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MOTIVATION AND SOCIAL PROCESSES

Brief Research Report: The Relationship Between College Instructor Affect and Autonomy-Supportive Teaching

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ABSTRACT

Autonomy supportive teaching practices are associated with a variety of positive student outcomes. Past research has identified various intrapersonal, interpersonal, and environmental factors that contribute to instructors' use of autonomy support. However, the extent to which instructor affect predicts changes in their use of autonomy support, as well as the reverse, has yet to be examined. In the current study, we surveyed 405 college instructors across two timepoints during the Spring 2022 semester to examine the reciprocal relationships between instructors' positive and negative affect during class and their use of autonomy support. Cross-lagged panel models suggested that instructors' use of autonomy support predicted an increase in overall positive affect during class over time, while instructors' overall positive affect in class did not predict an increase in autonomy support in class over time. Reciprocal relationships emerged for the specific affective states of feeling content and determined in class. No relationships between instructor negative affect and their use of autonomy support emerged in either direction. Results highlight the importance of examining the ways in which instructors' positive affect shape instructional behaviors and the benefits that instructors may experience when implementing autonomy support in the classroom.

KEYWORDS

Autonomy support; cross lagged panel model; instructor negative affect; instructor positive affect; structural equation modeling

According to Self-Determination Theory, autonomy (i.e., feeling as if one's actions are self-initiated and free of external control) is a basic psychological need that is essential for students' intrinsic motivation and well-being (Ryan & Deci, 2017). Instructors' use of autonomy-supportive practices has been shown to satisfy students' need for autonomy, leading to numerous academic-related benefits for students (e.g., Black & Deci, 2000; Patall & Zambrano, 2019; Reeve & Cheon, 2021). Given these benefits, research has focused on factors contributing to instructors' use of autonomy support, including intrapersonal, interpersonal, and environmental influences (e.g., Reeve & Cheon, 2016; Skinner & Belmont, 1993; Soenens et al., 2012). However, the role of instructor affect—an essential component of teaching practices—remains unexplored (e.g., Frenzel, 2014). Thus, in the current study, we examine the reciprocal relationship between instructor affect and their use of autonomy support in the classroom.

Autonomy Supportive Teaching Practices

Autonomy supportive teaching practices involve supporting students' internal motivational resources, fostering a sense of volition in their actions (Reeve & Cheon, 2021). These practices

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include behaviors such as incorporating students' interests and preferences, providing choices, accepting negative affect, using non-controlling language, and offering explanatory rationales for learning activities (Patall & Zambrano, 2019). Instructors' use of autonomy supportive practices has been consistently linked to students' experience of autonomy need satisfaction, which in turn has been linked to boosts in important outcomes like student motivation, engagement, well-being, and performance (e.g., Black & Deci, 2000; Chirkov & Ryan, 2001; Jang et al., 2012; Liu et al., 2021).

Instructor Affect

Instructor emotions are short-lived episodes that involve coordinated psychological processes. Based on a dimensional approach, emotions are often categorized by valence as positive (e.g., enjoyment) or negative (e.g., anger) affect (Pekrun & Linnenbrink-Garcia, 2014; Shuman & Scherer, 2014). Instructors commonly report experiencing positive affect like joy, satisfaction, and pride when they perceive students to be understanding the material, and affect like excitement and enthusiasm when teaching or interacting with students (Shapiro, 2010; Sutton & Wheatley, 2003). Instructors also report experiencing interest regarding the efficacy of their instructional practices and subject matter (e.g., Schiefele et al., 2013), as well as determination, dedication, and passion for student learning (e.g., Carbonneau et al., 2008; Day, 2004). Conversely, instructors commonly report experiencing negative affect like anger, frustration, and annoyance when goals are not attained in the classroom (Sutton, 2007; Sutton & Wheatley, 2003). Other commonly reported negative affective states are anxiety, burnout or emotional exhaustion, boredom, as well as guilt and sadness when students face personal difficulties (Chang, 2009; Šarić, 2015; Tam et al., 2020).

