well-being of individual students and cultivates a culture of self-care within the educational setting, contributing to a healthier and more resilient learning community.

Finally, the choice of an explanatory sequential mixed methods study design demonstrated validity through its structured two-phase approach, allowing for a comprehensive understanding of the research inquiries. Using standardized instruments and established coding procedures further enhanced the transparency of the study, facilitating replication by other researchers. Additionally, including appendices with the Self-Care Assessment Quiz and clear descriptions of data analysis procedures provided transparency regarding the study's methods. By adhering to rigorous data collection,

analysis and documentation standards, the researchers ensured the validity and reliability of their findings, thereby contributing to the credibility of the study's conclusions.

Limitations

While this study provided valuable insights into the implementation and impact of a self-care unit within the context of elementary education majors at a mid-sized private university in the USA, it is essential to acknowledge its limitations. One notable limitation is the relatively homogenous sample, primarily consisting of White female participants. While this demographic composition reflects the broader gender and ethnicity breakdown within the US teacher population, it may limit the generalizability of our findings to more diverse settings or other regions with different demographic characteristics. Additionally, the study's focus on a single institution may restrict the applicability of the results to different educational contexts or institutions with varying program structures. It is essential to recognize that the findings, while insightful, may only partially capture the experiences and perspectives of a more diverse range of teacher candidates or institutions, warranting caution in extrapolating these results beyond the specific study context. Future research endeavors could consider broader sampling strategies to address these limitations and provide a more comprehensive understanding of self-care unit implementation in various educational settings.

Discussion

The purpose of this mixed-methods study was to explore the impact of a targeted five-week self-care curriculum on PSTs' well-being and ability to mitigate secondary trauma and the stressors inherent in teaching. Additionally, we aimed to evaluate the potential long-term implications of experiencing this curriculum for novice teachers. The first research question assessed the extent to which the experience of a focused self-care curriculum influenced PSTs' incorporation of self-care into their teaching practice. The second question aimed to capture PSTs' perspectives on the relationship between self-care and teaching. Lastly, the third research question examined the enduring effects of self-care instruction on novice teachers, specifically at the one-year post-graduation mark. By addressing these research questions, this study sought to shed light on the significance of including self-care curricula in TPPs and its potential to enhance the well-being and longevity of educators in the field.

Initially, the quantitative data indicated that a majority of PSTs were "seriously struggling with self-care," as evidenced by their pre-assessment responses, which included sentiments such as crying about school-related issues, working on weekends, self-doubt as teachers and dread of work. However, post-assessment results revealed a statistically significant improvement in their self-reported behaviors and attitudes related to self-care. These results suggest that the intervention had a positive effect on PSTs' well-being, leaving them likely to adopt self-care practices as an integral part of their teaching practice.

Additionally, qualitative insights from PSTs shed light on their evolving perceptions of the relationship between self-care and teaching. They recognized the need to prioritize health and mental wellness to be their personal best for their students, dispelling the notion that overworking equates to being a good teacher or student. The testimonials from course evaluations reinforced the significance of implementing self-care into their teaching practices, highlighting its indispensable role in maintaining their well-being.

Importantly, the PSTs' reflections and plans for setting boundaries during their initial years in the classroom demonstrated a proactive approach to embedding self-care into their teaching practice. Strategies such as leaving work at school, preserving personal interests and establishing clear boundaries with parents reflected their commitment to maintaining a healthy work-life balance.

Additionally, the insights gleaned from graduates in their first year of teaching provided valuable long-term implications for self-care instruction. These novice teachers exhibited increased kindness and self-forgiveness, acknowledging that the challenges they faced were not unique or insurmountable. Their recognition of the importance of self-care in teaching and the belief that it is acceptable not to take work home every day underscored the potential enduring impact of self-care instruction.

Including selfcare curricula for PSTs

Implications

The field of education is currently characterized by complexities and vulnerabilities that are likely responsible for the high attrition rate among qualified educators. Discussion into the critical teacher shortage our nation faces rarely proposes solutions to increase the retention rate and support the career trajectory of educators. Secondary trauma, combined with added stressors, requires us to respond accordingly. Findings from this study offer meaningful insights and substantial implications for the field of teacher education.

The results of this research demonstrate compelling justification for the inclusion of a five-week self-care intervention in TPPs and in the broader context of schools. The study underscores the importance of incorporating structured self-care curricula into TPPs as an essential professional development component. Preservice teachers benefited from the intervention in terms of improved well-being as a result of including self-care methods in their teaching practice, indicating that such programs should be a standard feature of teacher training. Equally important, schools should consider recognizing and promoting self-care practices among their teaching staff, emphasizing mental and emotional well-being. The study suggests that ongoing self-care support should be provided beyond university classrooms, as teachers are likely to face ongoing challenges in their careers. Suggestions include professional development opportunities, mentorship programs and creating a supportive school culture that prioritizes self-care as a means to enhance teacher effectiveness and overall job satisfaction.

