

Teacher Perceptions of Administrator Actions in COVID-19 and Its Impact on Emotional Exhaustion: A Moderation Analysis of Teacher Self Efficacy

Abstract

School districts, administrators, and teachers faced an unprecedented challenge as schools closed due to COVID-19. SBAE teachers were no exception to this and faced the unique challenge of teaching technical content through virtual platforms. The purpose of this study was to explore SBAE teacher emotional exhaustion amid the shared trauma of the COVID-19 pandemic. This study examined emotional exhaustion, teacher self-efficacy, technological pedagogical content knowledge (TPACK), and perceived supportive actions from administration in Ohio SBAE teachers. Paired samples t-tests indicated increases in emotional exhaustion – with a medium effect size in participants from spring to autumn of 2020. A serial multiple mediator model indicated supportive administrator actions significantly predicted TPACK and emotional exhaustion, while TPACK significantly predicted teacher self-efficacy at the time of measurement. Within the mediation model, no significant indirect effects were found. Further research should examine the factors behind administrative support for teachers to help mitigate emotional exhaustion in the teacher population.

Keywords: Emotional exhaustion, teacher self-efficacy, technological pedagogical content knowledge, administrator actions, COVID-19, teacher stress

Introduction

Ohio, like every other state, had its typical K-12 learning environment thwarted in March 2020. What started as a three-week break turned into not returning to school until the spring of 2021. During this time, Ohio School-Based Agricultural Education (SBAE) teachers experienced challenges delivering content through remote platforms. The pedagogical method most difficult to deliver through a remote platform was the hands-on learning for which Career and Technical Education (CTE), and more specifically SBAE, for which it is known (Clark et al., 2010). Hands-on learning, prior to this, had typically not been offered through video conferences and other virtual learning platforms. However, a few of the shifts to online learning had been utilized by teachers previously with research to support and guide the decisions teachers and administrators made during this time (Kiray, 2016). Specifically, the shift from lecture and modeling-based instruction to integrating technology had been explored through research (Kiray, 2016). The systematic changes to shift instruction online were only some of the novel facets of this public health crisis. The other piece of the crisis was the trauma (Griffin, 2020) each community was experiencing while these decisions were being made.

Impacts of the COVID-19 pandemic were further complicated due to the ongoing status of the pandemic, the ever-changing policies, and procedures. However, one of the most novel characteristics impacting the outcomes surrounding the COVID-19 pandemic was the individuality of the circumstances facing each person. Further, the barriers and challenges teachers faced were incredibly unique and based on each individual school, school district, community, county, and state. These were important considerations as they related to the development of this study.

Teachers have been studied for a considerable period of time regarding their experience within the profession, and school-based agricultural education (SBAE) teachers are no exception. However, due to the novelty of the shared trauma of the COVID-19 pandemic (Griffin, 2020), there is a lack of research examining teachers' experiences during such an event. Due to the manifested consequences of the COVID-19 pandemic, we determined the following theoretical concepts were appropriate to evaluate as a part of this study: emotional exhaustion (EE), technological pedagogical content knowledge (TPACK), teacher self-efficacy (TSE), and supportive actions by administrators (SAA).

The connections among EE, TPACK, TSE, and SAA and the experiences of SBAE teachers during the COVID-19 pandemic were of interest to establish the impact of the pandemic on those aspects of their teaching experiences. EE is associated with feelings of overall fatigue related to burnout (Maslach, et al., 1996). TPACK is associated with confidence in knowing how to present knowledge to students (Mishra & Kohler, 2006). TSE represents teachers' confidence in their ability to be effective in instructing students (Tschannen-Moran & Hoy, 2001). Administrative support has been suggested to be essential in making teachers feel more supported in their profession amid COVID-19, and lack of support has been seen as a predictor of burn-out (Pressley, 2021). Given the limited research available regarding teacher experiences in the COVID-19 pandemic, these constructs were determined the most impactful to examine within the experiences of SBAE teachers because existing research supports these relationships from before the 2019-2020 school year. These constructs were selected because of their level of importance for teaching during the pandemic, being comfortable in their ability to teach their students, feeling comfortable teaching about their content in the online modality selected by their school district, observing good morale in their profession, and feeling supported by their school administrators.