The Relationship Between Instructor Affect and Instructor Behaviors

Broaden-and-Build Theory posits that positive affect expands individuals' cognitive flexibility, attention, and action, resulting in an accumulation of biopsychosocial resources and positive outcomes over time (Fredrickson, 2001). Empirical research has supported these claims, with studies highlighting the relationship between positive affect and individuals' visual and cognitive attention in laboratory tasks (e.g., Ashby et al., 2002), creativity (Chen et al., 2016), openness to new experiences (Roehm & Roehm, 2005), and trust toward others (Dunn & Schweitzer, 2005). On the other hand, Job Demands-Resources (JD-R) Theory, a framework often used to examine instructor burnout (e.g., Bakker & Demerouti, 2017), asserts that negative affect depletes individuals' personal resources, leading to lower creativity, engagement, and overall work performance (Bakker et al., 2014). This research suggests that the adequate presence of positive affect is important for responsive, high-quality teaching, whereas negative affect hinders instructors' ability to act supportively (e.g., Frenzel et al., 2021; Harmsen et al., 2018). Past research has found robust support for the link between instructor affect and their relationship-building behaviors (e.g., Frenzel et al., 2020; Jennings et al., 2017; McLean & Connor, 2015). Moreover, some preliminary research has highlighted the relationship between instructor affect and their autonomy supportive practices. Shen et al. (2015) found that high school instructors' emotional exhaustion was negatively associated with students' perceptions of instructor autonomy support over time. Trigwell (2012) found that positive instructor affect (e.g., pride) was associated with more student-centered teaching, whereas negative instructor affect (e.g., anxiety) was associated with a more instructor-centered approach. Past research has found instructors' use of autonomy support has benefits not only for students, but for instructors' emotional well-being as well, predicting greater job satisfaction, vitality, and harmonious passion, and less emotional exhaustion via boosts in instructor-student relationships and teaching efficacy (Cheon et al., 2014, 2020).

Overall, research on the relationship between instructor affect and teaching practices is limited, with only a few affective states examined. Thus, the current study aims to further illuminate the relationship between instructor affect and instructors' teaching practices by examining the reciprocal relationships between positive and negative affect and instructors' use of autonomy supportive strategies respectively. Incorporating a discrete emotions approach, the relationship between instructors' discrete affective states and use of autonomy support is also explored as it allows for a more granular examination of the relationship between specific affective states and autonomy support. Specifically, we focus on common teacher-reported positive and negative affective states of *interest*, *determined*, *content*, *enthusiasm*, *pride*, and *happiness*, and *anger*, *nervousness, annoyance*, *boredom*, *tiredness*, and *sadness*.

The Current Study

The current study employs a short-term longitudinal, cross-lagged panel design to examine the reciprocal relationships between instructor positive and negative affect and their use of autonomy support.

Specifically, our research questions were:

1. Does positive instructor affect (as a whole and when examining each positive affective state separately) during class predict an *increase* in autonomy supportive teaching practices over time? Likewise, does instructors' use of autonomy supportive teaching practices predict an increase in positive affect over time?
2. Does negative instructor affect (as a whole and when examining each negative affective state separately) during class predict a *decrease* in autonomy supportive teaching practices over time? Likewise, does instructors' use of autonomy supportive teaching practices predict a decrease in negative affect over time?

Regarding question 1, we predicted that positive affect, both as a whole and when examining each affective state separately, would predict a positive change in autonomy support over time and that teachers' use of autonomy support would predict an increase in positive affect over time. Regarding question 2, we predicted that negative affect, both as a whole and when examining each affective state separately, would predict a decrease in instructors' use of autonomy supportive teaching practices over time. Reciprocally, we predicted that instructors' use of autonomy support would predict a decrease in negative affect over time.

Methods

Participants

Four hundred and five instructors (∼53% female; ∼74% white; 24–87 years old ($M = 49$); average teaching experience ∼14 years) at a large, private university in the Western United States completed surveys across two timepoints (one week apart) during the Spring 2022 semester. Instructors taught a variety of courses: 36% language & humanities, 19% social sciences, 12% health & medicine, 10% business/professional, 8% math, technology, & engineering, 8% natural sciences, and 7% art & design. The average class size was 37 students, with approximately 58% of participants teaching an undergraduate-level course. Due to ongoing COVID-19 accommodations, approximately 68% of instructors used a hybrid or online format.