Additionally, the findings confirmed the beneficial outcome that including a five-week self-care unit in a TPP had on the well-being of PSTs, ultimately influencing them as novice teachers. Consequently, the results suggest that well-being must be treated as a fundamental component of teacher preparation curricula, not as an auxiliary or optional topic. Such curricula equip future teachers with knowledge of the realities of teaching and skills to prioritize their personal health through self-care practices. As a result, teachers with less anxiety are more available to cultivate the teacher—student relationship that is at the core of effective teaching and learning.

Incorporating this unit of study toward the early stages of the TPP, ideally within the first one or two semesters, holds immense potential for PSTs. By introducing self-care strategies and practices at this early juncture, PSTs can gradually assimilate these essential tools into their professional toolbox, enabling them to reap the benefits of self-care throughout the entirety of their clinical experiences. As PSTs progress through their program, they become more immersed in real-world classroom settings, facing escalating demands and challenges. By instilling self-care habits at the outset, they are more likely to recognize the tangible advantages of incorporating self-care into their daily routines. This early exposure and prolonged application increase the likelihood that self-care practices will become an integral and enduring aspect of their professional lives, ultimately enhancing their overall well-being and effectiveness as educators.

The insights made by these PSTs after experiencing the self-care curriculum present significant implications for their career trajectories and, potentially, the broader issue of new teacher attrition. Their understanding of setting boundaries and prioritizing self-care not only contributes to their personal growth but also fosters a healthier, sustainable approach to

teaching. As they enter their careers, this heightened awareness and commitment to self-care may lead to reduced burnout rates, increased job satisfaction and, consequently, lower attrition rates among new teachers. By prioritizing their own well-being and implementing these strategies, these PSTs are positioning themselves for more successful and fulfilling teaching careers, which can positively impact the retention of new teachers in the education field.

By recognizing the importance of self-care as an integral part of teaching, the PSTs are empowering themselves with tools to navigate the first years of teaching. However, they were also acutely aware that when the reality of teaching full-time set in, they would need support to not "lose" themselves in the profession. Per their limited time in practicums, PSTs already knew that the outside world, unfortunately, would not come to their aid but rather, would "overlook" their dedicated time and effort as teachers. This is a problem. Teachers give of themselves tirelessly and expect little care or consideration in return. Thus, schools must design initiatives that promote self-care needs, including time management workshops, stress reduction techniques and discussions about maintaining work-life balance.

Finally, the results of this study underscore the pivotal role of collaboration between TPPs and partnership schools in successfully implementing future initiatives aimed at enhancing teacher well-being and, consequently, improving student outcomes. Such collaboration is essential, as it ensures that the initiatives are not only well-structured but also aligned with the practical needs and challenges faced by educators in classroom settings. Moreover, this collaborative approach fosters a sense of shared responsibility and a commitment to the overall improvement of education, aligning the interests of TPPs and partnership schools for the betterment of aspiring and practicing educators. In summary, this study highlights the need for a comprehensive approach to self-care support that extends from TPPs into the professional lives of educators, ultimately benefiting both teachers and the students they serve.

Future research

Future studies are needed to delve deeper into the specific obstacles preservice teachers and in-service teachers face when incorporating self-care, thus, allowing initiatives to better target these challenges. It is inherent that future research provides insight into the provision of effective programmatic content for PSTs and in-service teachers, structures, funding for including those supports and a plan for ongoing self-care support in the teaching profession. Research that includes the long-term outcomes of such self-care programs on teacher attrition will provide the impetus for the inclusion of self-care supports and training for both preservice and in-service teachers.

References

Association of Teacher Educators (2008). Standards for teacher educators. Available from: https://atel.org/standards-for-teacher-educators

Ballin, A. (2023). Embracing a trauma-sensitive approach: One school's transformative experience of creating equitable schooling. *Journal of Teaching and Learning*, 17(1), 93–110. doi: 10.22329/jtl. v17i1.7274.

Bedir, H. (2023). The burnout blues: Examining the causes and solutions for teacher burnout in education. *International Journal of Social Sciences & Educational Studies*, 10(3), 449.

Benson (2017). When teacher self-care is not enough. Educational Leadership, 75(4), 39-43.

Birch, & Ladd, G. W. (1997). The teacher-child relationship and children's early school adjustment. *Journal of School Psychology*, 35(1), 61–79. doi: 10.1016/S0022-4405(96)00029-5.