The novel issues faced by SBAE teachers during the pandemic were a priority area of research during 2020. At the time this research was conducted, there was no clear picture of the experiences of SBAE teachers. As the research conducted during that time becomes published and disseminated, the findings will begin to tell the story of the pandemic through the lens of agricultural education, including both SBAE teachers and students. A study focused on SBAE teachers explored the specific challenges that posed the most problematic situations for them during the pandemic, which included both written and verbal communication to students and parents, advising and planning FFA activities, managing program facilities and activities, maintaining supervised agricultural experiences (SAEs), student motivation, technology and internet usage, and work-life balance (McKim et al., 2021).

More generally, SBAE teachers expressed their initial dissatisfaction stemming from extremely specific parts of the pandemic experience including school operation changes, the required changes imposed on their program activities, and the negative impact the changes had on teacher well-being (Easterly et al., 2021). McKim and Sorensen (2020) found the pandemic caused several shifts to the SBAE teacher role in both professional and personal roles resulting in a *work domain decline* and a *job satisfaction slump* for the teachers. This meant SBAE teachers saw a decrease in the presence of their work roles and decreased satisfaction in their jobs as well. Whereas further research demonstrated SBAE teachers were aware of and used school-approved synchronous online instruction tools and applications during the periods of school closure, the

level of comfort with those tools varied among participants (Eck, 2021). These recently published studies have begun to help us gain further understanding of the impacts the pandemic had within SBAE program; however, the long-term impacts and the continued research will help us to gain even more understanding in the future.

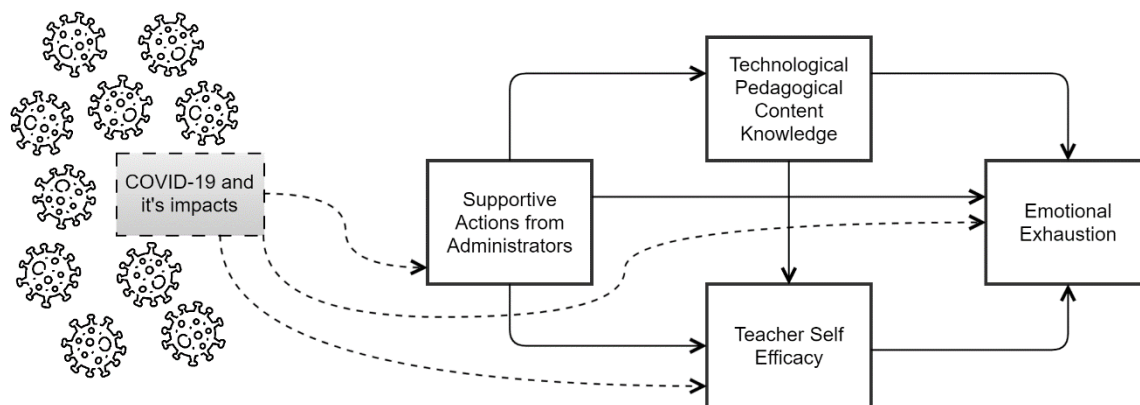
This study adds to the existing literature by providing a better understanding of the SBAE teacher experience during the COVID-19 pandemic. The study provides clarity in areas that have yet to be discussed about the SBAE teacher experiences, which include EE, TSE, TPACK, and SAA. This study also helps us learn about the novel experiences teachers had in 2020. This information will help inform practices within the profession to retain and support teachers in the profession as the pandemic continues.

Theoretical/Conceptual Framework

We explored the impacts of the COVID-19 pandemic on SBAE teachers through the lens of EE, while examining TSE, TPACK, and SAA through the pandemic; the conceptualized relationship among these four variables can be found in Figure 1. Maslach, et. al. (1996) defined EE as the feeling of emotional and physical fatigue revealing low energy and attributes to burnout. The psychologically drained teacher lacking emotional resources is not able to perform job capabilities and will show signs of EE (Maslach, et al., 1996). Signs of EE include the development of reduced personal accomplishment, feelings of excessive demands from a lack of resources, all of which lead to the coping mechanism of cynicism (Alarcon, 2011) and depersonalization (Maslach, et al., 1996).