Procedure

Participants were recruited using the university's public schedule of classes website, which lists all available courses and instructor information. Instructors received email invitations to participate in the study, with a follow-up email sent one week later if needed. Upon obtaining consent, instructors completed an online survey where they were asked to think of one course they were currently teaching and report on the extent to which they experienced various emotions over the past week during class, their use of autonomy-supportive teaching practices over the past week during class, and demographic information. Participants who completed the first survey were sent the same survey one week later. Participants who completed both surveys were sent a $5 Amazon e-gift card via email.

Measures

Instructor Positive Affective States

Overall instructor positive affect during class was measured using six items adapted from the Circumplex Model of Affect (CMA; Russell, 1980) and the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). Both the CMA and PANAS has shown adequate reliability and validity in general adult populations (e.g., Crawford & Henry, 2004; Posner et al., 2005). Participants were asked to rate the extent to which they felt the following affective states during class over the past week on a 5-point Likert scale from (1) Never to (5) Always: *enthusiastic, interested, determined, content, happy,* and *proud*.

To establish measurement invariance across timepoints, we conducted confirmatory factor analyses (CFAs) with a maximum likelihood with robust errors estimator (MLR) across Time 1 and Time 2. Model fit for a single factor positive affect scale was good and measurement invariance was established at the configural, metric, and scalar levels across time points (T1: $\alpha = .84$; T2: $\alpha = .88$) (see Supplemental Materials for details on measurement invariance tests and CFA results for all measures).

Instructor Negative Affective States

Overall instructor negative affect during class was measured using six items adapted from the CMA (Russell, 1980) and the PANAS (Watson et al., 1988). Participants were asked to rate the extent to which they felt the following affective states during class over the past week on a 5-point Likert scale from (1) Never to (5) Always: *angry, nervous, annoyed, bored, tired,* and *sad*. Model fit for a single factor negative affect scale was good and measurement invariance was established at the configural, metric, and scalar levels across time points for the six items (T1: $\alpha = .72$; T2: $\alpha = .73$).

Instructor Autonomy Support

Instructors' use of autonomy supportive teaching practices was measured using nine items adapted from the Teacher as Social Context (TASC; Belmont et al., 1988) and Learning Climate Questionnaires ("I listened to how students would like to do things;" LCQ; Williams & Deci, 1996). Adequate reliability and validity of both the TASC and LCQ have been demonstrated in pre-service teachers and college students (Black & Deci, 2000; Vansteenkiste et al., 2009). Six items from the LCQ and three items from the TASC measure were used as it allowed us to capture the multidimensional nature of autonomy support while ensuring relevance to the college instructor level. Participants were asked to rate the extent to which they engaged in autonomy-supportive teaching practices during class over the last week using a 5-point Likert scale from (1) Never to (5) Always. With two items removed, model fit for a single factor autonomy support

scale with seven items was good and measurement invariance was established at the configural, metric, and scalar levels across time points (T1: $\alpha = .75$; T2: $\alpha = .78$).

Analysis Plan

Two cross lagged panel structural equation models (SEMs) were specified to examine the reciprocal relationships between instructor positive or negative affect and their use of autonomy support. Next, twelve cross lagged panel models were specified to explore the relationships between each discrete instructor affective state, *separately,* and their use of autonomy support. Maximum likelihood estimation with robust errors was used for all models to handle missing data and to provide parameter estimates robust to non-normality and non-independent observations. All models included instructor age, sex, teaching experience, race, course format, course level, course subject, and class size as covariates.

All data and the pre-registered study design and analysis are publicly available at https://osf.io/u2gsa/. Although the initial preregistration included models for positive and negative affect with both autonomy support and controlling practices, the latter was excluded due to poor model fit. The reciprocal relationships between autonomy support and each positive and negative affective state were examined separately in exploratory models to gain a more nuanced understanding of the relationship between each affective state and autonomy-supportive teaching. See Supplemental Materials for complete list of model fit information and standardized estimates for all models.

