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Momentary Affective Experiences of Teachers Serving Students With Emotional and Behavioral Disabilities in Self-Contained Settings

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Abstract

Emotions play an important role in the work of teachers serving students with emotional and behavioral disabilities (EBD), yet little is known about teachers' momentary affective experiences. In this study, we collected 710 surveys regarding momentary affect from 14 teachers of students with EBD. We used descriptive analysis and variance decomposition to examine the frequency, intensity, and variability of these experiences. We then tested a series of models to explore how specific professional activities relate to teachers' momentary affect. We found that teachers experienced positive affect more frequently and intensely than negative affect and that large proportions of the variation in positive and negative affect can be attributed to variation within individual teachers across time points. For these teachers, engaging in discipline was significantly associated with a higher negative affect, whereas engaging in instructional activities was associated with a higher positive affect. We discuss implications for researchers and practitioners.

Keywords

emotional and behavioral disorders, quantitative research, elementary, teachers

Approximately 353,000 students ages 3 to 21 years in the United States receive special education services under the emotional disturbance eligibility category, roughly one-third of them in self-contained settings (Office of Special Education Programs, 2020). Also known as emotional and behavioral disability or disorder (EBD), emotional disturbance encompasses a variety of barriers to learning, including internalizing (e.g., anxiety) and externalizing (e.g., oppositional defiant) disorders (Kauffman & Landrum, 2018). Students with EBD often struggle to regulate their emotions and behaviors (Cumming et al., 2019), requiring that their special education teachers (SETs) respond calmly and effectively to a variety of emotions and behaviors (Stark & Koslouski, 2021).

As such, teaching students with EBD is emotionally demanding, and SETs often report that working with students with challenging behavior invokes strong emotional responses (e.g., Kerr & Brown, 2016). These emotional responses include both positive and negative feelings. For example, in Prather-Jone's (2011) qualitative study of experienced SETs teaching students with EBD, SETs noted that to continue teaching students with EBD over the long term, they needed to distance themselves from negative feelings, so they did not "take it personally" when students engaged in significant negative behaviors (p. 185). Simultaneously, these same SETs explained how feeling excitement about, interest in, and love for students motivated them to stay and sustained them over time (Prather-Jones, 2011). In Stark and Koslouski's (2021) study of novice SETs, teachers described the great pride they felt in students' successes and their joy in positive interactions with students while also noting the frustration they experienced when trying to communicate with students who were emotionally dysregulated. Comparing the burnout reported by 230 SETs serving students with EBD with the burnout of the primary and secondary teacher sample reported in Maslach et al.'s (1996) Burnout Inventory handbook, Brunsting et al. (2022) found that SETs serving students with EBD not only had higher emotional exhaustion than Maslach's national sample but also had higher personal accomplishment and lower depersonalization, highlighting the complexity of their emotional experiences.

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Collectively, prior research suggests teaching students with EBD is emotionally complex (Horner et al., 2019; Kerr & Brown, 2016), encompassing both emotional challenges and rewards (Brunsting et al., 2022; Stark & Koslouski, 2021) and that teachers' emotional experiences have important consequences for themselves and their students. Research exploring the nature of teachers' emotions offers leaders and teachers important insight into the role of teachers' psychological experiences in their work.

However, much of the prior work on teachers' emotions has focused on discrete dimensions of teachers' emotional experiences (e.g., happiness, Benevene et al., 2019; anger, Burić & Frenzel, 2019). Although research on specific emotional constructs in isolation is important, data detailing the full range of a teacher's emotional experiences, in the context of their day-to-day work, is needed to understand how these experiences may inform and impact each other. In addition, research capturing variability in teachers' emotions is important for understanding the contextualized nature of teachers' emotional experiences. As Zirkel et al. (2015) note, the measurement of variability in emotion in educational settings is crucial for examining "intra-individual change and processes, placing thoughts, feelings, and behavior in highly specific contexts" (p. 8). To our knowledge, only one prior study has measured *variability* in the emotional experiences of teachers of students with EBD. Every day for 3 weeks, Koenen et al. (2019) asked 71 teachers of students with EBD in Belgium to reflect on interactions with a specific student and report the intensity with which they experienced six different negative emotions. Consistent with qualitative studies (e.g., Prather-Jones, 2011), teachers experienced low levels of negative feelings overall; teachers experienced more negative emotions when they had less experience, lower self-efficacy (i.e., beliefs about their competence), and higher depersonalization (a component of burnout; Koenen et al., 2019). However, Koenen et al.'s (2019) study did not measure teachers' positive emotional experiences. Research documenting teachers' experiences of a broader continuum of positive and negative emotions, and variability within these experiences, is necessary to better understand these teachers' emotional experiences and to inform the design of supports able to address the depth and breadth of their experiences.

One way to explore variability in emotional experiences is by measuring teachers' *momentary affect.* We use the term *affect* to broadly capture what Ben-Eliyahu (2019) calls "emotive processes" (p. 5), which may, as Gross et al. (2020) note, encompass both emotions and "moods, preferences, attitudes, value-based decisions, and stress responses" (p. 1). Affect is generally characterized along two dimensions: valence (i.e., whether a feeling is pleasant or unpleasant) and arousal (i.e., the level of activation associated with the feeling; Kuppens et al., 2012). For this analysis, we operationalize the term *momentary affect* as the intensity of a feeling in a specific context, at specific time point. Measuring a teacher's momentary affect at multiple time points allows researchers to capture the valence and intensity of SETs' emotional experiences and explore how those relate to specific professional contexts, to other psychological constructs (i.e., emotional exhaustion, self-efficacy), and their variation over time.