Figure 1

Conceptualized Relationship among the Four Variables of Interest in this Study



Teacher EE can be mitigated when a teacher believes in their competence and ability to successfully teach content through instruction, otherwise known as TSE (Tschannen-Moran & Hoy, 2001). TSE is born from self-efficacy (Bandura, 1977, 1997), the internal belief of capacity to be successful. This is essential for individuals to set goals, plan logistics, and complete tasks relating to any of their own abilities and is connected to, academic performance, motivation, and a desire to succeed (Pajares, 1996). Some external supports considered influential for TSE and EE

include support from others and professional development as a mode of shifting professional knowledge (Croom, 2003; Maslach, et. al, 1996; McKim & Velez, 2016). Administrative support has specifically been ranked in the past as the most prominent issue facing SBAE teachers (Boone & Boone, 2007), and has been shown to be a component of job satisfaction impacted by COVID-19 (McKim & Sorensen, 2020). This indicates administrative support may be influential to TSE and EE as it pertains to SBAE teachers.

Finally, the pedagogical integration of technology into the virtual delivery of instruction presented a new challenge for teachers during COVID-19 and was arguably a vital piece to the success of teachers transitioning away from traditional classroom instruction. An SBAE teacher's competence in the unification of distance learning and SBAE curriculum should include TPCK. Developed by Mishra and Koehler (2006), the TPACK framework was designed to clarify teachers' technology perceptions and integration into content knowledge, pedagogy, and curriculum.

This study aims to provide insight into teachers' perceptions prior to and during the COVID-19 pandemic, and to map EE, TSE, and TPACK in relation to administrative support during the COVID-19 pandemic. By examining the perceptions provided by SBAE teachers, we hope to provide insight into the impact that TSE, TPACK, and EE had on teachers as they experienced COVID-related challenges between the spring and fall of 2020. More broadly, this study also tests the connection supported between TSE and among these variables under a pandemic condition (Skaalvik & Skaalvik, 2014).

Purpose and Objectives

The purpose of this study was to examine if school district administration responses to the COVID-19 pandemic impacted levels of EE in SBAE teachers when accounting for TSE and TPACK. By examining social dynamics in human and life sciences and fostering healthy living this research aligns with the AAAE research values (AAAE, 2023). This study was guided by the following objectives:

1. Describe how Ohio SBAE teachers perceived support from their administrators through the COVID-19 pandemic.
2. Describe Ohio SBAE teachers' current TSE, EE, *retrospective* EE, and TAPCK.
3. Compare EE levels in February 2020 to levels in November 2020.
4. Describe the relationship between administrator supportive actions and emotional exhaustion, using TSE and TPACK as mediators.

Methods

This study's population was SBAE teachers who had, at a minimum, two years of teaching experience in Ohio during the Spring 2020 of the initial COVID shutdown. At this time, participants would have experienced a full year of "Pre-COVID" teaching. The target population was identified from the Ohio SBAE teacher directory ($N = 499$). For this population size, Krejcie and Morgan (1970) recommend a sample of 217, thus a random sample of this size was drawn from the Ohio SBAE teachers identified above. This approach was confirmed to be appropriate for scaled data per the examples given in the original small-samples techniques bulletin published by the National Education Association Research Division (NEA, 1960).

We created and validated a summated rating scale designed to assess teacher perceptions of administrator support amid COVID-19 school shutdowns. Items related to administrative support were drafted into an item pool that sought to describe a variety of potential support given to teachers by administration (e.g., “after the COVID shutdown, my administration communicated clearly to teachers”). The item pool was then evaluated by the researchers, removing items relatively unimportant or unintentionally duplicated others, resulting in 28 items. We measured on a five-point response scale with anchors reading from *not at all* to *a great extent*. The instrument was then submitted for feedback to a panel of experts in the field of Agricultural Education ($n = 6$) who provided feedback on item wording and added 6 additional potential items to the item pool, resulting in a total of 34 items. After expert recommendations and edits were implemented, the instrument was distributed via Qualtrics software in a pilot study to 102 Illinois SBAE teachers and garnered a response rate of 53% ($n = 54$). Results were then analyzed using SPSS v. 26. We found no outliers; next, we conducted a principal factor analysis, examining the factorability of all 34 items using principal axis factoring as the extraction method with a direct oblimin rotation. Initial factor analysis indicated desirable Kaiser-Meyer-Olkin and Bartlett’s calculations, indicating sampling adequacy (Field, 2018). Upon initial analysis, every item contained a factor loading of at least .33, falling between Comrey and Lee’s (1992) designations for “poor” ($< .32$) and “fair” (.45 - .54). The initial factor matrix extracted eight factors with eigenvalues greater than one, but upon further examination the scree plot indicated a point of inflection at factor three, indicating the final analysis should result in two extracted factors.