- Including selfcare curricula for PSTs
- Brown Freedle, A., Hurless, N. L., Miller, R. D., Martin, C., & Paul, Z. A. (2022). Preparing PSTs for trauma-informed practices. *Urban Education*, 57(4), 662–685. doi: 10.1177/0042085920974084.
- Brunzell, T., Waters, L., & Stokes, H. (2015). Teaching with strengths in trauma-affected students: A new approach to healing and growth in the classroom. *American Journal of Orthopsychiatry*, 85(1), 3–9. doi: 10.1037/ort0000048.
- Burkman, A. (2012). Preparing novice teachers for success in elementary classrooms through professional development. *International Journal for Professional Educators*, 78(3), 23–34.
- CAEP standards (2022). Council for the accreditation of educator preparation. Available from: https://caepnet.org/standards/2022-itp/introduction (accessed January 25 2024).
- Carver-Thomas, & Darling-Hammond, L. (2019). The trouble with teacher turnover: How teacher attrition affects students and schools. *Education Policy Analysis Archives*, 27(1), 36–41. doi: 10. 14507/epaa.27.3699.
- Council for the Accreditation of Educator Preparation (2013). CAEP accreditation standards. Available from: https://caepnet.org/~/media/Files/caep/standards/caep-2013-accreditation-standards.pdf
- Crosby, S. D. (2015). An ecological perspective on emerging trauma-informed teaching practices. *Children & Schools*, 37(4), 223–230. doi: 10.1093/cs/cdv027.
- Denzin, N. K. (2012). Triangulation 2.0. Journal of Mixed Methods, 6(2), 80–88. doi: 10.1177/ 1558689812437186.
- Diliberti, M., Schwartz, H., & Grant, D. (2021). Stress topped the reasons why public school teachers quit, even before COVID-19. RAND Corporation.
- Erben, T., Franco, Y., Bryant, E., & Vicentini, C. (2023). Surviving the pandemic: Inspirational stories of resilience, passion, growth & success of the Florida ESOL community Learning to move forward. SSTESOL Press.
- Everly, G. S. Jr., Lating, J. M., Gravitz, M. A., Page, R. A., Noel, J. M., Curtis, J. L., . . . Rosch, P. J., & (Collaborators) (2013). *A clinical guide to the treatment of the human stress response* (3rd ed.). Springer Science + Business Media.
- Feiman-Nemser, S. (2001). From preparation to practice: designing a continuum to strengthen and sustain teaching. *Teachers College Record*, 103(6), 1013–1055. doi:10.1111/0161-4681.00141.
- Field, A. (2018). Discovering statistics using IBM SPSS statistics (5th ed.). Sage.
- Forst, S. (2020). The teacher's guide to self-care: Build resilience, avoid burnout, and bring a happier and healthier you to the classroom. *The Designer Teacher*.
- Fowler, M. (2015). Dealing with compassion fatigue. The Education Digest, 81(3), 30-35.
- Franco, Y. (2015). Novice teachers' stories of solving problems of practice. Doctoral dissertation. Proquest: University of South Florida.
- Goldberg, E. (2021). As the pandemic upends teaching, fewer students want to pursue it. *The New York Times*. Available from: https://www.nytimes.com/2021/03/27/us/covid-school-teaching.html
- Hendershott, D., & Hendershott, J. (2020). Supporting the wounded educator: A trauma-sensitive approach to self-care. Routledge. doi: 10.4324/9781003000181.
- Ingersoll, R. M., & Tran, H. (2023). Teacher shortages and turnover in rural schools in the US: An organizational analysis. *Educational Administration Quarterly*, 59(2), 396–431. doi: 10.1177/0013161x231159922.
- Kuebel, C. (2019). Health and wellness for in-service and future music teachers: Developing a self-care plan. Music Educators Journal, 105(4), 52–58. doi: 10.1177/0027432119846950.
- Laerd Statistics (2021). Statistical test selector. Available from: https://statistics.laerd.com/premium/index.php
- McCaughtry, N., Cothran, D., Kulinna, P. H., Martin, J. J., & Faust, R. (2005). Teachers mentoring teachers: A view over time. *Journal of Teaching in Physical Education*, 24(4), 326–343. doi: 10.1123/jtpe.24.4.326.