Understanding the nature of teachers' momentary affective experiences is essential to inform future efforts to better support these teachers' well-being so that teachers can then, in turn, more effectively support their students' social–emotional well-being (Brunsting et al., 2022). Thus, in this exploratory study, we address the following research questions:

> **Research Question 1:** What is the nature of momentary affect among teachers of students with EBD, and how does it relate to other momentary psychological appraisals (*stress*, feeling *overwhelmed*, feeling *successful*, feeling *skilled*, and engaging in an activity they perceived as *important*)?
> **Research Question 2:** How are teachers' momentary affective experiences associated with the activities in which they are presently engaged?

We focus on self-contained settings for students with EBD. These settings are part of the continuum of least restrictive environments mandated by the Individuals with Disabilities Education Improvement Act (IDEA; 2004), and they serve students with the most substantial emotional needs and behavioral challenges (Lane et al., 2006), presenting their SETs with substantial emotional demands. Sustaining a strong SET workforce to serve in these settings has consistently proven challenging (e.g., Bettini et al., 2017; Billingsley, 2006; Brunsting et al., 2022), and a growing body of scholarship suggests emotional demands contribute to these challenges. In addition to the current lack of research on SETs' emotional experiences with students with EBD in general, research with this population of SETs in self-contained settings is particularly scarce.

Conceptual Foundation: Appraisals Inform Momentary Affect

We situate this study of teachers' momentary affect within the *appraisal theory of emotions* (Scherer et al., 2001). From this cognitive perspective on emotion, SETs experience momentary affect as a result of their appraisals—their perceptions and judgments of both internal and external stimuli in their environments (Scherer et al., 2001). *External stimuli* include their students' or colleagues' behavior, emotions, or communications, whereas *internal stimuli* include their own expectations and perceptions regarding what is happening and what should be happening in their classrooms

or schools, including their role in achieving these goals. For example, during an interaction with a student, a teacher's momentary affective experience may depend both on external stimuli, such as what the student does or says, as well as internal stimuli—the teachers' own internal perceptions of the interaction. These internal stimuli may include the extent to which the teacher is feeling stressed or overwhelmed as well as how important they think the interaction is or how skilled they feel in navigating it (e.g., their self-efficacy to interact with the student successfully; Tschannen-Moran & Hoy, 2001). Because affective experiences are often related to one's goals (Pekrun, 2006), when SETs experience positive affect, they have likely experienced stimuli as conducive to their goals, whereas when they experience negative affect, they may have appraised stimuli as oppositional to their goals.

Importance of Teachers' Affect

Why does teachers' momentary affect matter? Experiencing positively valenced emotions more frequently is associated with positive psychological outcomes (Lyubomirsky et al., 2005; Pressman & Cohen, 2005), whereas negatively valenced emotions may lead to burnout (Maslach et al., 1996). For example, in a study of 42 beginning special and general educators in the United States, Jones and Youngs (2012) found teachers' average daily negative affect was associated with higher burnout. Similarly, in a study of 152 German teachers, Aldrup et al. (2017) found teachers reported higher emotional exhaustion on days they felt less competent, whereas they reported higher enthusiasm on days they felt more competent or closer to students. Momentary affect may thus provide important data regarding teachers' well-being or achievement of professional goals.

Just as importantly, teachers' momentary affect has key implications for their students' success. Because one person's emotions often trigger the same emotions in those with whom they interact (Barsade, 2002; Hatfield et al., 1993), teachers' affect can set the tone for how students feel in their classes. For example, in a study of secondary Swiss classes, Becker et al. (2014) found students' perceptions of their teachers' anger and enjoyment significantly predicted students' own levels of the same emotions. In a study of middle school math teachers in Germany, Frenzel et al. (2009) found math teachers' levels of enthusiasm mediated the relationship between teachers' enjoyment and students' enjoyment (e.g., higher teacher enthusiasm facilitated transfer of teacher enjoyment to students). In a longitudinal study investigating the reciprocity of emotion among teachers and students, and the effects of teacher emotions on student engagement, Frenzel et al. (2018) found students' perceptions of teacher enthusiasm not only aligned with teachers' reports of their own enjoyment but was positively related to student enjoyment later in the school year.

Conversely, negative emotions may also transfer. In studies of high schools in Hong Kong, researchers found that teachers' levels of nervousness were associated with students' levels of nervousness, irritability, and motivation (Poon et al., 2019) and that when students believed their teacher was bored, their own boredom increased (Tam et al., 2020). Although teachers often regulate their emotional expressions to suppress negativity (Taxer & Gross, 2018), they may not always be successful. For example, Keller and Becker (2020) found that secondary students recognized when teachers were enacting authentic emotions, and when they were not.

Given the evidence of transfer among teachers' emotional experiences and those of their students, as well as the role of teacher emotions in the sustainability of their careers, understanding the nature of teachers' momentary affective experiences has important implications for teachers' professional success and their students' experiences. However, to our knowledge, no study has yet documented the intensity, frequency, and variability of SETs' momentary affective experiences. Our study addresses this gap in the literature by examining the nature of SETs' momentary affect. Furthermore, our study provides unique insights into SETs' experiences by linking their momentary affect to the professional activity contexts in which they occur, including *what* they are doing and their appraisals of those activities (e.g., how important the activity is, how skilled and successful they feel while completing the activity, how stressful or overwhelming or the activity feels to them in that moment). We hypothesize that these activity contexts, as well as teachers' appraisals of these activity contexts, inform the valence and intensity of teachers' momentary affect—we explore such relations as described below.

Method

We examined SETs' momentary affect using the Experience Sampling Method (ESM), a survey method in which participants are audibly reminded to complete the same, very brief, survey multiple times, often at predetermined intervals (Larson & Csikszentmihalyi, 2014). ESM allows researchers to document teachers' momentary affective and emotional experiences in the classroom (e.g., Becker et al., 2014; Carson, 2006, 2010; Jones & Youngs, 2012; Keller et al., 2014; Martínez-Sierra et al., 2019). ESM methodology helps to reduce recall bias, provides data regarding intraindividual variability in emotional experiences, and demonstrates relationships between activity contexts and emotions (Carson et al., 2010; Zirkel et al., 2015).