Following the first iteration of the factor analysis, items were removed from the pool one by one based on 1) having the lowest factor loading, and 2) loading into multiple factors, or some combination of these two criteria. After removing 17 items, the final factor analysis indicated two primary factors where all items indicated factor loadings of at least “good” ($> .55$) (Comrey & Lee, 1992). This final iteration indicated a KMO value of .79 and extracted two factors accounting for 62.58% of the total variance. All final items can be found in Table 1.

Table 1

Results From Factor Analysis of Administration Response to COVID-19 Questionnaire (N = 54)

Item	Factor Loading	
	1	2
<i>All items begin with “After the COVID shut down, my administration...”</i>		
Factor 1: Supportive Actions ($\alpha = .950$)		
- communicated clearly to teachers	.91	
- communicated clearly to students	.89	
- supported teachers	.89	
- reminded me to focus on personal wellness	.87	
- reminded me to focus on self-care	.86	
- communicated clearly to parents	.81	
- expected high levels of teacher well being	.80	
- was quick to respond to issues that arose in the shutdown	.76	
- expected teachers to put their health first	.76	
- expected high levels of teacher self-preservation	.70	
- expected teachers to complete tasks outside of their capabilities (R)	.66	
- encouraged me to have patience with students	.60	

Factor 2: Supportive Expectations ($\alpha = .796$)

- expected teachers to work at the school (R)	.80
- expected teachers to work from home	.69
- expected high academic results (R)	.60
- expected teachers to use school internet access (R)	.60
- expected teachers to give leniency in grades	.58

Note. Reverse-scored items denoted with (R). Bold factor loadings denote “good” or above ($> .55$) (Comrey & Lee, 1992).

Factor one, accounting for 47% of total variance, consisted of 12 items, all consisting of “very good” (.63-.69) or “excellent” ($\geq .7$) factor loadings (Comrey & Lee, 1992). This factor contained items all indicating actions that administrators would do; thus, it was named the “supportive actions scale” and yielded a desirable Cronbach’s alpha of .95 (Carmines & Zeller, 1979). A mean score was calculated and was slightly above the mid-point of the scale for pilot participants, indicating that administrators moderately supported SBAE teachers ($M = 3.38$, $SD = .93$).

Factor two, accounting for 15.58% of the total variance, consisted of five items, with a range of factor loadings from .58 to .80. This factor contained items all indicating actions that administrators would *expect* from SBAE teachers; thus, it was named the “supportive expectations scale” and calculated a desirable Cronbach’s alpha of .796. Descriptive statistics indicated administrators had substantial rates of supportive expectations of teachers’ duties, particularly when it came to lowering what some would consider “traditional” teaching expectations related to work location and grading student work ($M = 4.10$, $SD = .84$).

While both the *supportive actions* scale ($\alpha = .95$) and the *supportive expectations* scale ($\alpha = .796$) yielded Cronbach’s alpha calculations above .70 in the pilot study (Carmines & Zeller, 1979; Nunnally & Bernstein, 1994), supportive actions (SAA) calculated an alpha below .70 in the study sample, thus administrative expectations, while included on the full study instrument, were not included for further analyses.

The remainder of the instrument for this study used summated rating scales from previously published studies measuring TSE ($\alpha = .90$) (Tschannen-Moran & Hoy, 2001), EE ($\alpha = .95$) (Maslach et al., 1996), and TPACK ($\alpha = .95$) (Kiray, 2016). The EE scale was used twice – once to measure present levels, and again asking teachers to reflect and report what they felt their answers were 8 months earlier, before their schools closed due to COVID-19. All study scales from our sample yielded Cronbach’s alphas of .92 or greater, well above the minimum of .70 to be considered reliable.