- McKay (2019). Supporting intentional reflection through collage to explore self-care in identity work during initial teacher education. *Teaching and Teacher Education*, 86(2), 102920. doi: 10.1016/j. tate.2019.102920.
- McMakin, Ballin, A., & Fullerton, D. (2022). Secondary trauma, burnout, and teacher self-care during COVID-19: A mixed-methods case study. *Psychology in the Schools*, 60(5), 1442–1458. doi: 10. 1002/pits.22764.
- Miller, K., & Flint-Stipp, K. (2019). Teacher candidate burnout: Secondary trauma and self-care issues in teacher education. Issues in Teacher Education, 28(2), 28–45.
- National Association of Professional Development Schools (2021). What it means to be a professional development school: The nine essentials (2nd ed.). [Policy statement]. Available from: https://napds.org/nine-essentials/
- National Research Council (2010). Committee on the study of teacher preparation programs in the United States. Available from: http://www.nap.edu/catalog/12882.html.
- Northwest Association of Educational Assessment (2104). *Make assessment matter*. Available from: https://www.nwea.org/uploads/2014/05/MakeAssessmentMatter_5-2014.pdf
- Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. Health Services Research, 34(5), 189–208.
- Saldana, J. (2013). The coding manual for qualitative researchers. Sage Publications.
- Salkind, N., & Frey, B. (2020). Statistics for people who think they hate statistics. Sage.
- Schmidt, J., & deCourcy, K. (2022). The pandemic has exacerbated a long-standing national shortage of teachers. Economic Policy Institute. Available from: https://www.epi.org/publication/shortage-of-teachers/
- Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2019). Understanding teacher shortages: An analysis of teacher supply and demand in the United States. *Education Policy Analysis Archives*, 27(35), 1–36. doi: 10.14507/epaa.27.3696.
- Sutton, R. E. (2007). Teachers' anger, frustration, and self-regulation. In P. A. Schutz, & R. Pekrun (Eds.), *Emotion in education* (pp. 251–266). Academic Press.
- World Health Organization (2022). Self-care interventions for health. Available from: https://www.who.int/news-room/fact-sheets/detail/self-care-health-interventions#:~:text=WHO's%20definition%20of%20self%2Dcare,support%20of%20a%20health%20worker
- Zamarro, G., Camp, A., Fuchsman, D., & McGee, J. (2021). Understanding how COVID-19 has changed teachers chances of remaining in the classroom. Education Reform Faculty and Graduate Students Publications. Available from: https://scholarworks.uark.edu/edrepub/127

Further reading

- Clandinin, J. D., & Connelly, F. M. (2000). Narrative inquiry: Experience and story in qualitative research. Jossey-Bass.
- Dietrich, L., Zimmerman, D., & Hoffman, J. (2020). The importance of teacher-student relationships in classrooms with 'difficult' students: A multi-level moderation analysis of nine Berlin secondary schools. European Journal of Special Needs Education, 36(3), 408–423. doi: 10.1080/08856257. 2020.1755931.
- Etter Madhavan, A., & Lindquist, E. (2021). Fostering clinical and academic faculty collaborations to improve graduate education. *Teaching and Learning in Communication Sciences and Disorders*, 5(2), 1–5. doi: 10.30707/TLCSD5.2.1624983591.697369.
- Florida Association of Teacher Educators (2017). Corporate bylaws of the Florida Association of Teacher Educators. Available from: http://www.fatel.org/wp-content/uploads/2017/12/FATEBylawsrevisedfall2017-1.pdf

Johnson, S. M. (2004). Finders and keepers: Helping new teachers survive and thrive in our schools. Jossey-Bass.

Morrison, G. R., Ross, S. M., Morrison, J. R., & Kalman, H. K. (2019). *Designing effective instruction*. John Wiley & Sons.

Patterson, M. (2005). Hazed!. Educational Leadership, 62(8), 20-23.

Potter, H. T., & Coyne, J. (2016). Strengthening collaboration for successful field experiences. *Cogent Education*, 3(1), 1–30. doi: 10.1080/2331186X.2016.1226561.

Including selfcare curricula for PSTs

Appendix

	Rarely/ Never	Sometimes	Often
I see non-work friends at least once a week	0	1	2
I make time for my hobbies	0	1	2
I have enough time to spend with my family	0	1	2
I find my job satisfying	0	1	2
I feel good about myself	0	1	2
I get enough sleep	0	1	2
I say no to responsibilities I don't think I can handle	0	1	2
I exercise several times a week	0	1	2
My job feels manageable	0	1	2
I stay home from work when I'm sick	0	1	2
I schedule and go to my needed medical appointments	0	1	2
I have trouble falling asleep because I am worrying about school	2	1	0
I stay at work for more than an hour after school ends or spend more than an hour working at home on weeknights	2	1	0
I cry about school-related issues	2	1	0
I do schoolwork on both Saturday and Sunday	2	1	0
I don't feel like I am a good enough teacher	2	1	0
I dread going to work	2	1	0
I feel irritable more often than I used to	2	1	0
I'm exhausted	2	1	0
I feel guilty when I'm not working Source(s): Forst (2020)	2	1	0

Corresponding author

Heather Bailie Schock can be contacted at: hschock@ut.edu