Participants

Participants were drawn from a sample of 22 teachers of students with EBD participating in a mixed-methods study, funded

Table 1. Participants and Data Collection for Study of Special Education Teachers' Momentary Affect.

Teacher	Year of data collection	Years of experience	Race/ethnicity	Gender	Days of data collection	Total surveys completed	Response rate
Aliyah	2	2	Hispanic/Latina	F	6	17	18%
Audre	2	5	White	F	5	27	34%
Carla	1	2	White	F	10	89	56%
Ellie	2	8	White	F	4	24	38%
Eve	1	5	White	F	6	22	23%
Fiona	1	5	White	F	10	75	47%
Gretta	1	17	White	F	10	95	59%
Hannah	1	14	White	F	4	28	44%
Harriet	1	5	White	F	10	81	51%
Judy	1	15	White	F	10	75	47%
Kim	2	42	White	F	7	20	18%
Lisa	2	8	White	F	6	59	61%
Zora	2	8	White	F	5	54	68%

by the Institute of Education Sciences regarding the relationship between elementary SETs' working conditions and reading instruction, led by the second author. District special education administrators provided us with contact information for elementary SETs teaching students with EBD; we contacted SETs by email and phone to invite participation. Participating SETs were paid a US $100 honorarium. To ensure sufficient data were collected per SET to accurately represent their experiences and capture variability, we followed the tradition of previous ESM researchers (e.g., Van Berkel et al., 2017) and only included teachers in this analysis if they participated in 3 or more days of ESM survey data collection. This yielded an analytic sample, for this analysis, of 14 teachers. Most of the eight excluded SETs participated during the 2019–2020 school year, when schedules were significantly impacted, as data collection halted when schools shut down due to the COVID-19 pandemic. Of the SETs included in the sample, we collected data for seven SETs in Year 1 (2018–2019) and for the remaining seven SETs in Year 2 (2019–2020).

As shown in Table 1, at the time of data collection, all participants served elementary students with EBD in self-contained classes in neighborhood schools in nine districts across five states. Thirteen SETs identified as White women and one identified as a Latina woman. They averaged 10 years of teaching experience (range: 2–42 yrs). As shown in Table 2, SETs' spring scores for self-efficacy, stress, and emotional exhaustion (e.g., their scores *after* ESM data collection was complete) reflected moderate to high levels of emotional exhaustion and stress.

Instrumentation

As part of the larger study, SETs completed a separate survey that included demographic questions and questions about their overall stress, emotional exhaustion, and self-efficacy. To assess stress, we adapted items from O'Brien et al.'s (2019) instrument, which they developed with support from cognitive interviews and an expert review panel. Items asked SETs to indicate how stressed they felt by aspects of their work (e.g., *responding to inappropriate behavior, supporting paraprofessionals*). We created a stress score for each SET by summing responses (Cronbach's $\alpha = 0.816$). SETs responded to 5 items regarding emotional exhaustion (e.g., *I feel emotionally drained from my work*), which we adapted from the Michigan and Indiana Early Career Study (Jones & Youngs, 2012) and which demonstrated strong psychometric properties (e.g., model fit, strong loadings) in prior studies (Bettini, Cumming et al., 2020). We summed items to create an emotional exhaustion score for each SET (Cronbach's $\alpha = .877$).

To collect data on teachers' momentary affect, all teachers participated in interval-contingent surveys using ESM (i.e., they completed surveys of their experiences within intervals predetermined by the researcher; Zirkel et al., 2015). SETs first selected their primary activity from a list of 12 activities. Activities were the same as those validated by Vannest and Hagan-Burke (2010) in a comprehensive study of teachers' activities. Please see the online supplemental materials for the ESM instrument. Teachers then responded to items regarding their momentary affect and perceptions of their professional experiences. We measured the valence and activation of SETs' momentary affect using Mackinnon et al.'s (1999) 10-item short form version of the Positive and Negative Affect Scale (PANAS; Watson et al., 1988). The short form PANAS demonstrates a two-factor structure in confirmatory factor analysis, with one factor representing positive affect (PA) and the second representing negative affect (NA); these Likert-type-style item begin with the stem, "*For each of the following feelings, please indicate to what extent you did or did not feel this way while*

Table 2. Descriptive Statistics for SETs' Responses to Survey Items.

Survey	*M*	Median	*SD*	Reported range
Experience sampling ($n = 710$)				
Positive and negative affect				
Positive Affect	8.47	8	4.86	0–20
Alert	2.40	3	1.34	0–4
Enthusiastic	1.40	1	1.41	0–4
Excited	0.88	0	1.26	0–4
Inspired	1.48	1	1.36	0–4
Determined	2.31	2	1.31	0–4
Negative affect	1.97	1	2.86	0–18
Scared	0.15	0	0.49	0–4
Afraid	0.20	0	0.57	0–4
Upset	0.49	0	0.85	0–4
Nervous	0.50	0	0.90	0–4
Distressed	0.63	0	0.97	0–4
Additional momentary appraisals				
Did you feel skilled in the activity?	3.09	3	0.91	0–4
Was the activity important to you?	3.04	3	1.00	0–4
To what extent were you succeeding at what you were doing?	2.83	3	1.04	0–4
To what extent did you feel stressed during the activity?	1.38	1	1.20	0–4
To what extent did you feel overwhelmed during the activity?	1.17	1	1.20	0–4
One-time ($n = 14$)				
Overall stress	46.57	44.5	8.75	33–64
Overall self-efficacy	46.64	47	5.90	40–57
Overall emotional exhaustion	19.50	20	4.05	12–25

Note. SETs = special education teachers.

engaged in the activity" (Mackinnon et al., 1999). We calculated PA by adding SETs' scores for the 5 positive items: inspired, enthusiastic, alert, excited, and determined. We calculated NA as the sum of SETs' scores for the five negative feelings items; afraid, upset, nervous, scared, and distressed. We also included 5 additional items capturing other psychological appraisals. Participants rated the extent to which they were experiencing *stress*, feeling *overwhelmed*, feeling *successful*, feeling *skilled*, and engaging in an activity they perceived as *important*. In pilot testing, participants reported that completing the ESM survey took less than 1 min.