This study used a quantitative cross-sectional survey design. The questionnaire was hosted by Qualtrics and distributed via email according to the tailored design method for online-only questionnaires (Dillman et al., 2014). The original distribution was followed by six reminders, resulting in a response rate of 25% ($n = 54$). Non-response error was addressed by distributing a second survey to a random sample of 15% of non-respondents ($n = 24$) (Dooley & Lindner, 2003; Lindner et al., 2001; Miller & Smith, 1983). We used independent-samples *t*-tests to compare non-respondents to respondents on all study variables and found no differences ($p > .05$). Results were

thus considered generalizable to the population. The data from the non-respondents were combined with data from the earlier respondents, resulting in an overall response rate of 36% ($n = 78$). From these responses, the average participant in this study was 39 years old ($M = 38.67$, $SD = 9.89$), had taught for 13 years ($M = 12.67$, $SD = 8.56$), and had participated in 26 hours of instructional technology professional development ($M = 26.33$, $SD = 28.2$).

We calculated descriptive statistics for objectives one and two, which sought to describe SBAE teachers' SAA, TPACK, EE, and TSA. For objective three, we used paired samples t -tests to measure pre and post EE of SBAE teachers after all assumptions for t -tests were confirmed to be met by the data (Field, 2018). Finally, to address objective 4, the SPSS add-on program PROCESS (Hayes, 2018) was used to run ordinary least squares regression procedures to estimate direct and indirect effects within the conceptual model. All assumptions were met for the above statistical procedures and were conducted using SPSS v. 27.

Findings

Objective one was to describe how Ohio teachers perceived SAA amid the COVID-19 pandemic. This objective was assessed through descriptive statistics that indicated participants felt their administration showed supportive actions just over the halfway mark of the five-point scale ($M = 3.30$, $SD = 1.04$). However, while study participants also indicated similar levels of supportive expectations ($M = 3.10$, $SD = 1.22$). This scale calculated a lower alpha ($\alpha = .68$) indicating that it was unreliable with this sample, and thus removed from further analyses. Participants exhibited a range of summated values of the entire length of the scale from 1 – *not at all* to 5 – *a great extent* for each of the two variables. Thus, it should be noted that participants had a wide variety of experiences during COVID-19 school closures as it pertains to administration support and expectations. Summarized results from these scales can be found in Table 2.

Table 2

Psychometric Properties for Study Scales (N = 54)

	n^d	M	SD	Range	Cronbach's α
Technological Pedagogical Content Knowledge ^a	5	3.5	.67	1.71 – 5	.93
Current Emotional Exhaustion ^b	9	3.94	1.44	1.22 – 6.89	.94
Past Emotional Exhaustion ^b	9	3.27	1.43	1.22 – 7	.96
Teacher Self Efficacy ^c	12	6.63	.98	3.33 – 8.67	.92
Admin Supportive Actions ^a	12	3.30	1.04	1 – 5	.93
Admin Supportive Expectations ^a	5	3.10	1.22	1 – 5	.68

Note. ^a 5-point response scale; ^b 7-point response scale; ^c 9-point response scale; ^d number of summated items to provide the scale

Objective two was to describe TSE, current and *retrospective* levels of EE, and TPACK of Ohio Teachers, the summaries of which can be found in Table 2. On a nine-point scale ranging from 1 – *None* to 9 – *A Great Deal*, participants reported *Quite a Bit* of TSE ($M = 6.63$, $SD = .98$) indicating they felt quite confident in their ability to accomplish a variety of tasks related to teaching. On seven-point scales, measuring the frequency of symptoms of emotional exhaustion

from 1 – *never* to 7 – *every day*, participants indicated averages for both measures that fell within the category of *moderate* emotional exhaustion ($M = 2.89$ to 4) with *retrospective* levels ($M = 3.27$, $SD = 1.43$) scoring lower than present levels ($M = 3.94$, $SD = 1.44$). Finally, on a 5-point scale ranging from 1 - *I don't know at all* to 5 - *I know very well*, participants indicated they have moderate levels of TPACK ($M = 3.50$, $SD = .67$), indicating participants felt fairly confident about their use of learning technology alongside their pedagogy skills and content area knowledge when teaching.

Objective three sought to compare participant EE levels from before school closings and at the time of the study. To accomplish this, a paired samples *t*-test was conducted, indicating that pre-COVID EE was significantly lower than current EE levels, showing a medium effect size, $t(73) = 5.74$, $p < .001$, $d = .67$ (Cohen, 1977). These results are summarized in Table 3.