Results

Descriptive statistics and bivariate correlations of all variables are available in Supplemental Materials. Correlations between instructor positive affect, instructor negative affect, and autonomy support were in expected directions, and with the exception of a few, most were statistically significant.

Instructor Positive Affect and Use of Autonomy Supportive Teaching Practices

The cross-lagged SEM to examine the reciprocal relationship between instructor positive affect and their use of autonomy support indicated that instructors' use of autonomy support in class at Time 1 predicted an increase in positive affect during class at Time 2 one week later ($\beta = .13$, $p = .03$), controlling for instructor and class-related covariates (see Figure 1). However, instructors' positive affect at Time 1 did not predict more autonomy support in class at Time 2.

The supplementary cross-lagged SEMs indicated that feeling enthusiastic, interested, determined, content, happy, and proud at Time 1 were all significantly related to autonomy support at Time 1 (see Figure S1 in Supplemental Materials). However, only feeling happy and interested at Time 2 were significantly related to autonomy support at Time 2. Instructors' use of autonomy support at Time 1 predicted an increase in feeling enthusiastic, interested, determined, content, happy, and proud at Time 2 respectively. However, only instructors feeling determined ($\beta = .18$, $p = .001$) and content ($\beta = .10$, $p = .03$) at Time 1 predicted significant increases in their use of autonomy support at Time 2.

Instructor Negative Affect and Use of Autonomy Supportive Teaching Practices

No significant reciprocal relationships emerged between negative affect and autonomy support across time points or within Time 2. However, autonomy support and negative affect were statistically significantly negatively related at Time 1.

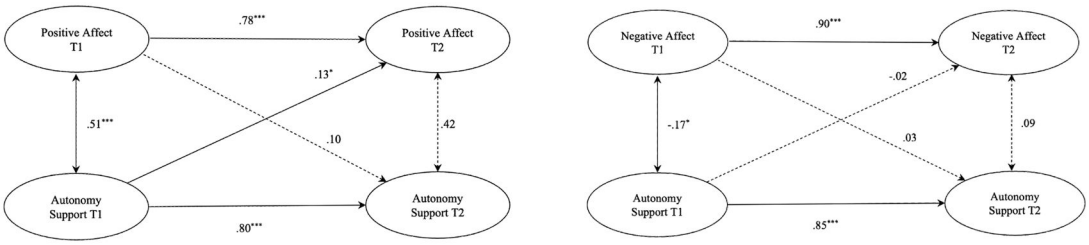

Figure 1. Instructor positive and negative affect and autonomy support cross lagged structural equation models.
Notes. Standardized estimates across Time 1 and Time 2 between autonomy support use and positive/negative affect. Solid lines depict significant relationships while dotted lines depict non-significant relationships. Class and instructor-related covariates not pictured. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

The supplementary cross-lagged SEMs indicated no statistically significant relationships between instructors feeling angry, tired, and sad, and their use of autonomy support across or within time points. Similarly, there were no statistically significant relationships with autonomy support for instructors feeling annoyed, nervous, or bored across Time 1 and Time 2 or within Time 2. However, instructors feeling annoyed, nervous, and bored were statistically significantly negatively associated with their use of autonomy support at Time 1.

Discussion

The current study utilized a short-term longitudinal design to examine the reciprocal relationships between instructor positive affect, instructor negative affect, and instructors' use of autonomy supportive strategies. Aligned with predictions, our results indicated that instructors who implemented more autonomy supportive strategies tended to experience an increase in positive affect in class the following week. Specifically, instructors experienced an increase in feeling *enthusiastic, interested, determined, content, happy,* and *proud* respectively over time. These findings support past research highlighting the ways in which instructors benefit when utilizing autonomy support (e.g., Cheon et al., 2014). We recommend that instructors incorporate autonomy supportive strategies to not only support students, but to experience boosts in their own emotional well-being.