Data Collection

A tension common to all interval-contingent ESM research is identifying an appropriate data collection window (e.g., number of days) and interval (e.g., frequency of survey prompts per day) such that sufficient data are collected to provide a complete sample of participants' experiences without exhausting them (Zirkel et al., 2015). Due to variability in teachers' time use (Vannest & Hagan-Burke, 2010) and emotions (Brunsting et al., 2022) over the school year and across days of the week, we aimed to collect data on 10 school days for each SET, spread evenly across days of the week and semesters of the year. We therefore randomly selected one Monday, Tuesday, Wednesday, Thursday, and Friday in fall and one of each in spring (i.e., 5 days in fall and 5 in spring). Note, these days were not identical across all SETs, as some SETs had unique scheduling conflicts, such that different days had to be scheduled for them to participate; when we could not collect data on the first randomly selected day, we randomly selected a replacement day (representing the same day of the week) from the remaining school days in that semester. For example, if the randomly selected Monday in fall coincided with a professional development day for a SET, then we randomly selected another Monday in fall. In spring 2020, we ceased data collection when schools closed due to COVID-19, resulting in underrepresentation of the latter part of the spring semester for SETs participating in the school year 2019–2020. Although all SETs had the opportunity to participate in up to 10 days of data collection, the number of days on which SETs submitted complete surveys ranged from 4-10 days.

Table 3. Correlations Among Positive Affect, Negative Affect, and Overall Emotions.

	Mean positive affect	Mean negative affect	Emotional exhaustion	Self-efficacy	Stress
Mean positive affect	1.000	—			
Mean negative affect	−0.297	1.000	—		
Emotional exhaustion	−0.440	0.121	1.000	—	
Self-efficacy	0.559*	−0.524	−0.439	1.000	—
Stress	−0.174	0.694**	0.119	−0.703**	1.000

Note. $n = 14$. Mean positive affect and mean negative affect scores are within-teacher averages.
$^{\dagger}p < .10$. $^{**}p < .01$. $^{*}p < .05$.

We signaled participants to complete the ESM survey using text messages to their phones 16 times per day of data collection. We programmed Qualtrics to text them the ESM survey at a random point within each 30-min interval between 8:00 a.m. and 4:00 p.m. We selected a 30-min interval to have sufficient data to draw conclusions about individual teachers' affect and variability in their affect across activities, without overwhelming them with data collection; prior studies (e.g., Bettini et al., 2015) indicated this frequency of data collection was feasible. In the tradition of prior ESM research (e.g., Bassi & Fave, 2012), we only analyzed surveys completed within 15 min of the signal to reduce recall bias; we also removed surveys in which SETs did not respond to items regarding their momentary affect. Table 2 displays unweighted descriptive results for the whole sample; in total, we received 710 ESM survey responses. Across all participants, the mean number of responses in a day was 8.07, the median is 9, and the range is from 1 to 15.

In Table 3, we present correlations between SETs' mean momentary affect and overall affect, which were correlated in expected directions. Mean PA has a positive relationship with self-efficacy and negative relationship with emotional exhaustion and stress. Mean NA has a positive relationship with stress and a negative relationship with self-efficacy. These correlations establish the predictive validity of PA and NA measures and affirm the importance of teachers' momentary affective experiences as a key aspect of their psychological experiences of their work.

Data Analysis

Frequency, intensity, and variability of teachers' momentary affective experiences. To address the first research question, we examined the frequency (i.e., how often the feeling is experienced; Hernández et al., 2015) and intensity (i.e., mean score) of the discrete feelings comprising the PANAS. We explored how frequently SETs experienced positive affect, negative affect, and each of the 10 feelings that comprise PA and NA scales, by calculating the percentage of time points in which each SET reported a non-zero level of each emotion. Next, because emotional intensity may be related to aspects of burnout (Carson, 2006; Fiorilli et al., 2015), we explored the intensity of SETs' momentary emotions by finding the mean level of each discrete feeling, when the SET reported a non-zero level of the feeling. Finally, we conducted variance decompositions of PA and NA by fitting unconditional multilevel models with teacher random intercepts. This allows us to examine the proportion of variance in PA and NA explained by (a) variation within individual SETs across time points and (b) variation across SETs. Such modeling was appropriate, as time points were nested within SETs (Snijders & Bosker, 2012). For PA, we specified the unconditional (time points within-persons) model as:

$$\begin{aligned} \text{L1}: PA_{ij} &= \beta_{0j} + e_{ij} \\ \text{L2}: \beta_{0j} &= \gamma_{00} + u_{0j}, \end{aligned} \tag{1}$$

where PA_{ij} is teacher j's momentary positive affect at time point i, β_{0j} is the intercept for teacher j, e_{ij} is the time point residual, γ_{00} is the overall intercept, and u_{0j} is teacher j's departure from the overall intercept. We fit an analogous model for negative affect.