Table 3

Paired Samples t-test results comparing emotional exhaustion levels.

	Time	<i>M</i>	<i>SD</i>	<i>t</i> -cal	<i>df</i>	<i>p</i>	<i>d</i>
Emotional Exhaustion	Pre-COVID	3.26	1.45	5.74	73	< .001	.67
	Current	3.97	1.41				

Objective four was to describe the relationship between SAA and current EE, using TSE and TPACK as mediators. To examine this relationship, a serial multiple mediator model was used within the PROCESS add-on to SPSS to analyze the relationships between the study variables, the results of which can be found summarized in Table 4. While no significant indirect effects were found, Supportive Administration Actions served as a significant predictor for both TPACK, $\beta = .21$, $p < .001$; and current emotional exhaustion, $\beta = -0.57$, $p = .001$. Additionally, TPACK served as a significant predictor for teacher self-efficacy, $\beta = .63$, $p < .001$. Other than these three direct interactions, no other significant relationships between variables were found, but all model direct effects can be found summarized in Table 3 and visualized over our theoretical framework in Figure 2. This final mediation regression model calculated an R^2 value of .19, indicating about 19% of variance in participant emotional exhaustion can be accounted for via the three analyzed variables.

Table 4

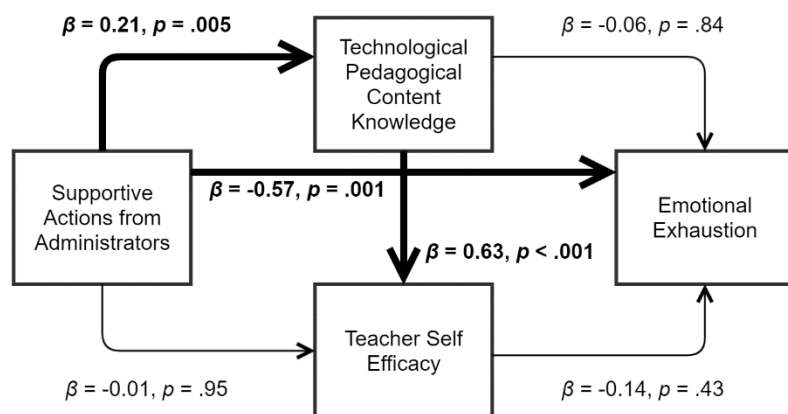
Regression values of study variables using SPSS Process (Hayes, 2018).

Predictor	β	SE	<i>t</i>	<i>p</i>	95% CI
Tech. Pedagogical Content Knowledge as outcome variable; $R = .33, R^2 = .11$					
Admin Actions***	.21	.074	2.9	< .001	[.07, .36]
Teacher Self Efficacy as Outcome Variable; $R = .41, R^2 = .17$					
Admin Actions	-.007	.114	-0.06	.95	[-.24, .22]
TPACK***	.63	.18	3.56	< .001	[.28, .98]
Current Emotional Exhaustion as outcome variable; $R = .43, R^2 = .19$					
Admin Actions**	-.568	.165	-3.44	<.001	[-.9, -.24]
TPACK	-.065	.28	-0.20	.84	[-.61, .5]
TSE	-.14	.18	-0.79	.43	[-.49, .21]

Note. ** $p < .01$, *** $p < .001$

Figure 2

Serial multiple mediator model indicating direct relationships between study variables from conceptual framework.



Note. **Bold** figures and arrows indicate significant relationships, $p < .05$. No significant indirect effects found.

Conclusions, Implications, and Recommendations

Teachers indicated administrators, overall, provided support amid the shared, chronic trauma of the COVID-19 pandemic with the mean score sitting slightly above “neutral” in response to the scale questions ($M = 3.30, SD = 1.04$). While not overly positive, this is promising as administrative support has been ranked in the past as the most prominent issue facing SBAE teachers (Boone & Boone, 2007), and has been shown to be a component of job satisfaction impacted by COVID-19 (McKim & Sorensen, 2020).