Instructors' overall positive affect during class did not predict an increase in their use of autonomy support in class the following week. However, partially aligning with predictions, the reciprocal relationship between instructors' positive affect and their use of autonomy support were found for certain affective states. Specifically, instructors who experienced feeling *content* and *determined* during class tended to utilize more autonomy supportive strategies the following week. One possible explanation is that the positive self-appraisals (e.g., self-efficacy, self-acceptance) that accompany both affective states of content and determined may foster instructors' confidence and trust in their teaching abilities, leading to more use of autonomy supportive strategies (e.g., Fredrickson, 2001; Kirby et al., 2014). Overall, these results suggest instructors feeling content and determined during class are possible contributors of instructors' autonomy use, and instructor training programs and interventions dedicated to boosting teaching quality may benefit from focusing on increasing these affective states to support instructors' use of motivating instructional practices.

Contrary to our predictions, instructor negative affect, both overall and as separate states, did not predict less autonomy support during class the following week, nor were most negative affective states linked to autonomy support within timepoints. These findings contrast with previous research on the relationship between instructor negative affect and teaching performance (e.g., Klusmann et al., 2022). However, previous research has focused on more prolonged and complex states (e.g., burnout) (Chang, 2009; Maslach et al., 2001) while the current study examines more

temporary affective states. These divergent results highlight the importance of differentiating between temporary and prolonged negative states when examining instructor behavior in the classroom.

Further, instructors' use of autonomy supportive strategies did not predict less negative affect, both as a whole and as discrete states, over time. These findings support previous research on the emotional labor that instructors engage in to fulfill their professional responsibility of providing consistent high-quality instruction (e.g., Meyer, 2009). Moreover, while autonomy support use may induce additional positive affect beneficial for instructors' overall wellbeing, instructors' use of autonomy support may not necessarily compensate for negative affect that instructors experience as the teaching force continues to experience an increasing workload, burnout, and high rates of attrition across education levels (Madigan & Kim, 2021; Rosser & Townsend, 2006).

Limitations

A few limitations exist in the current study. First, our sample included university-level instructors at one private university in an urban setting and thus, findings may not be generalizable to instructors across diverse settings. Second, as our study focused on instructors' perceptions of their affect and teaching strategies, the potential for common method bias exists such that our findings may be overestimating the strength of these relationships. Future research might address this limitation by collecting observations and student reports of instructor autonomy support as well as using alternative measures (e.g., facial expression analysis) of instructor affect (e.g., Frenzel et al., 2021). Third, we collected data at only two timepoints, limiting our ability to utilize random-intercept cross-lagged panel models to separate within-person and between-person effects. Thus, our findings speak to between-teacher differences across time, and not within-person changes over time. Further, as we collected short-term data at one week apart, this brief time interval resulted in large stable individual differences in our models (as evidenced by the high autoregressive effects within variables across time), making it difficult for cross-lagged effects to emerge as significant. Thus, our findings may not adequately capture all dynamic changes in affect and supportive teaching. Future research should attempt to collect and analyze data at three or more timepoints (both at shorter and longer intervals) to allow for the separation of within-person and between-person effects and more accurate parameter estimates of the relationships between instructor affect in class and their use of need-supportive practices. Finally, given the exploratory nature of our analyses of discrete affective states, it is important to approach these findings with caution, as they could be due to chance. These results should be viewed as a foundation for future research rather than definitive conclusions, and should be tested and replicated to ensure validity of our findings.

Conclusion

Overall, our findings emphasize the need to investigate the impact of affect on instructional practices separately, as each affective state, regardless of shared valence, is made up of particular cognitive, affective, and motivational components that may or may not translate to instructors' use of autonomy-supportive strategies. Our research has implications for practitioners, administrators, and education leaders who want to better understand the underlying emotional processes that lead to higher quality teaching practices, as well as the emotional outcomes associated with instructors' use of need-supportive behaviors. Utilizing this information in ongoing instructor training and support may better motivate and sustain instructors to utilize autonomy supportive strategies. Further, our findings may allude to specific intervention points by which instructors can utilize emotion regulation strategies and improve instructional practices.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

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Data Availability Statement

All data have been made publicly available and can be accessed via the Open Science Framework. This study's design and its analysis were pre-registered and can be found at https://osf.io/u2gsa/.

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