Professional activities and teachers' momentary affect. To address our second research question, we examined a series of regression models to explore the relationship between teachers' activities and their relative positive affect, represented as:

$$PA^{*}_{jt} = \boldsymbol{Activity}_{jt}\beta + \boldsymbol{Ratings}_{jt}\gamma + \alpha_j + \varepsilon_{jt}, \tag{2}$$

where PA^{*}_{jt} is teacher j's relative PA at time point t, standardized within teacher to have a mean of 0 and unit standard deviation. In our models, $\boldsymbol{Activity}_{jt}$ represents a vector of indicator variables that corresponds to teacher j's activity at time t. We used *personal time* as a reference category, as that would be most neutral and unrelated to teachers' professional emotions. $\boldsymbol{Ratings}_{jt}$ represents a vector that includes teacher j's ratings at time t of their skill in the activity, the activity's importance, and the extents to which teacher j felt momentarily successful, stressed, and overwhelmed during the activity; these ratings are also standardized within teacher to have a mean of 0 and unit standard deviation. α_j represents teacher fixed effects. The inclusion of teacher

	Discrete Emotions									
	Determined	Alert	Inspired	Enthusiastic	Excited	Afraid	Distressed	Nervous	Scared	Upset
Alana	98% 2.3	86% 2.5	61% 1.9	41% 1.9	39% 1.4	30% 1.8	64% 2.2	57% 1.6	34% 1.7	64% 1.7
Aliyah	59% 3.4	82% 3.6	59% 3.2	59% 3.5	29% 2.2	0% N/A	53% 1.4	6% 1.0	0% N/A	6% 1.0
Audre	41% 2.0	48% 2.4	15% 1.3	0% N/A	4% 1.0	19% 1.2	15% 2.3	41% 1.8	19% 1.4	26% 2.3
Carla	90% 3.1	89% 3.0	91% 2.7	84% 2.6	11% 1.1	9% 1.3	19% 2.1	72% 2.2	3% 1.0	11% 1.7
Ellie	12% 1.7	35% 2.6	37% 1.6	4% 2.0	0% N/A	4% 1.0	25% 1.0	12% 1.0	4% 1.0	75% 1.4
Eve	64% 2.8	36% 2.5	23% 2.2	14% 2.0	5% 2.0	0% N/A	14% 2.3	5% 3.0	0% N/A	5% 1.0
Fiona	99% 3.4	97% 3.6	39% 2.2	71% 2.5	40% 2.2	1% 1.0	20% 1.1	5% 1.3	0% N/A	0% N/A
Gretta	93% 3.3	99% 3.5	91% 3.1	83% 3.0	84% 3.0	1% 4.0	8% 1.5	3% 1.3	1% 2.0	2% 2.0
Hannah	100% 3.9	21% 2.8	21% 3.5	32% 3.2	4% 2.0	0% N/A	29% 1.5	4% 1.0	0% N/A	4% 1.0
Harriet	91% 1.6	100% 1.9	94% 1.5	63% 1.3	48% 1.3	73% 1.5	96% 1.8	88% 1.6	60% 1.3	75% 1.2
Judy	99% 2.1	95% 2.1	20% 1.3	20% 1.4	12% 1.4	1% 1.0	84% 1.7	4% 1.7	0% N/A	65% 1.6
Kim	75% 2.7	90% 2.6	80% 2.3	65% 2.2	40% 2.3	5% 1.0	25% 1.4	0% N/A	0% N/A	40% 1.5
Lisa	76% 2.5	92% 2.4	78% 2.3	81% 2.5	72% 2.6	7% 1.3	15% 1.8	14% 2.1	3% 1.5	24% 1.9
Zora	91% 2.5	91% 2.9	82% 2.3	85% 2.1	78% 1.9	0% N/A	7% 1.0	4% 1.0	2% 3.0	28% 1.3
Sample Mean	86% 2.7	86% 2.8	64% 2.3	59% 2.4	40% 2.2	13% 1.5	36% 1.7	28% 1.8	11% 1.4	30% 1.6

Figure 1. Momentary emotions by percentage of time points experienced and mean intensity.
Note. The first row of each cell indicates the percentage of time points in which SETs reported experiencing any non-zero intensity of that emotion. The second row of each cell indicates the average intensity at which the emotion was experienced if experienced at all. Thus, if teachers did not report experiencing the emotion at any time point, we did not report a mean intensity for the emotion for that teacher. Intensity ranges from 1 to 4 and is shaded according to quartile, with higher intensities shaded a darker color.

fixed effects implies that we use only within-teacher variation to examine the relationships between activities and positive affect; teachers are compared with themselves at other time points. The error term is represented by u_{jt} and robust standard errors are clustered at the teacher level. We also fit an analogous model for negative affect.

Results

Frequency, Intensity, and Variability of Teachers' Momentary Affective Experiences

Most SETs experienced positive feelings more frequently than negative feelings. As shown in Figure 1, all SETs experienced feelings signifying high arousal and positive valence (alert, determined) most often and feelings signifying negative valence and high arousal least often (scared, afraid). Some SETs reported experiencing almost all 10 feelings in almost all moments (e.g., Alana, Harriett), while others reported experiencing most feelings infrequently (e.g., Ellie, Eve). As shown by the mean intensities in Figure 1, many of the feelings experienced infrequently were also experienced at low intensities (e.g., afraid, scared). Across the sample, SETs experienced relatively high intensities of positively valenced, high-arousal feelings (e.g., alert, determined), and low intensities of negatively valenced, high-arousal feelings (e.g., scared).

Next, we examine the results of variance decompositions. We find most variation in positive affect and negative affect can be attributed to variation within individual SETs (i.e., variation across time points). As shown in Table 4, more than half of the total variation in PA (51.6%) is within

Table 4. Variance Decompositions of PANAS Items and Momentary Appraisals.