Ohio SBAE teachers perceived they experienced high levels of TSE and moderate levels of TPACK in November 2020, eight months after initial school closures; while responding teachers also possessed moderate (as defined by Maslach et al., 1996) levels of EE at both points. This conclusion was supported by prior research that has demonstrated teacher comfort with technology was impactful on their overall feelings of frustration during this time (Eck, 2021). As the COVID-19 pandemic is likely still impacting the TSE and TPACK levels of the teachers involved, given the changing policies and procedures over time, further research should be conducted late in the pandemic and after the pandemic to see if the levels are stable or continue to shift. Additionally, seeking further information about what experiences and sources have been most impactful during the shifts the SBAE teachers have felt in TSE and TPACK.

Teachers possessed a significantly higher EE score in late fall of 2020 than they had before March 2020. Teachers' EE increased over the first eight months of the pandemic, and this finding supports earlier research showing that the unprecedented shift in aspects of their professional life impacted teacher beliefs in their professional abilities and their job satisfaction (McKim & Sorensen, 2020). Future research should continue to examine the ongoing changes in EE that SBAE teachers might be experiencing as the COVID-19 pandemic continues to be a meaningful factor in the operations of our schools and school-related activities.

There were three significant relationships among study variables. SAA had a significant impact on teacher TPACK and EE, and teacher TPACK had a significant impact on TSE, which can be found in Figure 2. One relationship that did not result in a significant finding was that of TSE and its effect on EE. While this relationship did carry a small negative coefficient, our findings did not support previous literature that supported this relationship (Friedman, 2003; Schwarzer & Hallum, 2008; Skaalvik & Skaalvik, 2014). This indicates while this may be an important relationship, the effects of the COVID-19 pandemic may mitigate the role TSE has in preventing EE. Our findings were reinforced by literature from previous studies. Because teachers experienced stressors that led to relationship shifts between EE, TSE, SAA, and TPACK. This very quick shift caused strain on all teachers, including the availability to technology, devices, and skills, which would have an impact on their TSE, EE, and TPACK levels (Kiray, 2016; Tschannen-Moran & Hoy, 2001). Another impactful variable that could explain these shifts in teacher levels of EE, TSE, SAA, and TPACK could be due to the trauma experienced communally in their local community, school building, and school district (Griffin, 2020). Additionally, future researchers might consider exploring the relationships explored in this study; as the pandemic continues to be impactful for SBAE teachers and programs, the relationships might continue to change.

The COVID-19 pandemic continues to impact SBAE teachers' levels of emotional exhaustion, so we recommend further research seeking to uncover how SBAE teachers have coped with this collective trauma, and what sources of support exist for them outside of their administration, if any. Although there is a small collection of research regarding the overall experience of SBAE teachers during the COVID-19 pandemic thus far, there are still many areas left to explore. Further research should be conducted in the areas of job satisfaction; and the shift of personal and professional roles of SBAE teachers during COVID (McKim & Sorensen, 2020; Sorensen, 2020). These studies should consider focusing directly on the challenges that CTE administrators, other school administrators, and SBAE teachers face, as well as their perceptions

surrounding the COVID-19 shutdown and transition to online learning, in addition to the continued stressors caused by the pandemic.

Eck (2021) explored the comfort of SBAE teachers with technology during the COVID-19 pandemic. Thus, researchers who seek to continue research in this topic could include the long-term impacts of this technological experience on learning in the classroom. Additionally, research could be conducted to examine if teachers' use of technology changes after relying on technology in their classrooms for the length of the pandemic. Research following the 'end' of the pandemic should consider exploring the interest of SBAE teachers in professional development centered around technology. One final research recommendation regarding the technology impacts of the COVID-19 pandemic could include access to the internet and school-owned devices because of the shift to online learning, and how the presence or lack thereof could contribute to teacher and student motivation and efficacy.

Research should also be conducted surrounding additional characteristics of the work environment may have influenced teacher EE and TSE over the COVID pandemic. Some research has focused on the role shifts for SBAE teachers (McKim & Sorenson, 2020), but research into how those shifts have impacted their EE and TSA specifically would be valuable in understanding how to positively influence these phenomena for SBAE teachers during the school year. Finally, it is recommended further research should examine the factors behind SAA for teachers to help mitigate EE in the teacher population. The intentional examination of the actions school administrators can take to have impactful support for SBAE teachers is important, even outside of the COVID-19 pandemic. Anecdotally, all teachers can attest to the importance they attach to experiencing support from their school administrators. Therefore, intentional research into the perceptions of both CTE administrators/ supervisors of SBAE teachers on the phenomenon of SAA would be beneficial.

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