	Panel A: positive items					
Measure	Alert	Excited	Enthusiastic	Determined	Inspired	PA
Constant	2.116***(0.244)	0.712***(0.198)	1.216***(0.220)	2.134*** (0.247)	1.308*** (0.211)	7.474*** (0.917)
SD of Teacher Random Effects (Between Teachers)	0.896 (0.176)	0.722 (0.141)	0.800 (0.159)	0.907 (0.178)	0.768 (0.152)	3.382 (0.657)
SD of Residuals (Within Teachers)	1.040 (0.028)	0.958 (0.026)	1.159 (0.031)	1.035 (0.028)	1.083 (0.029)	3.493 (0.094)
Proportion of Variance at Teacher-level (Between)	.426	.363	.323	.435	.334	0.484
	Panel B: negative items					
	Scared	Afraid	Upset	Nervous	Distressed	NA
Constant	0.134* (0.066)	0.160* (0.081)	0.488*** (0.118)	0.398** (0.142)	0.579*** (0.141)	1.755*** (0.453)
SD of Teacher Random Effects (Between Teachers)	0.236 (0.047)	0.292 (0.057)	0.426 (0.086)	0.518 (0.101)	0.511 (0.100)	1.656 (0.323)
SD of Residuals (Within Teachers)	0.416 (0.011)	0.452 (0.012)	0.725 (0.019)	0.676 (0.018)	0.778 (0.021)	2.156 (0.058)
Proportion of Variance at Teacher-level (Between)	.244	.295	.257	0.370	.301	0.371
n	710					
	Panel C: additional momentary appraisals					
	Skilled	Important	Successful	Stressed	Overwhelmed	
Constant	3.124*** (0.139)	3.030*** (0.136)	2.824*** (0.148)	1.419*** (0.180)	1.146*** (0.170)	
SD of Teacher Random Effects (Between Teachers)	0.508 (0.100)	0.490 (0.099)	0.537 (0.106)	0.656 (0.130)	0.615 (0.123)	
SD of Residuals (Within Teachers)	0.727 (0.019)	0.855 (0.023)	0.846 (0.023)	0.959 (0.026)	1.003 (0.027)	
Proportion of Variance at Teacher-level (Between)	.328	.247	.287	.319	.273	
n	710	710	710	703	709	

Note. Standard errors are in parentheses. Teacher random effects in all models are statistically significant ($p < .001$) based on likelihood ratio tests. PANAS = positive and negative affect scale; PA = positive affect; NA = negative effect.
*$p < .05$. **$p < .01$. ***$p < .001$.

SETs across time points, and almost two-thirds of the total variation in NA is attributable to variation within SETs across time points (62.9%). These variance decompositions highlight the dynamic nature of SETs' affective experiences and further highlight the importance of understanding potential drivers of variation in individual SETs' momentary affect.

Professional Activities and Teachers' Momentary Affect

We then used within-teacher variation to examine the relationships between SETs' professional activities and their relative positive affect and negative affect. Table 5 presents results from our estimation of Equation 2. As shown in Table 5, Column 1, relative to the omitted activity category of *personal time*, we found a marginally significant relationship between engaging in academic instructional activities and positive affect ($\beta = 0.503, p = .077$). We also observed sizable, positively signed, although statistically insignificant, associations between PA and assessing students learning or behavior and Individualized Education Program meetings.

As shown in Table 5, Column 2, we then examined the relationship between SETs' professional activities after accounting for their ratings of their level of skill and success during the activity, the importance of the activity, experience of stress, and feelings of being overwhelmed. That is, we separated out variation in PA explained by these perceptions by including them as control variables in our regression. We found that engaging in academic instruction was significantly associated with higher PA ($\beta = .840$, $p = .002$). Other

Table 5. Relationship Between Affect and Activities.

	Positive affect		Negative affect	
Activity	(1)	(2)	(3)	(4)
Academic Instruction	0.503† (0.262)	0.840** (0.214)	0.147 (0.123)	−0.131 (0.107)
Non-academic Instruction	0.279 (0.298)	0.562* (0.235)	−0.264 (0.166)	−0.262 (0.157)
Instructional Supervision	0.099 (0.247)	0.387† (0.188)	−0.082 (0.128)	−0.218 (0.133)
Discipline	−0.245 (0.283)	0.359 (0.213)	1.742*** (0.281)	0.945* (0.317)
Supervising students	0.107 (0.249)	0.458* (0.192)	0.148 (0.153)	−0.067 (0.142)
Assessing students learning or behavior	0.477 (0.299)	0.789** (0.232)	−0.002 (0.203)	−0.202 (0.122)
IEP Meeting	0.758 (0.835)	0.693 (0.660)	−0.785† (0.388)	−0.457 (0.563)
Paperwork	−0.279 (0.254)	0.128 (0.185)	0.278 (0.186)	−0.337† (0.174)
Consultation/Collaboration with Others	0.125 (0.351)	0.205 (0.257)	−0.035 (0.211)	−0.137 (0.164)
Planning and Preparation	0.205 (0.332)	0.443† (0.242)	−0.135 (0.145)	−0.379* (0.127)
Other	−0.391 (0.293)	0.185 (0.239)	0.354 (0.210)	−0.084 (0.153)
Supervising staff	−0.302 (0.231)	0.041 (0.226)	0.175 (0.277)	0.010 (0.213)
Skilled		0.019 (0.063)		0.069 (0.045)
Important		0.209*** (0.041)		−0.010 (0.070)
Successful		0.230*** (0.051)		−0.163*** (0.034)
Stressed		−0.109† (0.052)		0.323*** (0.067)
Overwhelmed		−0.065 (0.068)		0.167* (0.059)
n	701	701	701	701

Note. Robust standard errors clustered at the teacher-level reported in parentheses. Outcome measures and momentary appraisals have been standardized within teacher to have a mean of zero and unit standard deviation. Each model includes teacher fixed effects. The omitted activity category in all models is personal time. IEP = Individualized Education Program.
†$p < .10$. ***$p < .001$. **$p < .01$. *$p < .05$.

activities that involved interacting with students were also associated with higher PA, including assessing students' learning or behavior ($\beta = .789$ $p = .005$), nonacademic instruction ($\beta = .562$, $p = .032$), and supervising students in non-instructional time ($\beta = .458$ $p = .033$). In other words, holding constant SETs' perceptions of skill, importance, success, stress, and feeling overwhelmed, we found that SETs had higher PA when engaged in non-disciplinary interactions with students.

In Table 5, Column 3, we examined the relationship between SETs' activities and relative NA. We found that engaging in discipline activities was associated with a very large increase in NA ($\beta = 1.742$, $p < .001$). After controlling for SETs' ratings of skill, importance, success, stress, and experience of being overwhelmed in Column 4, the magnitude of the coefficient for discipline decreased substantially, suggesting that SETs' ratings of these experiences partially mediated the relationship between engaging in discipline and NA. However, the coefficient on discipline remained quite large and statistically significant. Holding SETs' perceptions of skill, importance, success, stress, and experience of being overwhelmed constant, engaging in discipline activities was associated with 0.95 standard deviations higher NA relative to personal time ($p = .011$). Engaging in planning and preparation activities was also associated with lower NA ($\beta = -0.379$, $p = .010$) after controlling for SETs' ratings.

In addition, our results, as shown in Table 5, Column 2 and Column 4 signal the importance of SETs' ratings of importance, success, stress, and experience of being overwhelmed for their PA and NA. SETs' appraisals of the extent to which they felt the activity was important were significantly associated with PA ($\beta = .209$, $p < .001$), as were their perceptions of the extent to which they were successful in engaging in the activity ($\beta = .230$, $p = .001$). SETs also experienced higher NA when they felt more stressed ($\beta = .323$, $p < .001$) and overwhelmed ($\beta = .167$, $p = .015$), and lower NA when they felt more successful ($\beta = -.163$, $p < .001$).

Discussion

Teachers' affective experiences are a crucial aspect of their work with students (e.g., Frenzel et al., 2018; Tam et al., 2020; Taxer & Gross, 2018), and teaching students with EBD is especially emotionally demanding (e.g., Brunsting et al., 2022; Kerr & Brown, 2016; Koenen et al., 2019). We explored the affective experiences of 14 SETs teaching students with EBD in self-contained settings to better understand the nuances of this important dimension of their work.

Although these SETs were experiencing emotional exhaustion and perceived their work as stressful, their momentary affective experiences were overwhelmingly positive. With one exception, teachers reported experiencing negatively valenced feelings very infrequently, and they reported experiencing positively valenced feelings more intensely and frequently. In addition, most SETs experienced high emotional arousal, signifying that, on a momentary basis, they were highly engaged in their work. These findings align with those of prior qualitative studies, which demonstrated that many SETs of students with EBD experienced positive emotions about their work (e.g., Prather-Jones, 2011). Teaching is purpose-driven work: this positive affect may be a signal that SETs continue to find purpose and meet their goals in the work, even if it is emotionally challenging.

We also examined how different activities were associated with SETs' momentary affect. Consistent with prior research (e.g., Jones et al., 2021; Koenen et al., 2019), we found that SETs felt most positive during instruction and other activities that involved engaging with students (e.g., assessment, supervising students in non-instructional time) and during activities in which they felt successful. Previous ESM research has demonstrated that students' ratings of the value of academic activity or their control over the outcomes of that activity are associated with momentary emotions (Bieg et al., 2013); findings from our exploratory study suggest that this principle may also be true of teachers. It is likely that teachers highly value these types of student interactions and feel a sense of control over their experiences during these activities.

By contrast, SETs in our sample felt higher negative affect during discipline. This is consistent with prior qualitative research indicating that addressing behavior is one of the most emotionally challenging aspects of teachers' jobs (Stark & Koslouski, 2021), and it aligns with prior work indicating that, when teachers perceive their students as having more significant behaviors, they may experience more negative job outcomes (e.g., attrition; e.g., Bettini, Gilmour et al., 2020; Feng, 2009). Experiencing intense negative affect may require teachers to engage in more emotional labor (Yin et al., 2019) and spend precious emotional resources regulating these emotions. Yet results also suggest that feeling stressed and feeling overwhelmed, as well as perceptions of success, may partially mediate the association between engaging in discipline and negative affect. Thus, one way to reduce the emotional costs of disciplinary actions may be to increase teachers' self-efficacy in managing students' behavior, such as by providing additional professional learning and practice opportunities to increase their skills.

Limitations

Our results were shaped by our decisions regarding our constructs, measurement, design, and sample (Podsakoff et al., 2019). Given the exploratory nature of our analysis, we deliberately focused on a small sample, to collect more intensive data from each SET and attend to intraindividual differences in momentary affect, but the small sample limited our ability to draw generalizable inferences. Relatedly, our female and primarily White sample did not allow us to attend to differences in SETs' emotional experiences associated with their sociocultural identities (e.g., Hall, 2019).

Because SETs were asked to respond at frequent intervals, there was substantial missing data. This aligns with prior ESM studies but suggests aspects of SETs' affective experiences may not have been captured; this absence may have influenced the findings. Like all self-report data, our study was also limited by a potential social desirability bias. Given professional norms suggesting teachers "should" feel and express positive emotions and hide negative emotions (Yin et al., 2019), SETs may have avoided reporting negative feelings or reported them at lower intensities than were actually experienced. We suspect that participation and response rates themselves reflected, in part, teachers' affective experiences at work, and did several checks to understand the nature of the missing data. We hypothesize that SETs who were more emotionally exhausted or who were experiencing less positive affect may have had less resources available with which to engage in a research study. To test this, we examined associations between each teachers' overall level of emotional exhaustion, the overall number of surveys they completed, the number of days the teacher participated in the data collection, and the teachers' average rate of response on those days. We found that there was in fact a negative correlation between overall emotional exhaustion and (a) the overall number of surveys a teacher completed, (b) the number of days the teacher participated in data collection, and (c) the teacher's average rate of response across days. In addition, the number of days a teacher participated in data collection was significantly related to their overall mean PA. Furthermore, we found a positive correlation between the number of surveys completed within a day and the mean PA within a day. Thus, while our data captured a broader spectrum of affective valences and intensities than most previous research among this population of teachers, it might not have captured the most negative feelings; our findings may therefore be biased toward more positive emotions. In addition, because not all teachers reported all activities, we do not have robust data from all teachers for all professional activities. Yet given the magnitude of the associations that we found between negative affect and activities based on the negative feelings we did capture, we suspect that had we captured more negative feelings, our findings would have been even more significant. In future research, scholars should consider increased incentives for responses to ESM surveys. They might also consider testing for negative affect or emotional exhaustion or daily by asking teachers to complete a

brief end-of-day survey, which would help confirm the nature of that day's missing data.

Implications for Research

Future studies should address the limitations of the present study. Scholars should examine affective experiences among a larger, representative pool of SETs and disaggregate to explore how results may vary for teachers with minoritized identities. Such research would provide key insights into the extent to which momentary affective experiences may vary based on teachers' identities. In addition, a different sample of SETs would provide important insight into the experiences of SETs in other settings, such as co-teachers in general education classrooms. Some of our findings may be specific to the types of relationships and interactions experienced in a self-contained setting because many students with EBD receive services in general education, their teachers' affective experiences in these settings should also be explored. Future research should also address high rates of non-response to the ESM by either (a) creating an incentive for higher response rates or (b) allowing teachers to respond to only the most crucial questions during time points when responding is especially challenging.

Overall, our study points to several key areas for future research. First, our exploratory findings suggest that reducing SETs' experiences of negative discrete feelings may not actually be the most direct pathway to reducing burnout, as SETs already experience relatively low levels of negatively valenced feelings and high levels of positively valenced feelings overall. Instead, interventions might focus on how teachers handle the variability in their emotional experiences. Researchers might consider interventions to improve teachers' psychological flexibility—the ability to adapt, balance, and shift emotional appraisals—which is positively associated with a variety of positive outcomes (Kashdan & Rottenberg, 2010). While much of the prior research on emotional regulation has focused on one's ability to regulate negative emotions, emerging research on the regulation of positive emotions (Du Pont et al., 2016) suggests that interventions aimed at helping teachers appropriately express the positive emotions they experience at work may also have important benefits for teachers.

Future research might also explore in more depth how different professional activities relate to specific feelings and emotions. For example, because SETs in our sample felt the most negative affect during discipline, future research might examine the specific types of feelings SETs experienced in these moments (e.g., distress vs. fear). In the future, researchers should also consider exploring how working conditions may contribute to SETs' affective experiences during student discipline. For example, future scholarship could explore whether having stronger administrative support, increased collective responsibility, or a smaller caseload is associated with SETs' negative affect during discipline. Teachers serving in self-contained settings may experience working conditions unique to this setting; future students could compare both the perceptions of working conditions and the emotional experiences of SETs across settings. To capture these data, researchers could include very brief measures of working conditions within ESM surveys, or they could include a longer measure in a survey administered separately. Such research would provide insights into how school-based supports might be changed to improve SETs' affective experiences.

Implications for School Leaders

We found that SETs serving students with EBD experienced a wide range of momentary affective experiences, but they experienced more positive feelings when they were engaged in activities that they felt were important and in which they felt successful. This finding suggests that leaders who seek to improve teachers' momentary emotional experiences might focus on improving teachers' self-efficacy. Liu et al. (2021) found that the extent to which administrators view themselves as instructional leaders (i.e., responsible for supporting teachers' delivery of instruction) was associated with teachers' self-efficacy. In addition, school leaders may be able to enhance SETs' emotional experiences by communicating the importance and value of all activities that comprise SETs' work. Effective school leaders set and implement a clear mission and vision (Daniëls et al., 2019); within this mission/vision, school leaders should take care to underscore the importance of each different type of professional activity in which teachers are expected to engage.

Given the relationship between negative affect and disciplinary activities, school leaders may also be able to enhance SETs' affective experiences by supporting SETs to manage challenging behaviors. Students with EBD in self-contained settings often engage in significant inappropriate behaviors; addressing these behaviors effectively may require collaboration among multiple professionals with relevant knowledge and skill (e.g., behavior analysts and school counselors; Mathews et al., 2021). Drawing on support from varied professionals may help SETs spend more time engaged in activities associated with positive emotions (i.e., instruction) while also providing the kinds of social support for discipline that could reduce the stress of interacting with students during significant behaviors. School leaders can also affirm the importance of SETs' interactions with students who are engaged in challenging behavior, communicating that these are important teaching opportunities and helping SETs notice improvements in student behavior over time. Treating these activities as important to students' experiences and outcomes could change how they are appraised, and thus how SETs feel while engaged in them.

Finally, SETs in our sample felt more positively when engaged in activities in which they felt successful. Providing SETs resources needed to be successful in all of their activities, including behavior management, could help improve affective responses to these activities. For example, strong curricula are essential for effective instruction (e.g., Siuty et al., 2018), ensuring SETs have the curricula they need to effectively teach their students could enhance their positive affect during instruction. Similarly, collaboration is likely to be more effective when SETs are working with colleagues who share their understanding of students' needs (Bettini et al., 2021), promoting all educators' understandings of the needs of students with EBD could improve SETs' capacity to successfully collaborate, and thereby, their affective experiences while collaborating.

Conclusion

Teaching students with EBD in self-contained settings is emotionally complex work; understanding the nature of these teachers' momentary affective experiences is crucial because these experiences shape how both teachers and their students engage in their work. We found that, despite high rates of emotional exhaustion, SETs in our sample nevertheless experienced more positive than negative feelings, especially during instruction and other interactions with students (e.g., assessment and supervision). They were more likely to experience momentary positive affect when they felt that the activity was important and when they felt successful in this activity. We also found that SETs experienced higher negative affect during activities focused on discipline and during activities that were more stressful, more overwhelming, and in which they felt less successful. Although further research is needed, findings do indicate some potential pathways through which leaders could enhance SETs' affective experiences during their work with students with EBD.

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Supplemental Material

Supplemental material for this article is available on the *Remedial and Special Education* website with the online version of this article.

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